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DESCRIPTION

Description

[0001] The present disclosure relates to a method, performed in an accessory device of an ostomy system.

Brief Description of the Drawings

[0002] The accompanying drawings are included to provide a further understanding of embodiments and are incorporated into and a part of this specification. The drawings illustrate embodiments and together with the description serve to explain principles of embodiments. Other embodiments and many of the intended advantages of embodiments will be readily appreciated as they become better understood by reference to the following detailed description. The elements of the drawings are not necessarily to scale relative to each other. Like reference numerals designate corresponding similar parts.

Fig. 1 illustrates an exemplary ostomy system,

Fig. 2 illustrates an exemplary monitor device of the ostomy system,

Fig. 3 is an exploded view of a base plate of an ostomy appliance,

Fig. 4 is an exploded view of an exemplary electrode assembly,

Fig. 5 is a proximal view of parts of a base plate,

Fig. 6 is a distal view of an exemplary electrode configuration,

Fig. 7 is a distal view of an exemplary masking element,

Fig. 8 is a distal view of an exemplary first adhesive layer,

Fig. 9 is a proximal view of the first adhesive layer of Fig. 8,

Fig. 10 is a distal view of a part of the base plate including monitor interface,

Figs. 11a-b illustrate an exemplary method of communicating the future operating state according to the present disclosure,

Fig. 12 illustrates an exemplary accessory device according to the present disclosure,

Fig. 13a-d are exemplary user interfaces displayed on an exemplary accessory device for communication of the one or more future operating states related to a base plate of an ostomy

appliance according to this disclosure

Fig. 14 is an exemplary graphical representation of parameter data as a function of time,

Fig. 15 is an exemplary graphical representation of parameter data as a function of time,

Fig. 16 is an exemplary graphical representation of parameter data as a function of time,

Fig. 17 is an exemplary graphical representation of parameter data as a function of time and a whitening zone diameter as a function of time,

Figs. 18A-18B are exemplary graphical representations of peel force as a function of a peeling distance travelled by a peeling action exercising the peel force on a first adhesive layer of a base plate,

Figs. 19A-19B are exemplary graphical representations of a whitening zone diameter,

Fig. 20A is an exemplary graphical representation of first parameter data as a function of time for various semi-solid matter scenarios,

Fig. 20B is an exemplary graphical representations of first parameter data as a function of percentage of semi-solid matter in the mixture applied to the stomal opening, and

Figs. 21A-21B are exemplary graphical representations of parameter data as functions of time for different predetermined temperatures.

Background

[0003] The prior art includes US2013/324952A1, which relates to a method relating to use and performance of ostomy appliances by providing one or more sensors to an ostomy pouch. The method includes collecting sensor data, comparing sensor data to historical sensor data, and predicting in advance of a failure of the ostomy pouch, a reduction in nominal wear time.

[0004] Further, the prior art includes US2017/140103A1, which relates to systems and methods for providing comprehensive care for stoma patients. The system includes a sensor device for detecting a fill level of an ostomy bag fitted over and around a stoma and is configured to sense one or more parameters of an effluent received in the bag and to communicate the measurements to a stoma care management software application.

[0005] Further, the prior art includes US2017/340474A1, which relates to a method and dressing for detecting detachment of the dressing, which is applied to a surface of an at least partly electrically conductive object. The dressing comprises an adhesive and at least two electrodes arranged in a distance from the electrically conductive object. An event-handling device is configured to communicate with a reader unit couplable to the electrodes. The reader

unit is configured to measure the resonance frequency. When a difference between the resonance frequency measured and a preset value exceeds a threshold or exhibits a characteristic temporal pattern associated with a leak, the reader unit sends an alarm. The alarm may be sent as a wireless signal to the event-handling device.

[0006] Further, the prior art includes US6171289B1, which relates to a disposable device for securing an ostomy bag to a stoma, the device comprising an adhesive seal and means for detecting wetness of the adhesive composition and means for triggering an alarm when a predetermined level of wetness is reached in the adhesive.

Detailed Description

[0007] Various exemplary embodiments and details are described hereinafter, with reference to the figures when relevant. It should be noted that the figures may or may not be drawn to scale and that elements of similar structures or functions are represented by like reference numerals throughout the figures. It should also be noted that the figures are only intended to facilitate the description of the embodiments. They are not intended as an exhaustive description of the invention or as a limitation on the scope of the invention. In addition, an illustrated embodiment needs not have all the aspects or advantages shown. An aspect or an advantage described in conjunction with a particular embodiment is not necessarily limited to that embodiment and can be practiced in any other embodiments even if not so illustrated, or if not so explicitly described.

[0008] Throughout this disclosure, the words "stoma" and "ostomy" are used to denote a surgically created opening bypassing the intestines or urinary tract system of a person. The words are used interchangeably, and no differentiated meaning is intended. The same applies for any words or phrases derived from these, e.g. "stomal", "ostomies" etc. Also, the solid and liquid wastes emanating from the stoma may be referred to as both stomal "output," "waste(s)," and "fluids" interchangeably. A subject having undergone ostomy surgery may be referred to as "ostomist" or "ostomate" - moreover, also as "patient" or "user". However, in some cases "user" may also relate or refer to a health care professional (HCP), such as a surgeon or an ostomy care nurse or others. In those cases, it will either be explicitly stated, or be implicit from the context that the "user" is not the "patient" him- or herself.

[0009] In the following, whenever referring to proximal side or surface of a layer, an element, a device or part of a device, the referral is to the skin-facing side or surface, when a user wears the ostomy appliance/monitor device. Likewise, whenever referring to the distal side or surface of a layer, an element, a device or part of a device, the referral is to the side or surface facing away from the skin, when a user wears the ostomy appliance/monitor device. In other words, the proximal side or surface is the side or surface closest to the user, when the appliance is fitted on a user and the distal side is the opposite side or surface - the side or surface furthest away from the user in use.

[0010] The axial direction is defined as the direction of the stoma, when a user wears the appliance. Thus, the axial direction is generally perpendicular to the skin or abdominal surface of the user.

[0011] A radial direction is defined as perpendicular to the axial direction. In some sentences, the words "inner" and "outer" may be used. These qualifiers should generally be perceived with respect to the radial direction, such that a reference to an "outer" element means that the element is farther away from a centre portion of the ostomy appliance than an element referenced as "inner". In addition, "innermost" should be interpreted as the portion of a component forming a centre of the component and/or being adjacent to the centre of the component. In analogy, "outermost" should be interpreted as a portion of a component forming an outer edge or outer contour of a component and/or being adjacent to that outer edge or outer contour.

[0012] The use of the word "substantially" as a qualifier to certain features or effects in this disclosure is intended to simply mean that any deviations are within tolerances that would normally be expected by the skilled person in the relevant field.

[0013] The use of the word "generally" as a qualifier to certain features or effects in this disclosure is intended to simply mean - for a structural feature: that a majority or major portion of such feature exhibits the characteristic in question, and - for a functional feature or an effect: that a majority of outcomes involving the characteristic provide the effect, but that exceptionally outcomes do not provide the effect.

[0014] The present disclosure, not part of the invention, relates to an ostomy system and devices thereof, such as an ostomy appliance, a base plate for an ostomy appliance, a monitor device, and one or more accessory devices. Further, methods related to the ostomy system and devices thereof are disclosed. An accessory device (also referred to as an external device) may be a mobile phone or other handheld device. An accessory device may be a personal electronic device, e.g. a wearable, such as a watch or other wrist-worn electronic device. An accessory device may be a docking station. The docking station may be configured to electrically and/or mechanically couple the monitor device to the docking station. The docking station may be configured for charging the monitor device and/or configured for transferring data between the monitor device and the docking station. The ostomy system may comprise a server device. The server device may be operated and/or controlled by the ostomy appliance manufacturer and/or a service centre.

[0015] An ostomy system comprising an ostomy appliance and a monitor device, the ostomy appliance comprising a base plate is disclosed, wherein the monitor device is a monitor device as described herein.

[0016] An ostomy system comprising a monitor device and an ostomy appliance comprising a base plate is disclosed, the base plate having a first adhesive layer with a proximal side configured for attachment of the base plate to the skin surface of a user, the first adhesive

layer having a stomal opening with a center point, the monitor device comprising a processor and a sensor unit comprising a first sensor with a first sensor surface accommodated in a monitor device housing, the monitor device housing having a sensor opening in a proximal surface of the monitor device, the sensor opening forming at least a part of a sensor path from surroundings of the proximal surface to the first sensor surface.

[0017] Also disclosed is a monitor device for an ostomy appliance of an ostomy system, the monitor device comprising a processor and a sensor unit comprising a first sensor with a first sensor surface accommodated in a monitor device housing, the monitor device housing having a sensor opening in a proximal surface of the monitor device, the proximal surface configured for facing the skin of a user during use, the sensor opening forming at least a part of a sensor path from surroundings of the proximal surface to the first sensor surface.

[0018] The present disclosure provides an ostomy system and devices thereof, such as an ostomy appliance, a base plate for an ostomy appliance, a monitor device, and optionally one or more accessory devices which either alone or together may facilitate reliable monitoring of the ostomy appliance.

[0019] The ostomy appliance comprises a base plate and an ostomy pouch (also referred to as an ostomy bag). The ostomy appliance may be a colostomy appliance, an ileostomy appliance or a urostomy appliance. The ostomy appliance may be a two-part ostomy appliance, i.e. the base plate and the ostomy pouch may be releasably coupled e.g. with a mechanical and/or an adhesive coupling, e.g. to allow that a plurality of ostomy pouches can be utilized (exchanged) with one base plate. Further, a two-part ostomy appliance may facilitate correct application of the base plate to skin, e.g. due to an improved user sight of the stomal region. The ostomy appliance may be a one-part ostomy appliance, i.e. the base plate and the ostomy pouch may be fixedly attached to each other. The base plate is configured for coupling to a user's stoma and/or skin surrounding the stoma, such as a peristomal skin area.

[0020] A base plate for an ostomy appliance is disclosed, the base plate comprising a first adhesive layer with a proximal side configured for attachment of the base plate to the skin surface of a user, the first adhesive layer having a stomal opening with a center point; and a plurality of electrodes including a ground electrode, a first electrode, and an optionally a second electrode, the ground electrode comprising a ground connection part, the first electrode comprising a first connection part, and the second electrode comprising a second connection part, wherein the ground electrode forms a ground for the first electrode and/or the second electrode.

[0021] The base plate comprises a first adhesive layer. During use, the first adhesive layer adheres to the user's skin (peristomal area) and/or to additional seals, such as sealing paste, sealing tape and/or sealing ring. Thus, the first adhesive layer may be configured for attachment of the base plate to the skin surface of a user. The first adhesive layer has a stomal opening with a center point or is at least prepared for forming a stomal opening with a center point. A base plate with three electrodes having sensing parts with contact to the first

adhesive layer allows for determining erosion/swelling properties or characteristics of the first adhesive layer and/or determining a degree of erosion and/or swelling of the first adhesive layer.

[0022] It is an advantage of the present disclosure that an optimum or improved use of an ostomy appliance is provided. In particular, the present disclosure facilitates that a base plate is not changed too early (leading to increased cell-stripping from the skin and increased risk of skin damage and further leading to increased costs and/or material waste) nor too late (leading to adhesive failure, leakage and/or skin damage from the aggressive output). Accordingly, the user or a health care professional is able to monitor and plan the use of the ostomy appliance.

[0023] The present disclosure provides a simple, efficient, and easy-to-use ostomy appliance system with a high degree of comfort for a user.

[0024] The first adhesive layer may be made of a first composition. The first composition may comprise one or more polyisobutenes and/or styrene-isoprene-styrene. The first composition may comprise one or more hydrocolloids.

[0025] The first composition may be a pressure sensitive adhesive composition suitable for medical purposes comprising a rubbery elastomeric base and one or more water soluble or water swellable hydrocolloids. The first composition may comprise one or more polybutenes, one or more styrene copolymers, one or more hydrocolloids, or any combination thereof. The combination of the adhesive properties of the polybutenes and the absorbing properties of the hydrocolloids renders the first composition suitable for use in ostomy appliances. The styrene copolymer may for example be a styrene-butadienestyrene block copolymer or a styrene-isoprene-styrene block copolymer. Preferably, one or more styrene-isoprene-styrene (SIS) block type copolymers are employed. The amount of styrene block-copolymer may be from 5% to 20% of the total adhesive composition. The butene component is suitably a conjugated butadiene polymer selected from polybutadiene, polyisoprene. The polybutenes are preferably present in an amount of from 35 - 50% of the total adhesive composition. Preferably, the polybutene is polyisobutylene (PIB). Suitable hydrocolloids for incorporation in the first composition are selected from naturally occurring hydrocolloids, semisynthetic hydrocolloids, and synthetic hydrocolloids. The first composition may comprise 20-60% hydrocolloids. A preferred hydrocolloid is carboxymethyl cellulose (CMC). The first composition may optionally contain other components, such as fillers, tackifiers, plasticizers, and other additives.

[0026] The first adhesive layer may have a plurality of sensor point openings. A sensor point opening of the first adhesive layer is configured to overlap a (sensing) part of an electrode, e.g. to form a sensor point.

[0027] The sensor point openings of the first adhesive layer may comprise primary sensor point openings. The primary sensor point openings may comprise one or more primary first sensor point openings and one or more primary second sensor point openings, the primary first sensor point openings configured to overlap (sensing) parts of an electrode and the

primary second sensor point openings configured to overlap (sensing) parts of another electrode different from the electrode at least partly overlapped by the primary first sensor point openings.

[0028] The sensor point openings of the first adhesive layer may comprise secondary sensor point openings. The secondary sensor point openings may comprise one or more secondary first sensor point openings and one or more secondary second sensor point openings, the secondary first sensor point openings configured to overlap (sensing) parts of an electrode and the secondary second sensor point openings configured to overlap (sensing) parts of another electrode different from the electrode at least partly overlapped by the secondary first sensor point openings.

[0029] The sensor point openings of the first adhesive layer may comprise tertiary sensor point openings. The tertiary sensor point openings may comprise one or more tertiary first sensor point openings and one or more tertiary second sensor point openings, the tertiary first sensor point openings configured to overlap (sensing) parts of an electrode and the tertiary second sensor point openings configured to overlap (sensing) parts of another electrode different from the electrode at least partly overlapped by the tertiary first sensor point openings.

[0030] The first adhesive layer may have a substantially uniform thickness. The first adhesive layer may have a thickness in the range from 0.1 mm to 1.5 mm, e.g. in the range from 0.2 mm to 1.2 mm, such as 0.8 mm or 1.0 mm.

[0031] The first adhesive layer may have a primary thickness in a primary part of the first adhesive layer, e.g. in a primary region within a primary radial distance or in a primary radial distance range from the center point of the stomal opening. The primary thickness may be in the range from 0.2 mm to 1.5 mm, such as about 1.0 mm. The primary radial distance may be in the range from 20 mm to 50 mm, such as in the range from 25 mm to 35 mm, e.g. 30 mm.

[0032] The first adhesive layer may have a secondary thickness in a secondary part of the first adhesive layer, e.g. in a secondary region outside a secondary radial distance or in a secondary radial distance range from the center point of the stomal opening. The secondary thickness may be in the range from 0.2 mm to 1.0 mm, such as about 0.5 mm. The secondary radial distance may be in the range from 20 mm to 50 mm, such as in the range from 25 mm to 35 mm, e.g. 30 mm.

[0033] The base plate may comprise a second layer. The second layer may be an adhesive layer. The second layer may have a second radial extension that is larger than a first radial extension of the first adhesive layer at least in a first angular range of the base plate. Accordingly, a part of a proximal surface of the second layer may be configured for attachment to the skin surface of a user. The part of a proximal surface of the second layer configured for attachment to the skin surface of a user is also denoted the skin attachment surface of the second adhesive layer. The second layer may have a stomal opening with a center point.

[0034] The second adhesive layer may be made of a second composition. The second composition may comprise one or more polyisobutenes and/or styrene-isoprene-styrene. The second composition may comprise one or more hydrocolloids.

[0035] The second composition may be a pressure sensitive adhesive composition suitable for medical purposes comprising a rubbery elastomeric base and one or more water soluble or water swellable hydrocolloids. The second composition may comprise one or more polybutenes, one or more styrene copolymers, one or more hydrocolloids, or any combination thereof. The combination of the adhesive properties of the polybutenes and the absorbing properties of the hydrocolloids renders the second composition suitable for use in ostomy appliances. The styrene copolymer may for example be a styrenebutadiene-styrene block copolymer or a styrene-isoprene-styrene block copolymer. Preferably, one or more styrene-isoprene-styrene (SIS) block type copolymers are employed. The amount of styrene block-copolymer may be from 5% to 20% of the total adhesive composition. The butene component is suitably a conjugated butadiene polymer selected from polybutadiene, polyisoprene. The polybutenes are preferably present in an amount of from 35 - 50% of the total adhesive composition. Preferably, the polybutene is polyisobutylene (PIB). Suitable hydrocolloids for incorporation in the second composition are selected from naturally occurring hydrocolloids, semisynthetic hydrocolloids, and synthetic hydrocolloids. The second composition may comprise 20-60% hydrocolloids. A preferred hydrocolloid is carboxymethyl cellulose (CMC). The second composition may optionally contain other components, such as fillers, tackifiers, plasticizers, and other additives.

[0036] Different ratio of contents may change properties of the first and/or second adhesive layers. The second adhesive layer and the first adhesive layer may have different properties. The second adhesive layer (second composition) and the first adhesive layer (first composition) may have different ratios of polyisobutenes, styrene-isoprene-styrene, and/or hydrocolloids. For example, the second adhesive layer may provide a stronger attachment to the skin compared to attachment to the skin provided by the first adhesive layer. Alternatively, or additionally, the second adhesive layer may be thinner than the first adhesive layer. Alternatively, or additionally, the second adhesive layer may be less water and/or sweat absorbing than the first adhesive layer. Alternatively, or additionally, the second adhesive layer may be less moldable than the first adhesive layer. The second adhesive layer may provide a second barrier against leakage.

[0037] The second layer may have a substantially uniform thickness. The second layer may have a thickness in the range from 0.1 mm to 1.5 mm, e.g. in the range from 0.2 mm to 1.0 mm, such as 0.5 mm, 0.6 mm, or 0.7 mm.

[0038] The base plate comprises one or more electrodes, such as a plurality of electrodes, such as two, three, four, five, six, seven or more electrodes. The electrodes, e.g. some or all the electrodes, may be arranged between the first adhesive layer and the second adhesive layer. The electrodes may be arranged in an electrode assembly, e.g. an electrode layer. An electrode comprises a connection part for connecting the electrodes to other components

and/or interface terminals/terminal elements. An electrode may comprise one or more conductor parts and/or one or more sensing parts. The electrode assembly may be arranged between the first adhesive layer and the second adhesive layer. The base plate, e.g. the electrode assembly, may comprise a first electrode, a second electrode and optionally a third electrode. The base plate, e.g. the electrode assembly, may comprise a fourth electrode and/or a fifth electrode. The base plate, e.g. the electrode assembly, optionally comprises a sixth electrode. The base plate, e.g. the electrode assembly, may comprise a ground electrode. The ground electrode may comprise a first electrode part. The first electrode part of the ground electrode may form a ground or reference for the first electrode. The ground electrode may comprise a second electrode part. The second electrode part of the ground electrode may form a ground or reference for the second electrode. The ground electrode may comprise a third electrode part. The third electrode part of the ground electrode may form a ground or reference for the third electrode. The ground electrode may comprise a fourth electrode part. The fourth electrode part of the ground electrode may form a ground or reference for the fourth electrode and/or the fifth electrode.

[0039] The ground electrode or electrode parts of the ground electrode may be configured as or form a (common) reference electrode for some or all of the other electrodes of the electrode assembly. The ground electrode may also be denoted reference electrode.

[0040] The electrodes are electrically conductive and may comprise one or more of metallic (e.g. silver, copper, gold, titanium, aluminium, stainless steel), ceramic (e.g. ITO), polymeric (e.g. PEDOT, PANI, PPy), and carbonaceous (e.g. carbon black, carbon nanotube, carbon fibre, graphene, graphite) materials.

[0041] The ground electrode may comprise a first electrode part and a second electrode part, the first electrode part forming the ground for the first electrode and the second electrode part forming the ground for the second electrode. The first electrode part may form a closed loop.

[0042] The electrodes are electrically conductive and may comprise one or more of metallic (e.g. silver, copper, gold, titanium, aluminium, stainless steel), ceramic (e.g. ITO), polymeric (e.g. PEDOT, PANI, PPy), and carbonaceous (e.g. carbon black, carbon nanotube, carbon fibre, graphene, graphite) materials.

[0043] Two electrodes of the electrode assembly may form a sensor. The first electrode and the ground electrode (e.g. first electrode part of the ground electrode) may form a first sensor or first electrode pair. The second electrode and the ground electrode (e.g. second electrode part of the ground electrode) may form a second sensor or second electrode pair. The third electrode and the ground electrode (e.g. third electrode part of the ground electrode) may form a third sensor or third electrode pair. The fourth electrode and the ground electrode (e.g. fourth electrode part of the ground electrode) may form a fourth sensor or fourth electrode pair. The fifth electrode and the ground electrode (e.g. fifth electrode part of the ground electrode) may form a fifth sensor or fifth electrode pair. The fourth electrode and the fifth electrode may form a sixth sensor or sixth electrode pair.

[0044] An electrode may comprise a sensing part or a plurality of sensing parts, i.e. the part(s) of an electrode that are used for sensing. The first electrode may comprise a first sensing part. The first sensing part may contact the first adhesive layer and is optionally arranged at least partly annularly around the stomal opening. The first electrode may comprise a first conductor part insulated from the first adhesive layer, e.g. by a masking element arranged between the first conductor part and the first adhesive layer. The first sensing part may extend at least 270 degrees around the stomal opening, such as at least 300 degrees around the stomal opening. The first sensing part of the first electrode may be arranged at a first ground distance from the first electrode part of the ground electrode.

[0045] The first ground distance may be less than 5 mm, such as less than 3 mm, e.g. about 1.0 mm.

[0046] The second electrode may comprise a second sensing part. The second sensing part may contact the first adhesive layer. The second sensing part may be arranged at least partly annularly around the stomal opening. The second sensing part may extend at least 270 degrees around the stomal opening, such as at least 300 degrees around the stomal opening. The second sensing part of the second electrode may be arranged at a second ground distance from the second electrode part of the ground electrode. The second ground distance may be less than 5 mm, such as less than 3 mm, e.g. about 1.0 mm.

[0047] The first sensing part may be arranged at a first radial distance from the center point and the second sensing part may be arranged at a second radial distance from the center point. The second radial distance may be larger than the first radial distance. The second electrode may comprise a second conductor part insulated from the first adhesive layer, e.g. by a masking element arranged between the second conductor part and the first adhesive layer. The first radial distance may vary as a function of an angular position with respect to a zero direction from the center point. The second radial distance may vary as a function of an angular position with respect to a zero direction from the center point. The zero direction may be defined as the vertical upward direction when the base plate is in its intended wearing position on an upstanding user.

[0048] The first radial distance may be in the range from 5 mm to 40 mm, such as in the range from 10 mm to 25 mm, e.g. about 14 mm. In one or more embodiments, the first radial distance R1 may be around 13 mm, such as 12.5 mm. The second radial distance may be in the range from 10 mm to 50 mm, such as in the range from 10 mm to 25 mm, e.g. about 18 mm. In one or more embodiments, the second radial distance R2 may be 17 mm.

[0049] The base plate may comprise a third electrode comprising a third connection part. The ground electrode may form a ground for the third electrode. The ground electrode may comprise a third electrode part, the third electrode part forming the ground for the third electrode. The third electrode may comprise a third conductor part insulated from the first adhesive layer, e.g. by a masking element arranged between the third conductor part and the

first adhesive layer. The third electrode may comprise a third sensing part, the third sensing part contacting the first adhesive layer. The third sensing part may be arranged at least partly annularly around the stomal opening. The third sensing part may be arranged at a third radial distance from the center point. The third radial distance may be larger than the first radial distance and/or larger than the second radial distance. The third radial distance may be in the range from 15 mm to 50 mm, such as in the range from 20 mm to 30 mm, e.g. about 26 mm. In one or more embodiments, the third radial distance R_3 is 21 mm. The third sensing part may extend at least 270 degrees around the stomal opening, such as at least 300 degrees around the stomal opening. The third sensing part of the third electrode may be arranged at a third ground distance from the third electrode part of the ground electrode. The third ground distance may be less than 5 mm, such as less than 3 mm, e.g. about 1.0 mm. A base plate with a ground electrode, a first electrode, a second electrode, and a third electrode allows for a failsafe base plate in case e.g. the first electrode is cut or otherwise destroyed during preparation of the base plate.

[0050] The base plate may comprise a fourth electrode comprising a fourth connection part. The ground electrode may form a ground for the fourth electrode. The ground electrode may comprise a fourth electrode part, the fourth electrode part forming the ground for the fourth electrode. The fourth electrode may comprise one or a plurality of fourth sensing parts, such as at least five fourth sensing parts. The fourth sensing parts may be distributed around the stomal opening or a center point thereof. The fourth sensing parts may be arranged at respective fourth radial distances from the center point. The fourth radial distance(s) may be larger than the third radial distance. The fourth radial distance(s) may be in the range from 25 mm to 50 mm, such as about 30 mm.

[0051] The base plate may comprise a fifth electrode comprising a fifth connection part. The ground electrode may form a ground for the fifth electrode. The ground electrode may comprise a fifth electrode part, the fifth electrode part forming the ground for the fifth electrode. The fifth electrode may comprise one or a plurality of fifth sensing parts, such as at least five fifth sensing parts. The fifth sensing parts may be distributed around the stomal opening or a center point thereof. The fifth sensing parts may be arranged at respective fifth radial distances from the center point. The fifth radial distance may be larger than the third radial distance. The fifth radial distance may be equal to or larger than the fourth radial distance. The fifth radial distance(s) may be in the range from 25 mm to 50 mm, such as about 30 mm.

[0052] The first electrode may form an open loop. The second electrode may form an open loop and/or the third electrode may form an open loop. The fourth electrode may form an open loop. The fifth electrode may form an open loop. Open loop electrode(s) enables electrode arrangement in few or a single electrode layer.

[0053] The base plate may comprise a second adhesive layer, wherein the plurality of electrodes is arranged between the first adhesive layer and the second adhesive layer.

[0054] The electrode assembly may comprise a support layer, also denoted a support film.

One or more electrodes may be formed, e.g. printed, on the proximal side of the support layer. One or more electrodes may be formed, e.g. printed, on the distal side of the support layer. Thus, one or more electrodes may be arranged between the support layer and the first adhesive layer. The electrode assembly may have a stomal opening with a center point.

[0055] The support layer may comprise polymeric (e.g. polyurethane, PTFE, PVDF) and/or ceramic (e.g. alumina, silica) materials. In one or more exemplary base plates, the support layer is made of thermoplastic polyurethane (TPU). The support layer material may be made of or comprise one or more of polyester, a thermoplastic elastomer (TPE), polyamide, polyimide, Ethylene-vinyl acetate (EVA), polyurea, and silicones.

[0056] Exemplary thermoplastic elastomers of the support layer are styrenic block copolymers (TPS, TPE-s), thermoplastic polyolefin elastomers (TPO, TPE-o), thermoplastic Vulcanizates (TPV, TPE-v), thermoplastic polyurethanes (TPU), thermoplastic copolyester (TPC, TPE-E), and thermoplastic polyamides (TPA, TPE-A).

[0057] The electrode assembly/base plate may comprise a masking element configured to insulate at least parts of the electrodes from the first adhesive layer of the base plate. The masking element may comprise one or more, such as a plurality of, sensor point openings. The sensor point openings may comprise primary sensor point openings and/or secondary sensor point openings. The sensor point openings may comprise tertiary sensor point opening(s). The sensor point openings may comprise quaternary sensor point opening(s). A sensor point opening of the masking element overlaps at least one electrode of the electrode assembly when seen in the axial direction, e.g. to form a sensor point. For example, a primary sensor point opening may overlap a (sensing) part of the ground electrode and/or a (sensing) part of the fourth electrode. A secondary sensor point opening may overlap a (sensing) part of the fourth electrode and/or a (sensing) part of the fifth electrode. A tertiary sensor point opening may overlap a (sensing) part of the fifth electrode and/or a (sensing) part of the ground electrode.

[0058] The masking element may comprise one or more, such as a plurality of, terminal openings. A terminal opening may overlap with one or more connection parts of electrodes. In one or more exemplary base plates, each terminal opening overlaps with a single connection part of an electrode.

[0059] The masking element may comprise polymeric (e.g. polyurethane, PTFE, PVDF) and/or ceramic (e.g. alumina, silica) materials. In one or more exemplary base plates, the masking element is made of or comprises thermoplastic polyurethane (TPU). In one or more exemplary base plates, the masking element is made of or comprises polyester. The masking element material may be made of or comprise one or more of polyester, a thermoplastic elastomer (TPE), polyamide, polyimide, Ethylene-vinyl acetate (EVA), polyurea, and silicones.

[0060] Exemplary thermoplastic elastomers of the masking element are styrenic block copolymers (TPS, TPE-s), thermoplastic polyolefin elastomers (TPO, TPE-o), thermoplastic

Vulcanizates (TPV, TPE-v), thermoplastic polyurethanes (TPU), thermoplastic copolyester (TPC, TPE-E), and thermoplastic polyamides (TPA, TPE-A).

[0061] The base plate may comprise a first intermediate element. The first intermediate element may be arranged between the electrodes/electrode layer and the first adhesive layer and/or between the second layer and the first adhesive layer. The first intermediate layer may be made of an insulating material.

[0062] The base plate may comprise a release liner. The release liner is a protective layer that protects adhesive layer(s) during transport and storage and is peeled off by the user prior to applying the base plate on the skin. The release liner may have a stomal opening with a center point.

[0063] The base plate may comprise a top layer. The top layer is a protective layer protecting the adhesive layer(s) from external strains and stress when the user wears the ostomy appliance. The electrodes, e.g. some or all the electrodes, may be arranged between the first adhesive layer and the top layer. The top layer may have a stomal opening with a center point. The top layer may have a thickness in the range from 0.01 mm to 1.0 mm, e.g. in the range from 0.02 mm to 0.2 mm, such as 0.04 mm. The top layer may have a stomal opening with a center point.

[0064] The base plate comprises a monitor interface. The monitor interface may be configured for electrically and/or mechanically connecting the ostomy appliance (base plate) to the monitor device. The monitor interface may be configured for wirelessly connecting the ostomy appliance (base plate) to the monitor device. Thus, the monitor interface of the base plate is configured to electrically and/or mechanically couple the ostomy appliance and the monitor device.

[0065] The monitor interface of the base plate may comprise, e.g. as part of a first connector of the monitor interface, a coupling part for forming a mechanical connection, such as a releasable coupling between the monitor device and the base plate. The coupling part may be configured to engage with a coupling part of the monitor device for releasably coupling the monitor device to the base plate.

[0066] The monitor interface of the base plate may comprise, e.g. as part of a first connector of the monitor interface, a plurality of terminals, such as two, three, four, five, six, seven or more terminals, for forming electrical connections with respective terminals of the monitor device. The monitor interface may comprise a ground terminal element forming a ground terminal. The monitor interface may comprise a first terminal element forming a first terminal, a second terminal element forming a second terminal and optionally a third terminal element forming a third terminal. The monitor interface may comprise a fourth terminal element forming a fourth terminal and/or a fifth terminal element forming a fifth terminal. The monitor interface optionally comprises a sixth terminal element forming a sixth terminal. The terminal elements of the monitor interface may contact respective electrodes (connection parts) of the base

plate/electrode assembly. The first intermediate element may be arranged between the terminal elements and the first adhesive layer. The first intermediate element may cover or overlap terminal element(s) of the base plate when seen in the axial direction. Thus, the first adhesive layer may be protected or experience more evenly distributed mechanical stress from the terminal elements of the base plate, in turn reducing the risk of terminal elements penetrating or otherwise damaging the first adhesive layer. The first intermediate element may protect or mechanically and/or electrically shield the first adhesive layer from the terminal elements of the base plate.

[0067] A terminal element, such as the ground terminal element, the first terminal element, the second terminal element, the third terminal element, the fourth terminal element, the fifth terminal element and/or the sixth terminal element, may comprise a distal end and a proximal end. A terminal element, such as the ground terminal element, the first terminal element, the second terminal element, the third terminal element, the fourth terminal element, the fifth terminal element and/or the sixth terminal element, may comprise a distal part, a centre part, and/or a proximal part. The distal part may be between the distal end and the centre part. The proximal part may be between the proximal end and the centre part. The proximal end/proximal part of a terminal element may contact a connection part of an electrode. A terminal element, such as the ground terminal element, the first terminal element, the second terminal element, the third terminal element, the fourth terminal element, the fifth terminal element and/or the sixth terminal element, may be gold plated copper.

[0068] The base plate may comprise a coupling ring or other coupling member for coupling an ostomy pouch to the base plate (two-part ostomy appliance). The center point may be defined as a center of the coupling ring.

[0069] The base plate has a stomal opening with a center point. The size and/or shape of the stomal opening is typically adjusted by the user or nurse before application of the ostomy appliance to accommodate the user's stoma. In one or more exemplary base plates, the user forms the stomal opening during preparation of the base plate for application.

[0070] The monitor device comprises a processor. The processor controls the operation of the monitor device including collection and processing of ostomy data from the base plate of the ostomy appliance, processing of, such as storing, sensor data from sensor unit, and generation/transmission of monitor data to accessory devices.

[0071] The monitor device comprises a memory for storing ostomy data and/or parameter data based on the ostomy data. The processor may be configured for processing and storing sensor data in the memory.

[0072] The monitor device comprises a monitor device housing optionally made of a plastic material. The monitor device housing may be an elongate housing having a first end and a second end. The monitor device housing may have a length or maximum extension along a longitudinal axis in the range from 1 cm to 10 cm. The monitor device housing may have a

width or maximum extension perpendicular to the longitudinal axis in the range from 0.5 cm to 5 cm, such as from 0.8 cm to 3 cm. The monitor device housing may be curve-shaped.

[0073] The monitor device housing may have a plurality of sensor openings, e.g. a plurality of sensor openings for a sensor and/or a sensor opening for each of a plurality of sensors. The monitor device may comprise one or more sensor openings in a distal surface of the monitor device. The monitor device may comprise one or more sensor openings in a side surface of the monitor device. The monitor device may comprise one or more sensor openings in an end surface of the monitor device.

[0074] The sensor opening in the proximal surface is arranged at a sensor opening distance from the first end. The sensor opening distance, also denoted D_S , may be in the range from $0.25L$ to $0.75L$, such as from $0.35L$ to $0.65L$, where L is the length of the monitor device housing. The sensor opening distance may be in the range from 10 mm to 70 mm.

[0075] The monitor device housing comprises or forms a sensor path from surroundings of the proximal surface to the first sensor surface. The sensor path translates temperature and/or humidity at the proximal surface of the monitor device/monitor device housing to the first sensor surface. The sensor opening forms a part of the sensor path and has a cross-sectional area optionally in the range from 0.2 mm^2 to 10 mm^2 . The sensor opening may be a circular sensor opening with a diameter in the range from 0.3 mm to 1.4 mm, e.g. from 0.6 mm to 1.0 mm.

[0076] The monitor device comprises a sensor unit with one or more sensors including a first sensor. The sensor unit is connected to the processor for feeding sensor data to the processor. The sensor unit may comprise a humidity sensor for provision of humidity data to the processor. Thus, the sensor data may comprise humidity data. For example, the first sensor may be a humidity sensor for provision of humidity data to the processor. Thus, the present disclosure enables humidity detection near the skin of a user and/or on the distal side of the base plate, which in turn can be used for a more accurate estimation of base plate operation state.

[0077] The sensor unit may comprise a temperature sensor for provision of temperature data to the processor. Thus, the sensor data may comprise temperature data. For example, the first sensor may be a temperature sensor for provision of temperature data to the processor. Thus, the present disclosure enables temperature detection near the skin of a user and/or on the distal side of the base plate, which in turn can be used for a more accurate estimation of base plate operation state.

[0078] The first sensor may be a combined humidity and temperature sensor for provision of humidity and temperature data to the processor.

[0079] The sensor unit of the monitor device may comprise a second sensor, e.g. an accelerometer for provision of acceleration data to the processor. The sensor unit of the

monitor device may comprise a third sensor, e.g. a gyroscope for provision of gyroscope data to the processor. The sensor unit of the monitor device may comprise a fourth sensor, e.g. a magnetometer for provision of magnetometer data to the processor.

[0080] The processor is configured for processing ostomy data obtained from the base plate and generate or determine monitor data that are transmitted to an accessory device. The monitor data may comprise sensor data obtained from the sensor unit.

[0081] The monitor device comprises a first interface for connecting the monitor device to the base plate. The first interface may be arranged in the proximal surface of the monitor device housing. The first interface may be arranged within a first interface distance from the first end. The first interface distance may be less than $0.50L$, such as less than $0.4L$, where L is the length of the monitor device housing.

[0082] The monitor device may comprise a sealing element forming a seal between the first sensor and a housing part of the monitor device housing. The sealing element may be an O-ring, e.g. made of a rubber material. The sealing element may encircle the first sensor surface to expose the first sensor surface (membrane) to the sensor path while providing a closed cavity of the monitor device, the closed cavity accommodating PCB, processor, and other electronic circuitry. A glue may form the sealing element.

[0083] The ostomy system enables a reliable and accurate measurement of different parameters relevant for monitoring of the ostomy appliance. In the ostomy system, a distance between the proximal surface of the monitor device and a distal surface of the base plate, in a coupled state, is in the range from 0.2 mm to 10 mm, such as in the range from 0.5 mm to 5 mm. In the coupled state, the monitor device is attached to the base plate and arranged in its intended position during use of the ostomy system.

[0084] The monitor device comprises a first interface connected to the processor. The first interface may be configured as an appliance interface for electrically and/or mechanically connecting the monitor device to the ostomy appliance. Thus, the appliance interface is configured to electrically and/or mechanically couple the monitor device and the ostomy appliance. The first interface may be configured as an accessory device interface for electrically and/or mechanically connecting the monitor device to an accessory device, such as a docking station. The first interface may be configured for coupling to a docking station of the ostomy system, e.g. for charging the monitor device and/or for data transfer between the monitor device and the docking station.

[0085] The first interface of the monitor device may comprise a plurality of terminals, such as two, three, four, five, six, seven or more terminals, for forming electrical connections with respective terminals and/or electrodes of the ostomy appliance. One or more terminals of the first interface may be configured for forming electrical connections with an accessory device, e.g. with respective terminals of a docking station. The first interface may comprise a ground terminal. The first interface may comprise a first terminal, a second terminal and optionally a

third terminal. The first interface may comprise a fourth terminal and/or a fifth terminal. The first interface optionally comprises a sixth terminal. In one or more exemplary monitor devices, the first interface has M terminals, wherein M is an integer in the range from 4 to 8.

[0086] The first interface of the monitor device may comprise a coupling part for forming a mechanical connection, such as a releasable coupling between the monitor device and the base plate. The coupling part and the terminals of the first interface form (at least part of) a first connector of the monitor device.

[0087] The monitor device comprises a power unit for powering the monitor device. The power unit may comprise a battery. The power unit may comprise charging circuitry connected to the battery and terminals of the first interface for charging the battery via the first interface, e.g. the first connector. The first interface may comprise separate charging terminal(s) for charging the battery.

[0088] The monitor device comprises a second interface connected to the processor. The second interface may be configured as an accessory interface for connecting, e.g. wirelessly connecting, the monitor device to one or more accessory devices. The second interface may comprise an antenna and a wireless transceiver, e.g. configured for wireless communication at frequencies in the range from 2.4 to 2.5 GHz. The wireless transceiver may be a Bluetooth transceiver, i.e. the wireless transceiver may be configured for wireless communication according to Bluetooth protocol, e.g. Bluetooth Low Energy, Bluetooth 4.0, Bluetooth 5. The second interface optionally comprises a loudspeaker and/or a haptic feedback element for provision of an audio signal and/or haptic feedback to the user, respectively. The processor may be configured to transmit monitor data, as a wireless monitor signal via the antenna and the wireless transceiver.

[0089] The ostomy system may comprise a docking station forming an accessory device of the ostomy system. The docking station may be configured to electrically and/or mechanically couple the monitor device to the docking station.

[0090] The docking station may comprise a docking monitor interface. The docking monitor interface may be configured for electrically and/or mechanically connecting the monitor device to the docking station. The docking monitor interface may be configured for wirelessly connecting the monitor device to the docking station. The docking monitor interface of the docking station may be configured to electrically and/or mechanically couple the docking station and the monitor device.

[0091] The docking monitor interface of the docking station may comprise, e.g. as part of a first connector of the docking monitor interface, a coupling part for forming a mechanical connection, such as a releasable coupling between the monitor device and the docking station. The coupling part may be configured to engage with a coupling part of the monitor device for releasably coupling the monitor device to the docking station.

[0092] The docking monitor interface of the docking station may comprise, e.g. as part of a first connector of the docking monitor interface, a plurality of terminals, such as two, three, four, five, six, seven or more terminals, for forming electrical connections with respective terminals of the monitor device. The docking monitor interface may comprise a ground terminal. The docking monitor interface may comprise a first terminal and/or a second terminal. The docking station may comprise a third terminal. The docking monitor interface may comprise a fourth terminal and/or a fifth terminal. The docking monitor interface optionally comprises a sixth terminal.

[0093] The present invention provides a method, performed by an accessory device (i.e. an accessory device of an ostomy system disclosed herein), for monitoring an ostomy system. The accessory device comprises an interface configured to communicate with one or more devices of the ostomy system, the interface comprising a display. The accessory device is configured to communicate with an ostomy system as disclosed herein. The one or more devices of the ostomy system comprises a monitor device, and an ostomy appliance configured to be placed on a skin surface of a user. The ostomy appliance comprises a base plate.

[0094] The method comprises: obtaining monitor data from the one or more devices, the monitor data being indicative of a physical condition of the base plate, obtaining context data, the context data being indicative of a context in which the ostomy appliance is operating, determining one or more future operating states of the ostomy appliance based on the monitor data and the context data, wherein a future operating state is indicative of future adhesive performance of the base plate of the ostomy appliance, and communicating the one or more future operating states.

[0095] The method comprises obtaining monitor data from the one or more devices, such as from the monitor device, such as from the ostomy appliance (e.g. from the base plate), such as from a server device in a network. The method may comprise obtaining monitor data from a memory of the accessory device. Obtaining monitor data from the monitor device may comprise retrieving and/or receiving the monitor data from the monitor device.

[0096] The ostomy appliance comprises a base plate, such as a base plate disclosed herein. The ostomy appliance comprises an ostomy pouch. The base plate may comprise a first adhesive layer having a proximal side. During use, a proximal surface of the first adhesive layer adheres to the user's skin in the peristomal area and/or to additional seals, such as sealing paste, sealing tape and/or sealing ring. The base plate may comprise one or more electrodes configured to measure electrical properties of the first adhesive layer. The electrical properties may be indicative of a conductive path in the first adhesive layer, thereby indicative of the moisture level, and indicative of the condition of the ostomy appliance.

[0097] The method may comprise comprises: obtaining monitor data from the one or more devices, obtaining context data, determining one or more future operating states of the ostomy appliance (e.g. of the base plate) based on the monitor data and the context data, wherein a

future operating state is indicative of future adhesive performance of the ostomy appliance (e.g. of the base plate), and communicating the one or more future operating states.

[0098] The monitor data may be indicative of a condition of the ostomy appliance, e.g. a condition of the base plate disclosed herein. The condition of the ostomy appliance or of the base plate disclosed herein may refer to a level of a physical property of at least a part of the ostomy appliance, such as a level of moisture and/or temperature of at least a part of the base plate, such as a level of a physical property of at least a layer of the base plate, such as a level of moisture and/or temperature of at least a layer of the base plate, such as a level of a physical property of at least an adhesive layer of the base plate (e.g. a first adhesive layer proximal to the skin of the user). In one or more exemplary accessory devices, the interface is configured to obtain the monitor data by obtaining the monitor data indicative of the condition comprising a moisture level of a first adhesive layer of the base plate and/or a moisture level of a proximal side of the first adhesive layer. The moisture level may be seen as representative of a conductive path in the first adhesive layer, such as across the first adhesive layer. The monitor data comprises e.g. data representative of the measurement of the electrical properties of the first adhesive layer. In other words, the condition may be seen as a condition of the first adhesive layer.

[0099] The monitor data may comprise ostomy data and/or parameter data. The monitor device is configured to process the ostomy data and/or parameter data based on the ostomy data to determine monitor data that is transmitted to the accessory device. The ostomy data and /or parameter data may be indicative of resistance between electrodes of the base plate, capacitance and/or inductance between electrodes and/or any change thereof. For example, the ostomy data and /or parameter data may be indicative of a change in resistance, capacitance and/or inductance between electrodes. For example, the ostomy data and /or parameter data may comprise timing information, such as timestamped data or information from which timing is derivable.

[0100] The method comprises obtaining (e.g. receiving, retrieving, deriving) context data, e.g. from one or more user applications installed on the accessory device, from a memory of the accessory device. The accessory device may be configured to have one or more user applications installed thereon, wherein the one or more user applications comprise a first application (e.g. an ostomy user application) and a second application (e.g. a third-party application, e.g. an application other than the ostomy user application). Obtaining the context data may comprise obtaining the context data from a second application different from the first application. For example, the second application comprises a calendar application, a weather application, an analytics application, a health application, a sports application, an activity tracker application, a social media application, a photo application, a camera, and/or a medical application. The second application may comprise an input application (configured to accept user input related to context data). The second application may be integrated with/connected to an application server configured to provide the accessory device with relevant context data, such as upon request from the accessory device.

[0101] In one or more exemplary methods, context data comprises application data, e.g. from a second application. Context data may refer to data indicative of a context in which the ostomy appliance may be operating, such as data characterizing the context or an environment affecting the operation of the ostomy appliance and of the base plate. For example, context data may be referred to as contextual data.

[0102] The method comprises determining one or more future operating states of the ostomy appliance based on the monitor data and the context data. The future operating state is indicative of future adhesive performance of the ostomy appliance. The future operating state may comprise at least one of: a wear time, a quality of adhesion, and a moisture pattern representation. Wear time may comprise average wear time, nominal wear time, minimal wear time, maximal wear time, median wear time, and/or any of other statistical metric derivable from wear time. Wear time may comprise remaining wear time and/or current wear time and/or elapsed wear time. A quality of adhesion may comprise a metric indicative of erosion of a layer of the base plate (such as of the first adhesive layer), such as a moisture pattern representation.

[0103] An operating state in the present disclosure is indicative of the dynamic internal state of the base plate of the ostomy appliance (e.g. of the base plate currently being worn by the user) related to adhesive performance of the base plate. Adhesive performance of the ostomy appliance may be related to an internal condition of the ostomy appliance (e.g. of the base plate of the ostomy appliance), such as an internal condition of an adhesive layer of the base plate. The adhesive performance, and thereby the operating state may be affected by several factors, such as humidity, temperature, misplacement of the ostomy appliance on the stoma, and/or malfunction of the ostomy appliance. The adhesive performance, and thereby the operating state may be related to misplacement of the of the base plate on the stoma, and/or malfunction of the of the base plate. The one or more factors alone or in combination impact the adhesive performance of the of the base plate. The operating state may be varying in time. The operating state can be indicative of a degree of erosion of the base plate (e.g. radial erosion, and/or transverse erosion), e.g. a degree of erosion of a layer of the base plate, e.g. a degree of erosion of the first adhesive layer. The operating state can be indicative of presence of fluid on a proximal surface of the first adhesive layer.

[0104] Many of the factors may be captured by context data obtained at the accessory device.

[0105] Thus, exploiting context data and correlating it with monitor data is seen as leading to an improvement in determining future operating states (e.g. improved accuracy and timeliness of the determined future operating states), and thereby an improvement in the life of a ostomist (because the ostomist given a more accurate future operating state is able to plan and prevent any undesired situation caused by e.g. the ostomy appliance leaking).

[0106] Adhesive performance may be indicative of wear property, e.g. wear time and/or wear comfort.

[0107] In one or more exemplary accessory devices, an operating state is configured to indicate whether the base plate is properly operational based on its adhesive performance (e.g. wear property, e.g. wear time and/or wear comfort).

[0108] For example, the operating state may be indicative of the severity and/or imminence of a leakage (e.g. low, medium, acute). The operating state may comprise Z operating states, where Z is an integer. The operating state may comprise a first operating state, a second operating state, and/or a third operating state (e.g. good, check, change in X time/NOW).

[0109] The current operating state is indicative of a current adhesive performance of the ostomy appliance (e.g. of the base plate). The current operating state may be seen as the operating state at the determination time. The current operating state may be seen as the operating state at the determination time at a time indicated in monitor data (e.g. at a latest time indicated in the monitor data, e.g. at a latest period of time up to the latest time).

[0110] Determining a future operating state of the ostomy appliance based on the monitor data and the context data comprises determining the future operating state of the base plate of the ostomy appliance based on the monitor data and the context data. The future operating state is indicative of a future adhesive performance of the base plate of the ostomy appliance. A future adhesive performance may be seen as a predictive adhesive performance, an anticipated adhesive performance of the base plate in the future (e.g. the anticipated adhesive performance of the ostomy appliance). The future operating state may be seen as an operating state that is anticipated to be reached after the current operating state. In other words, the future operating state may be seen as an operating state provided in advance.

[0111] Context data may be quantified with one or more context parameters, which may be associated one or more adjustment coefficients. The accessory may maintain a local or remote database (or lookup table) associating a context parameter with a corresponding adjustment coefficient. Determining the future operating state of the base plate of the ostomy appliance based on the monitor data and the context data may comprise determining the future operating state of the base plate of the ostomy appliance based on the monitor data and the one or more context parameters (e.g. using the one or more adjustment coefficients).

[0112] In an illustrative example where the present technique is applied, initially, the operating state of the base plate may be indicative of a default or normal operating state of the base plate wherein the default operating state is indicative of very low or no degree of radial erosion of the base plate and/or of no leakage. After a prolonged use of the ostomy appliance, the accessory device may determine an operating state of the ostomy appliance that may be indicative of a degree of radial erosion of the base plate, such as of the first adhesive layer, and/or an acute leakage risk of the ostomy appliance.

[0113] The method may comprise determining a current operating state of the ostomy appliance based on the monitor data and/or the context data. The current operating state is indicative of current adhesive performance of the base plate. The current operating state

comprises at least one of: a wear time, a quality of adhesion, and a moisture pattern representation.

[0114] Determining one or more future operating states of the ostomy appliance based on the monitor data and the context data may comprise determining the future operating state based on the current operating state, and the context data.

[0115] The method comprises communicating the one or more future operating states, such as via the interface, e.g. to a user, to an additional accessory device of the user. The interface is configured to communicate (e.g. to output, to display or to transmit) the one or more future operating states, e.g. to the user and/or the one or more devices of the ostomy system, and/or to the one or more accessory devices of the user coupled with the disclosed accessory device.

[0116] Communicating the future operating state may comprise communicating the future operating state in a first application, wherein the first application is an ostomy user application installed on the accessory device.

[0117] The interface may be configured to communicate (e.g. to output, to display or to transmit) a combination of the current operating state and the future operating state, e.g. to the user and/or the one or more devices of the ostomy system, and/or to the one or more accessory devices of the user coupled with the disclosed accessory device.

[0118] It is an advantage of the present disclosure that a user of an ostomy appliance or a health care professional is given herein improved tools for monitoring and planning the use of the ostomy appliance with daily life, tools which exploit context data obtainable by the accessory device. The disclosed accessory device is capable of foreseeing and predicting a leakage risk by determining one or more future operating states based on monitor data and context data. Thus, communication of the one or more future operating states of the ostomy appliance helps reducing the risk of a user experiencing leakage (e.g. faecal material leakage coming out from the ostomy appliance) from an ostomy appliance in a planned activity. A reduction of the risk of leakage in turn helps in reducing risks of skin damage to a user (as it supports the prevention of leakage due to e.g. adhesive erosion, malfunctions and misplacement of the ostomy appliance on the stoma). In particular, determination and communication of one or more future operating states, according to the present disclosure, is performed based on monitor data indicative of a condition of the ostomy appliance which may not be visible to the user (because it is under or within the base plate of the ostomy appliance) and which is augmented with context data obtainable by the accessory device.

[0119] Further, it is seen that the present disclosure provides a clear distinction or differentiation between the following events in the present and the future: adhesive failure, leakage (incl. partial leakage) of faecal material which is harmful to the skin, and a sweating ostomate.

[0120] The present disclosure provides an improved accuracy in monitoring and prediction of

performance of an ostomy appliance with an improved degree of comfort for a user. The present disclosure permits deriving future operating states in a more accurate manner by taking into account context data that is seen as affecting the operating state. In other words, the disclosed method allows to anticipate and indicate the dynamic internal of the ostomy appliance to a user, which supports the user in coordinating the use of the ostomy appliance with the planning of daily life activities.

[0121] Obtaining the context data may comprise: displaying a user interface field in a first application user interface of the first application, wherein the user interface field is configured to accept discourse input, detecting a first user input on the user interface field, and determining the context data based on the detected first user input. The discourse input may comprise text input, and/or voice input. The discourse input may be indicative of context data, e.g. indicative of activity, food intake, diet, medicine intake, etc...

[0122] Obtaining the context data may comprise obtaining calendar data from a calendar application installed on the accessory device. Calendar data comprises date, time, calendar events including event date, event start time, event end time, event recurrence, event location, event attendees, etc. The method may comprise deriving one or more regular events not derived from the calendar application, such as commuting, going up and down stairs, walking dog etc... and including the derived one or more regular events in the context data. For example, depending on the current operating state of the ostomy appliance, the accessory device can determine one or more future operating states based on a calendar event being a sports activity. If the operating state of the base plate indicates a medium risk of leakage before the sports activity, the accessory device may determine the future operating as being of higher risk of leakage at any time during the sports activity due to e.g. sweating and movements affecting the adhesive performance of the base plate and may communicate the future operating state accordingly. This, the user is informed and may change the base plate prior to the sports activity. Obtaining the context data may comprise obtaining the context data may comprise obtaining sensor data from one or more sensor modules of the accessory device.

[0123] Obtaining the context data may comprise obtaining the context data comprising location data, e.g. derived from location sensor data, derived from connectivity data. Location data may be obtained from a GPS sensor, an accelerometer, a gyroscope, a magnetometer, a cellular base station, a wireless access point, and/or a short-range connection. Obtaining location data may comprise obtaining one or more future locations e.g. using calendar data. The accessory device may comprise one or more of: a GPS sensor, an accelerometer, a gyroscope, a magnetometer, a cellular base station, a wireless access point, and/or a short-range connection. The accessory device may comprise a calendar application.

[0124] Obtaining the context data may comprise obtaining environment data (e.g. weather data, temperature data, humidity data, light data, and/or pressure data). Environment data may be obtained via a barometer, a camera, a proximity sensor, and/or a temperature sensor. The accessory device may comprise a barometer, a camera, a proximity sensor, and/or a

temperature sensor.

[0125] For example, optionally considering on the current operating state of the ostomy appliance, the accessory device can determine one or more future operating states based on a calendar event being taking a 3h flight. The accessory device may obtain environment data related to the conditions in an airplane. The accessory device may correlate the calendar data, the environment data, and optionally the location data indicating that the user is in airport to determine the future operating state. The accessory device may determine the future operating based on the monitor data and the context data: calendar data, the environment data, and optionally the location data. The accessory device may communicate the future operating state in a timely manner so as to allow for change of ostomy appliance in an opportune location. This way, the user is informed and may change the base plate e.g. prior to boarding the airplane.

[0126] Obtaining the context data may comprise obtaining nutritional data (e.g. indicative of food intake by the user, such as what food the user has consumed, e.g. based on user input, and/or based on photo capture in a photo-enabled application). Food intake affects the nature, consistence, flow of the output generated by the body of the user, and in turns affect the operating state. For example, optionally considering on the current operating state of the ostomy appliance, the accessory device obtains nutritional data from a photo application having a picture of the last meal of the user. The accessory device may correlate, for accuracy, the nutritional data with the calendar data showing a certain type of restaurant (e.g. Indian restaurant), and optionally the location data indicating that the user is in a certain type of restaurant to determine the future operating state. The accessory device may determine the future operating based on the monitor data and the context data: the nutritional data, optionally correlated with calendar data, and optionally the location data. The accessory device may determine a more severe future operating state based on the nutritional data (e.g. more severe than if the medicine intake was not taken into account) and communicate the future operating state in a timely manner so as to allow for change of ostomy appliance. This way, the user is informed and may change the base plate in due time to prevent any unforeseen leakage caused by the food intake.

[0127] Obtaining the context data may comprise obtaining medicine intake data (e.g. indicative of medicine intake by the user, such as a prescription). Medicine intake data may be obtained via a medical user application (e.g. a user application used to store prescriptions, or to communicate with a medical team). Medicine intake affects the nature, consistence, flow of the output generated by the body of the user, and in turns affect the operating state. For example, optionally considering on the current operating state of the ostomy appliance, the accessory device obtains medicine intake data e.g. from a user input or a medical application. The accessory device may determine the future operating based on the monitor data and the context data including the medicine intake data. The accessory device may determine a more severe future operating state based on the medical intake data (e.g. more severe than if the medicine intake was not taken into account) and communicate the future operating state in a timely manner so as to allow for change of ostomy appliance. This way, the user is informed

and may change the base plate in due time to prevent any unforeseen leakage caused by the medicine intake.

[0128] Obtaining the context data may comprise obtaining health data. Health data may comprise age, gender, medical conditions of the user, prescriptions, one or more diseases, heart rate, user metabolism data, health condition data. Health data may be obtained via a health user application, a heart rate sensor, an activity tracker etc... Health data affects the nature, consistence, flow of the output generated by the body of the user, and in turns affect the operating state. The accessory device may determine the future operating based on the monitor data and the context data including the health data. The accessory device may determine a more severe future operating state based on the medical intake data and communicate the future operating state in a timely manner so as to allow for change of ostomy appliance. This way, the user is informed and may change the base plate in due time to prevent any unforeseen leakage caused by the medicine intake.

[0129] A user metabolism data may comprise a user metabolism parameter indicative of the general metabolism of a user. A user health condition data may comprise a user health condition parameter indicative of a health condition of a user: current health condition, average health condition, health condition profile over time. For example, the health condition parameter may comprise a first health condition, and a second health condition. A health condition I of a user may be indicative of the user being healthy, suffering from a permanent physical condition, suffering from a temporary physical condition. For example, if the health condition parameter indicates an inflammation, the processor may be configured to determine a future operating state that requires earlier change than if the health condition parameter indicates a healthy condition.

[0130] Obtaining the context data may comprise obtaining activity data. Activity data may comprise physical activity data (e.g. sports, movements, etc...) data from a sport application, data from an accelerometer. Activity data may be indicative of a user activity level and may comprise a user activity parameter. A user activity level may be characterized by a user activity parameter indicative of an activity level of a user: current activity level, average activity level, activity level profile in time and/or in space. For example, the user activity parameter may comprise a first activity level, e.g. rest or sleep, and a second activity level, e.g. running or walking. An activity level of a user may be indicative of the user being stationary, sedentary, in motion, in exercising motion, in physical effort, resting or sleeping. A user activity parameter may comprise an activity level identifier and/or an activity level percentage. For example, if the user's activity level is high (e.g., when the user is running), the processor may be configured to determine a future operating state that requires earlier change than if the user is being less active. The reason being that the adhesion between the first adhesive layer and the skin surface of the user will likely degrade at a faster rate due to movement and, perhaps, increased perspiration when the user's activity level is high.

[0131] Obtaining the context data may comprise obtaining the context data over a time period. The memory may be configured to store the context data received over the time period.

Determining the one or more future operating states may be performed based on the context data obtained over time, and/or the monitor data obtained over time.

[0132] Communicating the one or more future operating states may comprise displaying, via the display, a first user interface object indicative of one or more future operating states.

[0133] A user interface object refers herein to a graphical representation of an object that is displayed on the display of the accessory device. The user interface object may be user-interactive, or selectable by a user input. For example, an image (e.g., icon), a button, and text (e.g., hyperlink) each optionally constitute a user interface object. The user interface object may form part of a widget. A widget may be seen as a mini-application that may be used by the user, and created by the user. A user interface object may comprise a prompt, and/or an application launch icon.

[0134] The first user interface object representing a future operating state may be part of a widget, such as a widget displayed in a widget user interface screen. The first user interface object representing the future operating state may be displayed in a reduced size in the widget.

[0135] A user interface screen refers herein to a graphical representation comprising a collection of user interface objects. A user interface screen comprises one or more user interface objects.

[0136] Communicating the one or more future operating states may comprise communicating a recommendation notification to change the base plate in a certain time window prior to reaching a determined future operating state indicative of e.g. leakage), to check supplies prior to a calendar event (e.g. driving, or activity) or while at a location e.g. at home etc.

[0137] Communicating the future operating state comprises displaying, via the display, a notification indicative of one or more future operating states, e.g. on the lock screen and/or on the home screen of the accessory device.

[0138] The method may comprise displaying, via the display of the accessory device, a second user interface object prompting the user to provide an indicator as to whether a trend in the determined one or more future operating states is incorrect.

[0139] The method may comprise detecting a second user input selecting the first user interface object or the notification; in response to detecting the second user input, opening the ostomy user application. When the display is a touch sensitive display, the second user input may comprise a contact on the touch sensitive display.

[0140] The method may comprise in response to opening the ostomy user application, displaying in the first application user interface a third user interface object representing the current operating state of the ostomy appliance.

[0141] In response to detecting user input to add context data, the method may comprise displaying a fourth user interface object representing the context data, the fourth user interface object may comprise one or more context user interface objects indicative of one or more of calendar data, location data, environment data, nutritional data, activity data, medicine intake data and/or health data respectively.

[0142] The method may comprise in response to opening the ostomy user application, displaying in the first application user interface a calendar event user interface object, e.g. superimposed the first user interface object.

[0143] The present disclosure provides an accessory device. The accessory device forms part of an ostomy system. The accessory device comprises a memory; a processor operatively connected to the interface and to the memory; and an interface configured to communicate with one or more devices of the ostomy system. The one or more devices comprising a monitor device coupled with the accessory device and with an ostomy appliance, and/or an ostomy appliance configured to be placed on a skin surface of a user; wherein the ostomy appliance comprises a base plate.

[0144] The interface comprises a display. The interface may comprise a transceiver. The interface is configured to obtain monitor data from the one or more devices, e.g. from the monitor device.

[0145] The processor is configured to obtain context data from e.g. the memory, e.g. from one or more user applications installed on the accessory device.

[0146] The processor is configured to determine one or more future operating states of the ostomy appliance based on the monitor data and the context data, wherein a future operating state is indicative of future adhesive performance of the ostomy appliance,

[0147] The interface is configured to communicate the one or more future operating states e.g. to

The interface comprises a display, such as a touch-sensitive display. The interface of the accessory device is configured to communicate with one or more of: a user, a monitor device and/or a server device. The interface of the accessory device may be configured to communicate with the server device via a network.

[0148] The interface may comprise a monitor interface for connecting, e.g. wirelessly connecting, the accessory device to one or more monitor devices. The interface of the accessory device may comprise a transceiver comprising an antenna and a wireless transceiver, e.g. configured for wireless communication at frequencies in the range from 2.4 to 2.5 GHz. The wireless transceiver may be a Bluetooth transceiver, i.e. the wireless transceiver may be configured for wireless communication according to Bluetooth protocol, e.g. Bluetooth Low Energy, Bluetooth 4.0, Bluetooth 5.

[0149] The accessory device is configured to receive monitor data from one or more monitor devices. The accessory device may be configured to transmit accessory data, e.g. to a server device. For example, the processor of the accessory device may be configured to transmit accessory data, as a wireless accessory signal via the antenna and the wireless transceiver.

[0150] The interface of the accessory device comprises a display and is configured to obtain monitor data from the monitor device coupled to the ostomy appliance. The monitor data may comprise sensor data obtained from one or more sensors in the monitor device. The monitor data may comprise ostomy data obtained from electrodes of the base plate, and/or parameter data based on ostomy data obtained from electrodes of the base plate.

[0151] The accessory device is configured to obtain context data, e.g. from one or more user applications installed on the accessory device, and/or from a memory of the accessory device. The accessory device may be configured to have one or more user applications installed thereon, wherein the one or more user applications comprise a first application (e.g. an ostomy user application) and a second application (e.g. a third-party application, e.g. an application other than the ostomy user application). Obtaining the context data may comprise obtaining the context data from a second application different from the first application. For example, the second application comprises a calendar application, a weather application, a health application, a sports application, an activity tracker application, a social media application, a photo application, a camera, and/or a medical application. The second application may comprise an input application (configured to accept user input related to context data). Context data may comprise includes calendar data, location data, environment data, nutritional data, health data, activity data, and/or medicine intake data. Context data may be quantified with one or more context parameters, which may be associated one or more adjustment coefficients and optionally a function parameterized with the adjustment coefficients. The accessory may maintain a local or remote database or lookup table associating a context parameter with a corresponding adjustment coefficient.

[0152] For example, the processor may be configured to determine the one or more future operating states of the base plate based on the monitor data and the context data by determining one or more current moisture pattern types based on the monitor data, and by generating the one or more future operating states based on the one or more current moisture pattern types and the context data. Determining one or more current moisture pattern types may be based on the ostomy data and/or the parameter data (e.g. first parameter data and second parameter data), such as based on measurements obtained by the electrodes, such as measurements of resistance, capacitance and/or inductance, such as timing information. For example, the processor may be configured to determine the future operating state of the ostomy appliance based on the monitor data and context data by determining one or more future moisture pattern types based on the monitor data and context data, wherein monitor data includes on the ostomy data and/or the parameter data (e.g. first parameter data and second parameter data), such as measurements obtained by the electrodes, such as measurements of resistance, capacitance and/or inductance, such as timing information, and context data includes calendar data, location data, environment data, nutritional data, health

data, activity data, and/or medicine intake data. Determining one or more future moisture pattern types based on the monitor data and context data may comprise adjusting based on the one or more context parameters (e.g. one or more adjustment coefficients) the one or more future moisture pattern types determined based on monitor data.

[0153] The moisture pattern type is optionally indicative of adhesive condition (e.g. failure) of the base plate and/or leakage risk of the ostomy appliance and/or indicative of the risk of skin damage to the user of the ostomy system.

[0154] For example, the processor may be configured to determine the future operating state of the base plate by determining one or more future moisture pattern types based on parameter data (e.g. the first parameter data and second parameter data (and optionally a third parameter data)). To determine one or more future moisture pattern types may comprise to select a moisture pattern type from a set of predefined moisture pattern types based on a trend identified in the monitor data over a period of time and to adjust the selection based on the context data (e.g. based on one or more context parameter). The set of predefined moisture pattern types may comprise a number M of moisture pattern types, such as at least three moisture pattern types, at least four moisture pattern types, at least five moisture pattern types. The number M of moisture pattern types may be in the range from four to twenty. For example, to determine one or more future moisture pattern types may comprise to select a function selected based on the context data (wherein the function is parametrized using the one or more context parameters, such as one or more adjustment coefficients), and to identify a future moisture pattern type by applying to the parameter data the selected function. The processor may be configured to determine the future operating state based on the one or more context parameters and the current operating state, and optionally any operating state prior to the determining of the future operating state.

[0155] In one or more exemplary accessory devices, the first parameter data, the second parameter data, and the third parameter data may be indicative of resistance between the first electrode pair, the second electrode pair, and the third electrode pair, respectively. The first parameter data, the second parameter data, and the third parameter data may be indicative of voltage between the first electrode pair, the second electrode pair, and the third electrode pair, respectively (and thus indicative of resistance). The first parameter data, the second parameter data, and the third parameter data may be indicative of current between the first electrode pair, the second electrode pair, and the third electrode pair, respectively (and thus indicative of resistance).

[0156] The first parameter data, the second parameter data, and the third parameter data may be indicative of a rate of change in resistance between the first electrode pair, the second electrode pair, and the third electrode pair, respectively. In one or more exemplary monitor devices, the first parameter data, the second parameter data, and the third parameter data may be indicative of a rate of change in voltage between the first electrode pair, the second electrode pair, and the third electrode pair, respectively. In one or more exemplary monitor devices, the first parameter data, the second parameter data, and the third parameter data

may be indicative of a rate of change in current between the first electrode pair, the second electrode pair, and the third electrode pair, respectively.

[0157] To determine a current and/or future operating state of the base plate of the base plate may comprise to determine an operating state (e.g. current and/or future operating state) from a set of operating states. In other words, to determine a current and/or future operating state may comprise selecting an operating state from a set of predefined operating states based on context data. The set of predefined operating states may comprise a number of operating states, such as at least two operating states, at least three operating states, at least four operating states, at least five operating states. The number of operating states may be in the range from four to twenty. In one or more exemplary accessory devices, the number of operating states in the set of predefined operating states is larger than ten, such as larger than 20 or even larger than 50.

[0158] In one or more exemplary accessory devices, the processor is configured to determine a future operating state of the base plate if a change criterion is fulfilled. The change criterion may be based on context data and monitor data (e.g. the first parameter data, the second parameter data and/or the third parameter data). The change criterion may be fulfilled if parameter data changes, e.g. if a change in parameter data is larger than a change threshold selected based on the context data. Thus, current and/or future operating state determination may be conditional or dependent on a change in the parameter data conditioned by the context data, in turn leading to an optimum use of power or battery resources in the monitor device, since current and/or future operating state determination may be performed when there may be a change in the operating state as a consequence of the change in parameter data.

[0159] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a first criteria set based on context data and parameter data (the first parameter data and/or the second parameter data), wherein the current and/or future operating state is determined to be the first operating state if the first criteria set is satisfied. The first criteria set may comprise one or more first criteria based on one or more of first parameter data, second parameter data and third parameter data. The first criteria set may comprise a first primary criterion based on the first parameter data. The first criteria set may comprise a first secondary criterion based on the second parameter data. The first criteria set may comprise a first tertiary criterion based on the third parameter data.

[0160] It may be envisaged that the first criteria set may be selected based on the context data, such as based on the one or more context parameters. It may be envisaged that the accessory device maintains a lookup table with one or more criteria set associated with given context data, such as with one or more context parameters.

[0161] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate may be based on a first threshold set comprising one or a plurality of first threshold values. The first threshold set may comprise one or a plurality of

threshold values, e.g. to be applied in the first criteria set. The first threshold set may comprise a first primary threshold value. The first threshold set may comprise a first secondary threshold value. The first threshold set may comprise a first tertiary threshold value.

[0162] The first criteria set may be given by or at least may comprise:

$(P_{1_1} < TH_{1_1})$,

$(P_{2_1} > TH_{1_2})$,

and

$(P_{3_1} > TH_{1_3})$,

wherein P_{1_1} is a first primary parameter based on the first parameter data, TH_{1_1} is a first primary threshold value, P_{2_1} is a second primary parameter based on the second parameter data, TH_{1_2} is a first secondary threshold value, P_{3_1} is a third primary parameter based on the third parameter data, and TH_{1_3} is a first tertiary threshold value, and wherein the first operating state is indicative of low degree of radial erosion or radial swelling on the base plate. The first threshold values (TH_{1_1} , TH_{1_2} and TH_{1_3}) may be the same or different, e.g. depending on the electrode configuration of the base plate. The first tertiary criterion ($P_{3_1} < TH_{1_3}$) may be omitted in the first criteria set. The first operating state, e.g. indicative of low degree of radial erosion on the base plate may be indicative of a radial progression of moisture to the first electrode pair (but not to the second electrode pair and not to the third electrode pair) which corresponds to e.g. an un-alarming and/or normal radial progression of moisture.

[0163] In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of resistance between the first electrode pair, the second electrode pair and the third electrode pair respectively, the first threshold values (TH_{1_1} , TH_{1_2} and TH_{1_3}) may correspond to first resistance threshold values. In one or more exemplary embodiments, the first primary threshold value TH_{1_1} may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms. In one or more exemplary embodiments, the first secondary threshold value TH_{1_2} may correspond to the upper resistance threshold value. In one or more exemplary embodiments, the first tertiary threshold value TH_{1_3} may correspond to the upper resistance threshold value.

[0164] The first primary parameter P_{1_1} may be indicative of the resistance between the first electrode pair (first electrode and first electrode part of the ground electrode) of the base plate. The first parameter data may comprise a first secondary parameter which may be derived from the first primary parameter, and/or a first tertiary parameter, which may be derived from the first primary parameter. A first secondary parameter P_{1_2} may comprise or be a gradient derived from the first primary parameter. In one or more embodiments, a first primary parameter P_{1_1} may be indicative of a voltage between the first electrode pair (first electrode and first electrode part of the ground electrode) of the base plate.

[0165] In one or more exemplary embodiments, when the first parameter data, the second

parameter data and the third parameter data are each respectively indicative of voltage between the first electrode pair, the second electrode pair and the third electrode pair respectively, the first threshold values (TH_1_1, TH_1_2 and TH_1_3) may correspond to first voltage threshold values. In one or more exemplary embodiments, the first primary threshold value TH_1_1 may correspond to an upper voltage threshold value. An upper voltage threshold value may be set to a value less than 5 Volts, such as 3 Volts, such as 2, 86 Volts. In one or more exemplary embodiments, the first secondary threshold value TH_1_2 may correspond to the upper voltage threshold value. In one or more exemplary embodiments, the first tertiary threshold value TH_1_3 may correspond to the upper voltage threshold value.

[0166] The first criteria set may comprise e.g.

(P_4_1 > TH_1_4)

wherein P_4_1 is a fourth primary parameter based on the fourth parameter data and indicative of the resistance, voltage, or current between the fourth electrode pair and TH_1_4 is a first quaternary threshold value, and wherein the first operating state is indicative of absence of fluid on the proximal side of the first adhesive layer of the base plate of the ostomy appliance. In one or more exemplary embodiments, the first quaternary threshold value TH_1_4 may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms.

[0167] In one or more exemplary embodiments, the following additional criterion may be determined

(P_1_1 < TH_low),

wherein P_1_1 is a first primary parameter based on the first parameter data, TH_low is a threshold value corresponding to a lower resistance threshold value. In one or more exemplary embodiments, a lower resistance threshold value may be set to a value less than 1 Mega-Ohms, such as 100 kilo-Ohms, such as 80 kilo-Ohms, such as 79 kilo-Ohms. This is indicative of a saturation of the first electrode pair by the moisture detected and there are no further changes expected by the first primary parameter. Moisture is likely to continue its progression.

[0168] In one or more exemplary embodiments, the following additional criterion may be determined

(P_2_1 < TH_low),

wherein P_2_1 is a second primary parameter based on the second parameter data, TH_low is a threshold value corresponding to a lower resistance threshold value. In one or more exemplary embodiments, a lower resistance threshold value may be set to a value less than 1 Mega-Ohms, such as 100 kilo-Ohms, such as 80 kilo-Ohms, such as 79 kilo-Ohms. This is indicative of a saturation of the second electrode pair by the moisture detected and there are no further changes expected by the second primary parameter. Moisture is likely to continue its progression.

[0169] In one or more exemplary embodiments, the following additional criterion may be determined:

(P_3_1 > TH_low),

[0170] P_{3_1} is a third primary parameter based on the third parameter data, and TH_{low} is a threshold value corresponding to a lower resistance threshold value. In one or more exemplary embodiments, a lower resistance threshold value may be set to a value less than 1 Mega-Ohms, such as 100 kilo-Ohms, such as 80 kilo-Ohms, such as 79 kilo-Ohms. This is indicative of a saturation of the third electrode pair by the moisture detected and there are no further changes expected by the second primary parameter. Moisture is likely to continue its progression.

[0171] In one or more exemplary embodiments, one or more criteria of a criteria set, e.g. one or more first criteria of the first criteria set and/or one or more second criteria of the second criteria set, may be based on timing information or one or more delay parameters based on the parameter data. In one or more exemplary embodiments, one or more delay parameters or time differences related to different parameter data, e.g. related to the first parameter data and the second parameter data, are determined.

[0172] In one or more exemplary embodiments, one or more first criteria of the first criteria set may be based on timing information (e.g. one or more delay parameters of the parameter data and/or one or more times where a parameter crosses a threshold).

[0173] In one or more exemplary embodiments, the timing information may comprise a time difference D_{1_2_1} between a time T1 where P_{1_1} crosses a threshold, such as TH_{1_1}, and a time T2 where P_{2_1} crosses a threshold, such as TH_{1_2}. Thus, delay parameter or time difference D_{1_2_1} may be given as $D_{1_2_1} = T2 - T1$.

[0174] In one or more exemplary embodiments, the timing information, e.g. used in the first criteria set, may comprise a time difference D_{2_3_1} between a time T2 where P_{2_1} crosses a threshold, such as TH_{1_2}, and a time T3 where P_{3_1} crosses a threshold, such as TH_{1_3}. Thus, delay parameter or time difference D_{2_3_1} may be given as $D_{2_3_1} = T3 - T2$.

[0175] In one or more exemplary embodiments, one or more criteria sets, such as the third criteria set and/or the second criteria set, may comprise any of:

D_{1_2_1} > Z

D_{2_3_1} > Z

[0176] Wherein Z is a time difference constant characterizing the progression of moisture (e.g. 3h, e.g. 2h). Different time difference constants may be employed in different criteria sets/for different time delays.

[0177] In one or more exemplary embodiments, one or more criteria sets, such as the second criteria set and/or the third criteria set may comprise any of:

D_1_2_1 > Z

[0178] Wherein Z is a time difference constant characterizing the progression of moisture (e.g. 3h, e.g. 2h).

[0179] The second primary parameter may be indicative of the resistance between the second electrode pair (second electrode and second electrode part of the ground electrode) of the base plate. The second parameter data may comprise a second secondary parameter, and/or a second tertiary parameter, which may be derived from the second primary parameter. A second secondary parameter may be indicative of a voltage between the second electrode pair (second electrode and second electrode part of the ground electrode) of the base plate.

[0180] The third primary parameter may be indicative of resistance between the third electrode pair (third electrode and third electrode part of the ground electrode) of the base plate. The third parameter data may comprise a third secondary parameter, and/or a third tertiary parameter, which may be derived from the third primary parameter. A third secondary parameter may be indicative of a voltage between the second electrode pair (second electrode and second electrode part of the ground electrode) of the base plate.

[0181] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a second criteria set based on context data and parameter data (e.g. the second parameter data and/or the third parameter data), wherein the current and/or future operating state is determined to be the second operating state if the second criteria set is satisfied. The second criteria set may be based on the first parameter data.

[0182] The second criteria set may comprise one or more second criteria based on context data and parameter data (e.g. one or more of first parameter data, second parameter data and third parameter data). The second criteria set may comprise a second primary criterion based on the first parameter data and a part of context data. The second criteria set may comprise a second secondary criterion based on the second parameter data and a part of context data. The second criteria set may comprise a second tertiary criterion based on the third parameter data and a part of context data.

[0183] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a second threshold set comprising one or a plurality of second threshold values. The second threshold set may comprise one or a plurality of threshold values, e.g. to be applied in the second criteria set. The second threshold set may comprise a second primary threshold value. The second threshold set may comprise a second secondary threshold value. The second threshold set may comprise a second tertiary threshold value.

[0184] The second criteria set may be given by or at least may comprise:
($P_1 < TH_2$),

(P_2_1 < TH_2_2),

and

(P_3_1 > TH_2_3)

wherein P_1_1 is a first primary parameter based on the first parameter data and indicative of the resistance between the first electrode pair, TH_2_1 is a second primary threshold value, P_2_1 is a second primary parameter based on the second parameter data and indicative of the resistance between the second electrode pair, TH_2_2 is a second secondary threshold value, P_3_1 is a third primary parameter based on the third parameter data and indicative of the resistance between the third electrode pair, TH_2_3 is a second tertiary threshold value, and wherein the second operating state is indicative of medium degree of radial erosion or radial swelling on the base plate. The second threshold values (TH_2_1, TH_2_2 and TH_2_3) may be the same or different, e.g. depending on the electrode configuration of the base plate. The second primary criterion (P_1_1 < TH_2_1) and/or the second tertiary criterion (P_3_1 > TH_2_3) may be omitted in the second criteria set. The second operating state indicative of medium degree of radial erosion on the base plate may be indicative of a radial progression of moisture to the first electrode pair and the second electrode pair (and not the third electrode pair). The second operating state indicative of medium degree of radial erosion on the base plate may be indicative of a radial progression of moisture to the first electrode pair and to the second electrode pair.

[0185] In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of resistance between the first electrode pair, the second electrode pair and the third electrode pair respectively, the second threshold values (TH_2_1, TH_2_2 and TH_2_3) may correspond to second resistance threshold values. In one or more exemplary embodiments, the second primary threshold value TH_2_1 may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms. In one or more exemplary embodiments, the second secondary threshold value TH_2_2 may correspond to the upper resistance threshold. In one or more exemplary embodiments, the second tertiary threshold value TH_2_3 may correspond to the upper resistance threshold value. In one or more exemplary embodiments, the second primary threshold value TH_2_1 may correspond to a medium resistance threshold value. A medium resistance threshold value may be set to a value less than 10 Mega-Ohms, such as 5 Mega-Ohms, such as 3 Mega-Ohms, such as 2 Mega-Ohms, such as 1 Mega-Ohms.

[0186] In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of voltage between the first electrode pair, the second electrode pair and the third electrode pair respectively, the second threshold values (TH_2_1, TH_2_2 and TH_2_3) may correspond to second voltage threshold values. In one or more exemplary embodiments, the second primary threshold value TH_2_1 may correspond to an upper voltage threshold value. An upper voltage threshold value may be set to a value less than 5 Volts, such as 3 Volts, such as 2.86

Volts. In one or more exemplary embodiments, the second secondary threshold value TH_2_2 may correspond to the upper voltage threshold value. In one or more exemplary embodiments, the second tertiary threshold value TH_2_3 may correspond to the upper voltage threshold value. In one or more exemplary embodiments, the second primary threshold value TH_2_1 may correspond to a medium voltage threshold value. A medium resistance threshold value may be set to a value less than 10 Mega-Ohms, such as 5 Mega-Ohms, such as 3 Mega-Ohms, such as 2 Mega-Ohms, such as 1 Mega-Ohms.

[0187] In one or more exemplary embodiments, the second criteria set may comprise any of:

$D_{1_2_1} > Z$

Wherein Z is a time difference constant characterizing the progression of moisture (e.g. 3h, e.g. 2h).

[0188] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a default criteria set based on the first parameter data, wherein the current and/or future operating state is determined to be the default operating state if the default criteria set is satisfied, and in accordance with a determination that the current and/or future operating state is the default operating state, transmit a default monitor signal comprising monitor data indicative of the default operating state of the ostomy appliance.

[0189] The default criteria set may be given by or at least may comprise:

$(P_{1_1} > TH_{D_1})$,

$(P_{2_1} > TH_{D_2})$,

and

$(P_{3_1} > TH_{D_3})$

wherein P_{1_1} is a first primary parameter based on the first parameter data and indicative of the resistance between the first electrode pair, TH_{D_1} is a default primary threshold value, P_{2_1} is a second primary parameter based on the second parameter data and indicative of the resistance between the second electrode pair, TH_{D_2} is a default secondary threshold value, P_{3_1} is a third primary parameter based on the third parameter data and indicative of the resistance between the third electrode pair, TH_{D_3} is a default tertiary threshold value, and wherein the default operating state is indicative of very low or no degree of radial erosion or radial swelling on the base plate. The default threshold values (TH_{D_1} , TH_{D_2} and TH_{D_3}) may be the same or different, e.g. depending on the electrode configuration of the base plate. In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of resistance between the first electrode pair, the second electrode pair and the third electrode pair respectively, the default threshold values (TH_{D_1} , TH_{D_2} and TH_{D_3}) may correspond to default resistance threshold values. In one or more exemplary embodiments, the second primary threshold value TH_{D_1} may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms. In one or more exemplary embodiments, the default secondary threshold value TH_{D_2} may correspond to

the upper resistance threshold. In one or more exemplary embodiments, the default tertiary threshold value TH_D_3 may correspond to the upper resistance threshold value.

[0190] In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of voltage between the first electrode pair, the second electrode pair and the third electrode pair respectively, the default threshold values (TH_D_1, TH_D_2 and TH_D_3) may correspond to default voltage threshold values. In one or more exemplary embodiments, the default primary threshold value TH_D_1 may correspond to an upper voltage threshold value. An upper voltage threshold value may be set to a value less than 5 Volts, such as 3 Volts, such as 2.86 Volts. In one or more exemplary embodiments, the default secondary threshold value TH_D_2 may correspond to the upper voltage threshold value. In one or more exemplary embodiments, the default tertiary threshold value TH_D_3 may correspond to the upper voltage threshold value.

[0191] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a third criteria set based on context data and the third parameter data, wherein the current and/or future operating state is determined to be the third operating state if the third criteria set is satisfied, and in accordance with a determination that the current and/or future operating state is the third operating state, transmit a third monitor signal comprising monitor data indicative of the third operating state of the ostomy appliance.

[0192] In one or more exemplary accessory devices, the third operating state of the base plate corresponds to a situation wherein the first adhesive layer of the base plate has experienced a third degree of radial erosion or radial swelling, e.g. the first adhesive layer is eroded to the third radial distance of the third electrode pair.

[0193] The third criteria set may be given by or at least may comprise:

(P_1_1 < TH_3_1),

(P_2_1 < TH_3_2),

and

(P_3_1 < TH_3_3)

wherein P_1_1 is a first primary parameter based on the first parameter data and indicative of the resistance between the first electrode pair, TH_3_1 is a third primary threshold value, P_2_1 is a second primary parameter based on the second parameter data and indicative of the resistance between the second electrode pair, TH_3_2 is a third secondary threshold value, P_3_1 is a third primary parameter based on the third parameter data and indicative of the resistance between the third electrode pair, TH_3_3 is a third tertiary threshold value, and wherein the third operating state is indicative of high degree of radial erosion or radial swelling on the base plate. The third threshold values (TH_3_1, TH_3_2 and TH_3_3) may be the same or different, e.g. depending on the electrode configuration of the base plate. The third primary criterion (P_1_1 < TH_3_1) and/or the third secondary criterion (P_2_1 < TH_3_2) may be omitted in the third criteria set. The third operating state indicative of high degree of

radial erosion on the base plate may be indicative of high likelihood of leakage, e.g. on the proximal side of the base plate, e.g. within a time period e.g. within the next 20 minutes. The third operating state may indicate a radial progression of moisture to the first electrode pair, the second electrode pair, and the third electrode pair.

[0194] In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of resistance between the first electrode pair, the second electrode pair and the third electrode pair respectively, the third threshold values (TH_3_1, TH_3_2 and TH_3_3) may correspond to third resistance threshold values. In one or more exemplary embodiments, the third primary threshold value TH_3_1 may correspond to an upper resistance threshold value. In one or more exemplary embodiments, the third secondary threshold value TH_3_2 may correspond to an upper resistance threshold value. In one or more exemplary embodiments, the third tertiary threshold value TH_3_3 may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms.

[0195] In one or more exemplary embodiments, the third primary threshold value TH_3_1 may correspond to a lower resistance threshold value. In one or more exemplary embodiments, a lower resistance threshold value may be set to a value less than 1 Mega-Ohms, such as 100 kilo-Ohms, such as 80 kilo-Ohms, such as 79 kilo-Ohms. In one or more exemplary embodiments, the third secondary threshold value TH_3_2 may correspond to a medium resistance threshold. A medium resistance threshold value may be set to a value less than 10 Mega-Ohms, such as 5 Mega-Ohms, such as 3 Mega-Ohms, such as 2 Mega-Ohms, such as 1 Mega-Ohms. In one or more exemplary embodiments, the third tertiary threshold value TH_3_3 may correspond to the upper resistance threshold. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms.

[0196] In one or more exemplary embodiments, when the first parameter data, the second parameter data and the third parameter data are each respectively indicative of voltage between the first electrode pair, the second electrode pair and the third electrode pair respectively, the third threshold values (TH_3_1, TH_3_2 and TH_3_3) may correspond to third voltage threshold values. In one or more exemplary embodiments, the third primary threshold value TH_3_1 may correspond to an upper voltage threshold value. In one or more exemplary embodiments, the third secondary threshold value TH_3_2 may correspond to an upper voltage threshold value. In one or more exemplary embodiments, the second tertiary threshold value TH_2_3 may correspond to the upper voltage threshold value.

[0197] In one or more exemplary embodiments, the third primary threshold value TH_3_1 may correspond to a lower voltage threshold value. In one or more exemplary embodiments, a lower voltage threshold value may be set to a value which is less than 1 Volt, such as 0.5 Volt, such as 0.25 Volts, such as 0.22 Volts. In one or more exemplary embodiments, the third secondary threshold value TH_3_2 may correspond to a medium voltage threshold value. A

medium voltage threshold value may be set to a value less than 2 Volts, such as 1.5 Volts. In one or more exemplary embodiments, the second tertiary threshold value TH_{2_3} may correspond to the upper voltage threshold value.

[0198] In one or more exemplary embodiments, the third criteria set may comprise any of:
D_{1_2_1} < Z

D_{2_3_1} < Z

Wherein Z is a time difference constant characterizing the progression of moisture (e.g. 3h, e.g. 2h), a time difference D_{1_2_1} between a time T1 where P_{1_1} crosses TH_{1_1} and a time T2 where P_{2_1} crosses TH_{1_2}, and a time difference D_{2_3_1} between a time T2 where P_{2_1} crosses TH_{1_2} and a time T3 where P_{3_1} crosses TH_{1_3}.

[0199] In one or more exemplary devices and methods, the ostomy data comprises fourth ostomy data from a fourth electrode pair of the base plate. To apply a processing scheme may comprise to obtain fourth parameter data based on the fourth ostomy data, and determine an operating state of the base plate of the ostomy appliance based on the fourth parameter data. The monitor device may be configured to, in accordance with a determination that the operating state is a fourth operating state, transmit a fourth monitor signal comprising monitor data indicative of the fourth operating state of the ostomy appliance.

[0200] In one or more exemplary devices and methods, the fourth operating state of the base plate corresponds to a situation, wherein the fourth electrode pair detects fluid, such as output, between the proximal surface of first adhesive layer and the skin of the user at a fourth radial distance, and thus there is a high risk of leakage from the ostomy appliance in the fourth operating state.

[0201] The fourth criteria set may be given by or at least may comprise:

(P_{4_1} < TH_{4_4})

wherein P_{4_1} is a fourth primary parameter based on the fourth parameter data and indicative of the resistance between the fourth electrode pair and TH_{4_4} is a fourth quaternary threshold value, and wherein the fourth operating state is indicative of high risk of leakage from the ostomy appliance. In one or more exemplary embodiments, the fourth quaternary threshold value TH_{4_4} may correspond to an upper resistance threshold value.

[0202] In one or more exemplary embodiments, a fifth operating state of the base plate corresponds to a situation, wherein the fourth electrode pair detects fluid, such as sweat, between the proximal surface of first adhesive layer and the skin of the user at a fourth radial distance, and thus there is a no leakage from the ostomy appliance in the fifth operating state.

[0203] The fifth operating state may be determined in accordance with a determination that one or more fifth criterion of a fifth criteria set are satisfied.

[0204] The fifth criteria set may be given by or at least may comprise:

(P_{4_1} < TH_{5_1})

$$(P_4_2 < TH_5_2)$$

$$(P_4_3 < TH_5_3)$$

$$(\nabla P_4_1 < V)$$

$$(\nabla P_4_2 < V)$$

and

$$(\nabla P_4_3 < V)$$

Wherein P_4_1 is a fourth primary parameter based on the fourth parameter data and indicative of the resistance between the fourth electrode pair, P_4_2 is a fourth secondary parameter indicative of the resistance between the fourth electrode and the fifth electrode, P_4_3 is a fourth tertiary parameter based on the fourth parameter data and indicative of the resistance between the fifth electrode pair and TH_5_1 is a fifth primary threshold value, TH_5_2 is a fifth secondary threshold value, TH_5_3 is a fifth tertiary threshold value and OP_4_1 is gradient of P_4_1 , VP_4_2 is gradient of P_4_2 , ∇P_4_3 is gradient of P_4_3 , and V is a gradient limit (e.g. 80%). In one or more exemplary embodiments, the fifth primary threshold value TH_5_1 may correspond to an upper resistance threshold value. In one or more exemplary embodiments, TH_5_2 may correspond to an upper resistance threshold value. In one or more exemplary embodiments, TH_5_3 may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms. The fifth operating state may refer to presence of sweat detected by the fourth parameter data indicating moisture detected omnidirectionally from the stomal opening and uniformly.

[0205] In one or more exemplary embodiments, the sixth operating state of the base plate corresponds to a situation, wherein the fourth electrode pair detects fluid, such as output, between the proximal surface of first adhesive layer and the skin of the user at a fourth radial distance, and thus there is a sudden leakage from the ostomy appliance in the sixth operating state.

[0206] A sixth operating state may be determined in accordance with a determination that one or more sixth criteria of a sixth criteria set are satisfied by the fourth parameter data.

[0207] The sixth criteria set may comprise a sixth primary criterion, wherein the sixth primary criterion may comprise:

$$(P_4_1 < TH_6_1)$$

and

$$(\nabla P_4_1 > V)$$

[0208] The sixth criteria set may comprise a sixth secondary criterion, wherein the sixth secondary criterion may comprise:

$$(P_4_2 < TH_6_2)$$

and

$(\nabla P_{4_2} > V)$

[0209] The sixth criteria set may comprise a sixth tertiary criterion, wherein the sixth tertiary criterion may comprise:

$(P_{4_3} < TH_{6_3})$

and

$(\nabla P_{4_3} > V)$

[0210] Wherein P_{4_1} is a fourth primary parameter based on the fourth parameter data and indicative of the resistance between the fourth electrode pair, P_{4_2} is a fourth secondary parameter indicative of the resistance between the fourth electrode and the fifth electrode, P_{4_3} is a fourth tertiary parameter indicative of the resistance between the fifth electrode pair (fifth electrode and ground electrode) and TH_{6_1} is a sixth primary threshold value, TH_{6_2} is a sixth secondary threshold value TH_{6_3} is a sixth tertiary threshold value, and ∇P_{4_1} is gradient of P_{4_1} , ∇P_{4_2} is gradient of P_{4_2} , ∇P_{4_3} is gradient of P_{4_3} , and V is a gradient limit (e.g. 80%). In one or more exemplary embodiments, the sixth primary threshold value TH_{6_1} may correspond to an upper resistance threshold value. In one or more exemplary embodiments, TH_{6_2} may correspond to an upper resistance threshold value. In one or more exemplary embodiments, TH_{6_3} may correspond to an upper resistance threshold value. An upper resistance threshold value may be set to a value which is less than 30 Mega-Ohms, such as 25 Mega-Ohms, such as 20.5 Mega-Ohms, such as 20.4 Mega-Ohms. The sixth operating state may refer to presence of output detected by the fourth parameter data indicating a sudden leak, e.g. a developing leak. In one or more exemplary embodiments, when the time T is below X minutes from the placement of the base plate, where X is between 5 to 60 minutes, and when any of P_{1_1} , P_{2_1} , P_{3_1} in average over T are below a default threshold value corresponding to an upper resistance threshold value, this indicates that any of the first electrode pair, the second electrode pair, and the third electrode pair is cut (e.g. cut by the user when preparing the base plate for placement around the stoma). In one or more exemplary embodiments, when the time T is below X minutes from the placement of the base plate, where X is between 5 to 60 minutes, and when any of P_{4_1} , P_{4_2} , P_{4_3} in average over T are below a default threshold value corresponding to an upper resistance threshold value, this indicates an instant leakage, e.g. presence of output on the proximal side.

[0211] In one or more exemplary embodiments, any of the first criteria set, the second criteria set, the third criteria set, the fourth criteria set, the default criteria set, the fifth criteria set, the sixth criteria set may be used to define one or more further criteria sets, and thereby to determine one or more operating states.

[0212] In one or more exemplary embodiments, different criteria sets may be used to determine the same operating state.

[0213] The interface may be configured to communicate the one or more future operating states by displaying, via the display, a first user interface object indicative of one or more future operating states.

[0214] The interface may be configured to communicate the one or more future operating states by displaying, via the display, a notification indicative of one or more future operating states, e.g. on the lock screen and/or on the home screen of the accessory device.

[0215] The interface may be configured to display, via the display of the accessory device, a second user interface object prompting the user to provide an indicator as to whether a trend in the determined one or more future operating states is incorrect.

[0216] The processor and the interface may be configured to detect a second user input selecting the first user interface object or the notification; in response to detecting the second user input, to open the ostomy user application. When the display is a touch sensitive display, the second user input may comprise a contact on the touch sensitive display.

[0217] The processor and the interface may be configured to in response to opening the ostomy user application, to display the first application user interface comprising a third user interface object representing the current operating state of the ostomy appliance.

[0218] The interface may be configured to display a fourth user interface object representing context data.

[0219] The interface may comprise a display, and wherein the interface is configured to communicate by displaying, via the display, the current operating state and/or one or more future operating states and/or a characteristic feature indicative of the future operating states. The characteristic feature may be in form a graph of a function or of a set that provides the current operating state and/or one or more future operating states over time. For example, the interface is configured to communicate by displaying, via the display, a graph that provides the current remaining wear time and/or the one or more future remaining wear time vs. time, wherein a time axis comprises the current time, a past time period before the current time (e.g. a few hours or days) and a future time window after the current time (e.g. a few hours).

[0220] The interface may be configured to communicate the current and/or future operating state of the ostomy appliance by notifying the user via the interface, such as by displaying a notification on a display of the accessory device. The notification may comprise the user interface object representative of the current and/or future operating state. The notification may comprise a notification indicator to open an application related to the ostomy appliance.

[0221] The present disclosure provides an ostomy appliance system comprising an ostomy appliance disclosed herein, an accessory device disclosed herein and a monitor device disclosed herein, the ostomy appliance comprising a base plate disclosed herein.

[0222] The present disclosure provides an ostomy system comprising an accessory device and one or more devices, wherein the one or more devices comprises a monitor device and an ostomy appliance configured to be placed on a skin surface of a user, wherein the ostomy appliance comprises a base plate. The accessory device comprises a memory, a processor operatively connected to an interface and to the memory, the interface being configured to communicate with the one or more devices of the ostomy system. The interface comprises a display. The interface is configured to obtain monitor data from the one or more devices, the monitor data being indicative of a physical condition of the base plate. The processor is configured to obtain context data being indicative of a context in which the ostomy appliance is operating; determine one or more future operating states of the ostomy appliance based on the monitor data and the context data, wherein a future operating state is indicative of future adhesive performance of the base plate of the ostomy appliance, and wherein the interface is configured to communicate the one or more future operating states.

[0223] The present disclosure provides a computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by an accessory device with an interface, a memory and a processor cause the accessory device to perform any of the methods disclosed herein.

[0224] Fig. 1 illustrates an exemplary ostomy system. The ostomy system 1 comprises an ostomy appliance 2 including a base plate 4 and an ostomy pouch (not shown). Further, the ostomy system 1 comprises a monitor device 6 and an accessory device 8 (mobile telephone). The monitor device 6 is connectable to the base plate 4 via respective first connectors of the monitor device 6 and base plate 4. The monitor device 6 is configured for wireless communication with the accessory device 8. Optionally, the accessory device 8 is configured to communicate with a server device 10 of the ostomy system 1, e.g. via network 12. The server device 10 may be operated and/or controlled by the ostomy appliance manufacturer and/or a service centre. Ostomy data or parameter data based on the ostomy data are obtained from electrodes/sensors of the ostomy appliance 2 with the monitor device 6. The monitor device 6 processes the ostomy data and/or parameter data based on the ostomy data to determine monitor data that are transmitted to the accessory device 8. In the illustrated ostomy system, the accessory device 8 is a mobile phone, however the accessory device 8 may be embodied as another handheld device, such as a tablet device, or a wearable, such as a watch or other wrist-worn electronic device. Accordingly, the monitor device 6 is configured to determine and transmit monitor data to the accessory device 8. The base plate 4 comprises a coupling member 14 in the form of a coupling ring 16 for coupling an ostomy pouch (not shown) to the base plate (two-part ostomy appliance). The base plate has a stoma-receiving opening 18 with a stoma center point. The size and/or shape of the stomal opening 18 is typically adjusted by the user or nurse before application of the ostomy appliance to accommodate the user's stoma.

[0225] The ostomy system 1 optionally comprises a docking station 20 forming an accessory device of the ostomy system 1. The docking station 20 comprises a docking monitor interface including a first connector 22 configured for electrically and/or mechanically

connecting the monitor device 6 to the docking station 20. The docking monitor interface may be configured for wirelessly connecting the monitor device to the docking station. The docking station 20 comprises a user interface 24 for receiving user input and/or providing feedback to the user on the operational state of the docking station 20. The user interface 24 may comprise a touch-screen. The user interface 24 may comprise one or more physical buttons and/or one or more visual indicators, such as light emitting diodes.

[0226] Fig. 2 is a schematic block diagram of an exemplary monitor device. The monitor device 6 comprises a monitor device housing 100, a processor 101 and one or more interfaces, the one or more interfaces including a first interface 102 (appliance interface) and a second interface 104 (accessory interface). The monitor device 6 comprises a memory 106 for storing ostomy data and/or parameter data based on the ostomy data. The memory 106 is connected to the processor 101 and/or the first interface 102.

[0227] The first interface 102 is configured as an appliance interface for electrically and/or mechanically connecting the monitor device 6 to the ostomy appliance, e.g. ostomy appliance 2. The first interface 102 comprises a plurality of terminals for forming electrical connections with respective terminals of the ostomy appliance 2 (base plate 4). The first interface 102 comprises a ground terminal 108, a first terminal 110, a second terminal 112 and a third terminal 114. The first interface 102 optionally comprises a fourth terminal 116 and a fifth terminal 118. The first interface 102 of the monitor device 6 comprises a coupling part 120 for forming a mechanical connection, such as a releasable coupling between the monitor device and the base plate. The coupling part 120 and the terminals 108, 110, 112, 114, 116, and 118 of the first interface 102 form (at least part of) a first connector of the monitor device 6.

[0228] The monitor device 6 comprises a power unit 121 for powering the monitor device and active components thereof, i.e. the power unit 121 is connected to the processor 101, the first interface 102, the second interface 104, and memory 106. The power unit comprises a battery and charging circuitry. The charging circuitry is connected to the battery and terminals of the first interface 102 for charging the battery via terminals of the first interface, e.g. terminals of the first connector.

[0229] The second interface 104 of monitor device is configured as an accessory interface for connecting the monitor device 6 to one or more accessory devices such as accessory device 8. The second interface 104 comprises an antenna 122 and a wireless transceiver 124 configured for wireless communication with accessory device(s). Optionally, the second interface 104 comprises a loudspeaker 126 and/or a haptic feedback element 128 for provision of respective audio signal and/or haptic feedback to the user.

[0230] The monitor device 6 comprises a sensor unit 140 connected to the processor 101. The sensor unit 140 comprises a temperature sensor for feeding temperature data to the processor and a G-sensor or accelerometer for feeding acceleration data to the processor 101.

[0231] Fig. 3 illustrates an exploded view of an exemplary base plate of an ostomy appliance.

The base plate 4 comprises a first adhesive layer 200. During use, a proximal surface of the first adhesive layer 200 adheres to the user's skin in the peristomal area and/or to additional seals, such as sealing paste, sealing tape and/or sealing ring. The base plate 4 optionally comprises a second adhesive layer 202, also denoted rim adhesive layer. The base plate 4 comprises a plurality of electrodes arranged in an electrode assembly 204. The electrode assembly 204 is arranged between the first adhesive layer 200 and the second adhesive layer 202. The electrode assembly 204 comprises a support layer with electrodes formed on a proximal surface of the support layer. The base plate 4 comprises a release liner 206 that is peeled off by the user prior to applying the base plate 4 on the skin. The base plate 4 comprises a top layer 208 and a coupling ring 209 for coupling an ostomy pouch to the base plate 4. The top layer 208 is a protective layer protecting the second adhesive layer 202 from external strains and stress during use.

[0232] The base plate 4 comprises a monitor interface. The monitor interface is configured for electrically and/or mechanically connecting the ostomy appliance (base plate 4) to the monitor device. The monitor interface of the base plate comprises a coupling part 210 for forming a mechanical connection, such as a releasable coupling between the monitor device and the base plate. The coupling part 210 is configured to engage with a coupling part of the monitor device for releasably coupling the monitor device to the base plate 4. Further, the monitor interface of the base plate 4 comprises a plurality of terminal elements respectively forming a plurality of terminals 212 for forming electrical connections with respective terminals of the monitor device. The coupling part 210 and the terminals 212 form a first connector 211 of the base plate 4. The base plate 4 comprises a first intermediate element 213 on the distal side of the electrode assembly. The first intermediate element 213 is arranged between the terminal elements forming terminals 212 and the first adhesive layer (not shown). The first intermediate element 213 covers the terminal elements forming terminals 212 of the base plate 4 when seen in the axial direction and protects the first adhesive layer from mechanical stress from the terminal elements of the base plate.

[0233] Fig. 4 illustrates an exploded view of an exemplary electrode assembly 204 of a base plate. The electrode assembly 204 comprises a support layer 214 with proximal surface 214B and electrodes 216 arranged on the proximal side of the support layer 214 and including a ground electrode, a first electrode, a second electrode, a third electrode, a fourth electrode, and a fifth electrode, wherein each electrode has a respective connection part for connecting the electrodes to respective terminal elements of the monitor interface. Further, electrode assembly 204 comprises a masking element 218 with proximal surface 218B and configured to insulate electrode parts of electrodes 216 from the first adhesive layer of the base plate. The masking element 218 covers or overlap with parts of the electrodes 216 when seen in the axial direction.

[0234] Fig. 5 is a proximal view of proximal surfaces of base plate parts of the base plate without the first adhesive layer and the release liner. The base plate 4 comprises a first intermediate element 213 on the distal side of the electrode assembly, i.e. between the electrode assembly 204 and the first adhesive layer (not shown). The first intermediate

element 213 covers the terminal elements of the base plate 4 when seen in the axial direction and protects the first adhesive layer from mechanical stress from the terminal elements of the base plate.

[0235] Fig. 6 is a distal view of an exemplary electrode configuration 220 of electrodes 216 of the electrode assembly 204. The electrode configuration 220/electrode assembly 204 comprises a ground electrode 222, a first electrode 224, a second electrode 226, a third electrode 228, a fourth electrode 230, and a fifth electrode 232. The ground electrode 222 comprises a ground connection part 222A and the first electrode 224 comprises a first connection part 224A. The second electrode 226 comprises a second connection part 226A and the third electrode 228 comprises a third connection part 228A. The fourth electrode 230 comprises a fourth connection part 230A and the fifth electrode 232 comprise a fifth connection part 232A.

[0236] The fourth electrode 230 comprises fourth sensing parts 230B. The fifth electrode 232 comprises fifth sensing parts 232B.

[0237] The ground electrode 222 comprises a first electrode part 224 for forming a ground for the first electrode 224. The ground electrode 222 comprises a second electrode part 236 for forming a ground for the second electrode 226. The ground electrode 222 comprises a third electrode part 238 for forming a ground for the third electrode 228. The ground electrode 222 comprises a fourth electrode part 240 for forming a ground for the fourth electrode 230 and the fifth electrode 232. The fourth electrode part 240 of the ground electrode 222 comprises ground sensing parts 222B.

[0238] The first sensing part 224B extends circularly at least 330 degrees around the stomal opening at a first radial distance R1 from the center point 19. The first radial distance R1 may be around 14 mm. In one or more embodiments, the first radial distance R1 may be around 13 mm, such as 12.5 mm. The first electrode part 234 is arranged on the inside of the first sensing part (i.e. closer to the center point) and extends circularly at least 330 degrees around the stomal opening at a first ground distance RG1 from the first sensing part (radially from the center point). The first ground distance RG1 between sensing part of first electrode and first electrode part is about 1 mm.

[0239] The second sensing part 226B extends circularly at least 330 degrees around the stomal opening at a second radial distance R2 from the center point 19. The second radial distance R2 may be 18 mm. In one or more embodiments, the second radial distance R2 may be 17 mm. The second electrode part 236 is arranged on the inside of the second sensing part 226B (i.e. closer to the center point) and extends circularly at least 330 degrees around the stomal opening at a second ground distance RG2 from the second sensing part 226B (radially from the center point). The second ground distance RG2 between sensing part of second electrode and second electrode part is about 1 mm.

[0240] The third sensing part 228B extends circularly at least 330 degrees around the stomal

opening at a third radial distance R3 from the center point 19. The third radial distance R3 is about 26 mm. In one or more embodiments, the third radial distance R3 is 21 mm. The third electrode part 238 is arranged on the inside of the third sensing part 228B (i.e. closer to the center point) and extends circularly at least 330 degrees around the stomal opening at a third ground distance RG3 from the third sensing part 228B (radially from the center point). The third ground distance RG3 between sensing part of third electrode and third electrode part is about 1 mm.

[0241] The ground electrode 222 comprises a fourth electrode part 240 for forming a ground or reference for the fourth electrode 230 and the fifth electrode 232. The fourth electrode part 240 of the ground electrode 222 extends at least 300 degrees around the stomal opening and comprises ground sensing parts 222B. The fourth sensing parts 230B, fifth sensing parts 232B, and ground sensing parts of the fourth electrode part 240 are circularly distributed around the center point 19 at a leakage radius from the center point (such as a leakage radius R5 which may be around 32 mm from the center point). The fourth sensing parts 230B, fifth sensing parts 232B, and ground sensing parts of the fourth electrode part may have a radial extension larger than 1.0 mm, such as in the range from 1.5 mm to 3.0 mm, e.g. about 2.0 mm. The fourth sensing parts 230B, fifth sensing parts 232B, and ground sensing parts of the fourth electrode part 240 may have a circumferential extension (perpendicular to the radial extension) larger than 1.0 mm, such as in the range from 2.5 mm to 5.0 mm, e.g. about 3.5 mm.

[0242] Fig. 7 is a distal view of an exemplary masking element. The masking element 218 optionally has a plurality of terminal openings including six terminal openings. The plurality of terminal openings comprises a ground terminal opening 242, a first terminal opening 244, a second terminal opening 246, a third terminal opening 248, a fourth terminal opening 250, and a fifth terminal opening 252. The terminal openings 242, 244, 246, 248, 250, 252 of the masking element 218 are configured to overlap and/or be aligned with respective connection parts 222A, 224A, 226A, 228A, 230A, 232A of the electrodes of the electrode assembly.

[0243] The masking element 218 has a plurality of sensor point openings. The sensor point openings comprise primary sensor point openings shown within dotted line 254, each primary sensor point opening configured to overlap a part of the ground electrode 222 and/or a part of the fourth electrode 230. The primary sensor point openings 254 comprise, in the illustrated exemplary masking element, five primary first sensor point openings 254A each configured to overlap a part of the ground electrode 222. The primary sensor point openings 254 comprise, in the illustrated exemplary masking element, four primary second sensor point openings 254B each configured to overlap a part of the fourth electrode 230. The sensor point openings comprise secondary sensor point openings shown within dotted line 256, each second sensor point opening configured to overlap a part of the fourth electrode 230 and/or a part of the fifth electrode 232. The secondary sensor point openings 256 comprise, in the illustrated exemplary masking element, five secondary first sensor point openings 256A each configured to overlap a part of the fifth electrode 232. The secondary sensor point openings 256 comprise, in the illustrated exemplary masking element, four secondary second sensor point openings 256B each configured to overlap a part of the fourth electrode 230. The sensor point

openings comprise tertiary sensor point openings shown within dotted line 258, each tertiary sensor opening configured to overlap a part of the fifth electrode 232 and/or a part of the ground electrode 222. The tertiary sensor point openings 258 comprise, in the illustrated exemplary masking element, five tertiary first sensor point openings 258A each configured to overlap a part of the fifth electrode 232. The tertiary sensor point openings 258 comprise, in the illustrated exemplary masking element, four tertiary second sensor point openings 258B each configured to overlap a part of the ground electrode 222.

[0244] Fig. 8 is a distal view of an exemplary first adhesive layer. The first adhesive layer 200 has a plurality of sensor point openings. The sensor point openings of the first adhesive layer comprise primary sensor point openings shown within dotted line 260, each primary sensor point opening configured to overlap a part of the ground electrode 222 and/or a part of the fourth electrode 230 of the electrode assembly. The primary sensor point openings 260 comprise, in the illustrated exemplary masking element, five primary first sensor point openings 260A each configured to overlap a part of the ground electrode 222. The primary sensor point openings 260 comprise, in the illustrated exemplary masking element, four primary second sensor point openings 260B each configured to overlap a part of the fourth electrode 230. The sensor point openings of the first adhesive layer comprise secondary sensor point openings shown within dotted line 262, each second sensor point opening configured to overlap a part of the fourth electrode 230 and/or a part of the fifth electrode 232 of the electrode assembly. The secondary sensor point openings 262 comprise, in the illustrated exemplary masking element, five secondary first sensor point openings 262A each configured to overlap a part of the fifth electrode 232. The secondary sensor point openings 262 comprise, in the illustrated exemplary masking element, four secondary second sensor point openings 262B each configured to overlap a part of the fourth electrode 230. The sensor point openings of the first adhesive layer comprise tertiary sensor point openings shown within dotted line 264, each tertiary sensor opening configured to overlap a part of the fifth electrode 232 and/or a part of the ground electrode 222 of the electrode assembly. The tertiary sensor point openings 264 comprise, in the illustrated exemplary masking element, five tertiary first sensor point openings 264A each configured to overlap a part of the fifth electrode 232. The tertiary sensor point openings 264 comprise, in the illustrated exemplary masking element, four tertiary second sensor point openings 264B each configured to overlap a part of the ground electrode 222. Fig. 9 is a proximal view of the first adhesive layer of Fig. 8.

[0245] Fig. 10 is a more detailed distal view of a part of the base plate 4. Monitor interface of the base plate comprises the first connector 211. The first connector 211 comprises coupling part 210 configured to releasably couple the monitor device to the base plate and thus forming a releasable coupling. The first connector 211/monitor interface comprises a plurality of terminals formed by respective terminal elements for forming respective electrical connections with respective terminals of the monitor device.

[0246] The plurality of terminals of the first connector 211/monitor interface comprises a ground terminal element 282 forming a ground terminal 282A, a first terminal element 284 forming a first terminal 284, a second terminal element 286 forming a second terminal 286A,

and a third terminal element 288 forming a third terminal 288A. The monitor interface optionally comprises a fourth terminal element 290 forming a fourth terminal 290A and/or a fifth terminal element 292 forming a fifth terminal 290. The terminal elements 282, 284, 286, 288, 290, 292 contact respective connection parts 222A, 224A, 226A, 228A, 230a, 232A of electrodes 222, 224, 226, 228, 230, 232.

[0247] The position of the first connector on the base plate, the number of terminals and the position of the terminals in the coupling part may be adapted to the electrode configuration used in the electrode assembly of the base plate.

[0248] Figs. 11a-b are flow diagrams illustrating an exemplary method 300 according to this disclosure. The method 300 is performed in an accessory device (e.g. accessory device of Fig. 1 and of Fig. 12). The method 300 is performed for determining and communicating one or more future operating state of a base plate of an ostomy appliance disclosed herein, e.g. monitoring an operating state of a base plate of an ostomy appliance, e.g. monitoring a future operating state of a base plate, e.g. of an ostomy appliance.

[0249] The accessory device 8 is configured to communicate with one or more devices of an ostomy system (e.g. ostomy system 1 of Fig. 1). As illustrated in Fig. 1, the ostomy system 1 comprises a monitor device 6, and/or an ostomy appliance 2 configured to be placed on a skin surface of a user.

[0250] The ostomy appliance 2 comprises a base plate 4 disclosed herein. The ostomy appliance comprises an ostomy pouch. The base plate may comprise a first adhesive layer having a proximal side. During use, a proximal surface of the first adhesive layer adheres to the user's skin in the peristomal area and/or to additional seals, such as sealing paste, sealing tape and/or sealing ring. The base plate may comprise one or more electrodes configured to measure electrical properties of the first adhesive layer. The electrical properties may be indicative of a conductive path in the first adhesive layer, thereby indicative of the moisture level, and indicative of the condition of the ostomy appliance.

[0251] The method 300 comprises obtaining 302 monitor data from the one or more devices, such as from monitor device coupled with the ostomy appliance and with the accessory device. The monitor data may comprise ostomy data and/or parameter data. The monitor data comprises e.g. parameter data representative of the measurement of the electrical properties of the first adhesive layer.

[0252] Obtaining 302 monitor data may comprise retrieving and/or receiving the monitor data from the monitor device. Obtaining 302 monitor data may comprise receiving the monitor data over a time period. The ostomy data and /or parameter data may be indicative of resistance between electrodes of the base plate, capacitance and/or inductance between electrodes and/or any change thereof. For example, the ostomy data and /or parameter data may be indicative of a change in resistance, capacitance and/or inductance between electrodes. For example, the ostomy data and /or parameter data may comprise timing information, such as

timestamped data or information from which timing is derivable.

[0253] The method 300 comprises obtaining 304 (e.g. receiving, retrieving, deriving) context data, e.g. from one or more user applications installed on the accessory device, and/or from a memory of the accessory device, e.g. a memory part dedicated to storing application data related to the one or more user applications. The accessory device may be configured to have one or more user applications installed thereon, wherein the one or more user applications comprise a first application (e.g. an ostomy user application) and a second application (e.g. an application other than the ostomy user application).

[0254] Obtaining 304 the context data may comprise obtaining 304a the context data from a second application different from the first application. For example, the second application comprises a calendar application, a weather application, a health application, a sports application, an activity tracker application, an analytics application, a photo application, a camera, and/or a medical application. Context data may be quantified with one or more context parameters, which may be associated one or more adjustment coefficients. The accessory may maintain a local or remote database (or lookup table) associating a context parameter with a corresponding adjustment coefficient.

[0255] The method 300 comprises determining 306 one or more future operating states of the ostomy appliance based on the monitor data and the context data. The future operating state is indicative of future adhesive performance of the ostomy appliance. The future operating state may comprise at least one of: a wear time, a quality of adhesion, and a moisture pattern representation. The future operating state may comprise at least one of: a wear time at a future point in time, a quality of adhesion at a future point in time, a moisture pattern representation at a future point in time. Wear time may comprise average wear time, nominal wear time, minimal wear time, maximal wear time, median wear time, and/or any of other statistical metric derivable from wear time. Wear time may comprise remaining wear time and/or current wear time and/or elapsed wear time. A quality of adhesion may comprise a metric indicative of erosion of a layer of the base plate, such as of the first adhesive layer. moisture pattern representation.

[0256] Determining 306 the one or more future operating states of the base plate of the ostomy appliance based on the monitor data and the context data may comprise determining the one or more future operating states of the base plate of the ostomy appliance based on the monitor data and the one or more context parameters (e.g. using the one or more adjustment coefficients).

[0257] The method may comprise determining 310 a current operating state of the ostomy appliance based on the monitor data and/or the context data. The current operating state is indicative of current adhesive performance of the ostomy appliance. The current operating state comprises at least one of: a wear time, a quality of adhesion, and a moisture pattern representation.

[0258] The method 300 comprises communicating 308 the one or more future operating states, e.g. via the interface, e.g. to the user, e.g. to the one or more devices of the ostomy system. Communicating 308 the one or more future operating states may comprise communicating 308a the future operating state in a first application, wherein the first application is an ostomy user application installed on the accessory device. Communicating may comprise outputting, displaying and/or transmitting e.g. to the user and/or the one or more devices of the ostomy system, and/or to the one or more accessory devices of the user coupled with the disclosed accessory device.

[0259] It is an advantage of the present disclosure that a user of an ostomy appliance or a health care professional is given herein improved tools to monitor and plan the use of the ostomy appliance with daily life by exploiting context data obtainable by the accessory device. The present disclosure provides an improved accuracy in monitoring and prediction of performance of an ostomy appliance with an improved degree of comfort for a user. The present disclosure permit deriving future operating states in a more accurate manner by context data that is seen as affecting the operating state. In other words, the disclosed method allows to anticipate and indicate the dynamic internal of the ostomy appliance to a user, which supports the user in coordinating the use of the ostomy appliance with the planning of daily life activities.

[0260] Obtaining 304 the context data may comprise: displaying 304b a user interface field in a first application user interface of the first application, wherein the user interface field is configured to accept discourse input, detecting 304c a first user input on the user interface field, and determining 304d the context data based on the detected first user input. The discourse input may comprise text input, and/or voice input. The discourse input may be indicative of context data, e.g. indicative of activity, food intake, diet, medicine intake, etc...

[0261] Obtaining 304 the context data may comprise obtaining calendar data from a calendar application installed on the accessory device. Calendar data comprises date, time, calendar events incl event date, event start time, event end time, event recurrence, event location, event attendees, etc. The method 300 may comprise deriving one or more regular events not derived from the calendar application, such as commuting, going up and down stairs, walking dog etc.. and including the derived one or more regular events in the context data. For example, if the calendar data is indicative of a sports activity (e.g., running), the accessory device may determine a future operating state that requires earlier change than if the user is being less active. The reason being that the adhesion between the first adhesive layer and the skin surface of the user will likely degrade at a faster rate due to movement and, perhaps, increased perspiration when the user's activity level is high.

[0262] Obtaining 304 the context data may comprise obtaining location data, e.g. derived from location sensor data, derived from connectivity data. Location data may be obtained from a GPS sensor, an accelerometer, a gyroscope, a magnetometer, a cellular base station, a wireless access point, and/or a short range connection. For example, if the location data is indicative of a sports activity (e.g., running), the accessory device may determine a future

operating state that requires earlier change than if the user is being less active. The reason being that the adhesion between the first adhesive layer and the skin surface of the user will likely degrade at a faster rate due to movement and, perhaps, increased perspiration when the user's activity level is high. For example, the processor of the accessory device may be configured to determine a future operating state based on the location data characterizing a region or country of residence. As discussed in connection with Fig. 17, it is noted that various regions and countries have various routines and recommendations to support optimal use of an ostomy appliance. For example, in regions of Europe, it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is an optimal state (corresponding to a first operating state) when the radial thickness of the whitening ring is between 0-15 mm (for a user not in compliance with a preferred use), such as between 0-7mm (for a user in compliance with a preferred use), such as between 0-5mm (recommended by a nurse).

[0263] For example, in Europe, it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in suboptimal state (corresponding to a second operating state) and thereby indicate a consideration to change the base plate when the radial thickness of the whitening ring is such as between 5-10mm (recommended by a nurse), between 7mm and 10mm (for a user in compliance with a preferred use), and/or between 15mm and 30mm (for a user not in compliance with a preferred use).

[0264] For example, in Europe, it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in a poor state (corresponding to a third operating state) and indicate a request to change the base plate when the radial thickness of the whitening ring is more than 10mm (recommended by a nurse), such as more than 15mm (for a user in compliance with a preferred use), such as more than 30mm (for a user not in compliance with a preferred use).

[0265] For example, in other regions (e.g. America), it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is an optimal state (corresponding to a first operating state) when the radial thickness of the whitening ring is between 0-20 mm (for a user not in compliance with a preferred use), such as between 0-10mm (for a user in compliance with a preferred use), such as between 0-10mm (recommended by a nurse).

[0266] For example, in other regions (e.g. America), it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in suboptimal state (corresponding to a second operating state) and thereby indicate a consideration to change the base plate when the radial thickness of the whitening ring is such as between 10mm and 20mm (recommended by a nurse), between 10mm and 20 (for a user in compliance with a preferred use), and/or between 20mm and 40mm (for a user not in compliance with a preferred use).

[0267] For example, in other regions (e.g. America), it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in a poor state (corresponding to a third operating state) and indicate a request to change the base plate when the radial thickness of the whitening ring is more than 20mm (recommended by a nurse), such as more

than 20mm (for a user in compliance with a preferred use), such as more than 40mm (for a user not in compliance with a preferred use).

[0268] The disclosed methods, and accessory devices allow to accommodate the regional preferences of user in their use of the ostomy appliance so as to adjust thresholds for the operating states to the regional preference or use and to predict a future operating state accordingly.

[0269] Obtaining 304 the context data may comprise obtaining environment data (e.g. weather data, temperature data, humidity data, light data, and/or pressure data). Environment data may be obtained via a barometer, a camera, a proximity sensor, a temperature sensor. For example, if the environment data is indicative of high heat and/or high humidity, the accessory device may determine a future operating state that requires earlier change than if the user would be at a location with less heat and/or less humidity. The reason being that the adhesion between the first adhesive layer and the skin surface of the user will likely degrade at a faster rate due to humidity and increased perspiration due to the heat. For example, the processor of the accessory device may be configured to determine a future operating state based on temperature data characterizing temperature of the environment in which the base plate operates. As discussed in connection with Figs.21A-B, it is noted that various scaling factors illustrated may be applied to the current operating state to derive the future operation state. A scaling factor may be applied to the operating state (e.g. wear time) of a base plate such that the scaling factor affects negatively the operating state (e.g. decreases the wear time) of the base plate as temperature increases and/or the scaling factor affects positively the operating state (e.g. increases the wear time) of the base plate as temperature decreases.

[0270] In some embodiments, the scaling factor may be predetermined. In these embodiments, the predetermined scaling factor may be constant. Alternatively, the predetermined scaling factor may be iteratively adjusted based on when the first electrode pair, the second electrode pair, and/or the third electrode pair are triggered. In at least some of these embodiments, the predetermined scaling factor may be iteratively adjusted.

[0271] Obtaining 304 the context data may comprise obtaining nutritional data (e.g. indicative of food intake by the user, such as what food the user has consumed, e.g. based on user input, and/or based on photo capture in a photo-enabled application). For example, if the nutritional data is indicative of spicy food intake, the accessory device may determine a future operating state that requires earlier change than if the user would not have eaten the spicy food. The reason being that the output consistence and flow may be more aggressive after spicy food intake than if not.

[0272] Obtaining 304 the context data may comprise obtaining medicine intake data (e.g. indicative of medicine intake by the user, such as a prescription). Medicine intake data may be obtained via a medical user application (e.g. a user application used to store prescriptions, or to communicate with a medical team).

[0273] Obtaining 304 the context data may comprise obtaining health data. Health data may comprise age, gender, medical conditions of the user, prescriptions, one or more diseases, heart rate, user metabolism data, health condition data. Health data may be obtained via a health user application, a heart rate sensor, an activity tracker etc... The health condition of a user may affect the viscosity of the output affects the first parameter data and thereby the current and future operating state. The viscosity of the output is affected by one or more factors: nutritional data (type of food eaten by user, water intake, etc.), medication intake data (e.g. vitamins/supplements, prescriptions, etc.), and health data (e.g. medical conditions of the user, diseases, ostomist, ileostomist, etc.). The exemplary results of Figs. 20A-B illustrate how to viscosity of the output affects the first parameter data and thereby the current and future operating state. For example, by obtaining whether the user is an ileostomist or a colostomist, the future operating state may be determined by applying a corresponding velocity data of Fig. 20B for example.

[0274] Health data may comprise an ostomy health condition such as ileostomy and/or colostomy. An ileostomist output may be more fluid than a colostomist output. A user health condition may be associated with a percentage of dilution of the output based on whether the user is an ileostomist or a colostomist. Figs. 20A-20B illustrate dilution relation data between first parameter data and the dilution grade of an output mixture. The accessory device may be configured to retrieve dilution relation data associated with the user health condition. The memory of the accessory device may have the dilution relation data stored thereon, or may be configured to store the dilution relation data, so that the processor of the accessory device may determine a future operating state based on a current operating state and/or the monitor data using the dilution relation data.

[0275] Obtaining 304 the context data may comprise obtaining activity data. Activity data may comprise physical activity data (e.g. sports, movements, etc...) data from a sport application, data from an accelerometer. For example, if the user's activity level is high (e.g., when the user is running), the processor may be configured to determine a future operating state that requires earlier change than if the user is being less active. The reason being that the adhesion between the first adhesive layer and the skin surface of the user will likely degrade at a faster rate due to movement and, perhaps, increased perspiration when the user's activity level is high. Due to activity (e.g. sports, bending, movement), experimental results have shown that the operating state may be affected negatively by a reducing factor ranging from 2 to 10 compared to when the user has no or little activity (e.g. a sedentary user). For example, a wear time may be reduced by a factor of 2 to 10 due to an extensive activity. For example, by identifying the user activity level, the future operating state may be determined by dividing the current operating state e.g. by a factor ranging from 2 to 10.

[0276] The accessory device may comprise a sensor unit comprising an accelerometer for sensing acceleration and provision of acceleration data to the processor.

[0277] Obtaining 304 the context data may comprise obtaining the context data over a time period. The memory may be configured to store the context data received over the time

period. The second application may be configured to store, locally in the memory or remotely on an application server (and/or related storage server) the context data received over the time period. Determining the one or more future operating states may be performed based on the context data obtained over time, and/or the monitor data obtained over time. Statistical analysis of the previous operating states, and/or historic monitor data may be illustrated in Figs. 18A-B.

[0278] The method comprises communicating 308 the one or more future operating states.

[0279] Communicating 308 the one or more future operating states may comprise displaying 308b, via the display, a first user interface object indicative of one or more future operating states. Communicating 308 the one or more future operating states may comprise communicating a recommendation notification to change in a certain time window prior to an event (e.g. leakage), to check supplies prior to an event (e.g. driving, or activity) or while at home etc.

[0280] Communicating 308 the future operating state comprises displaying 308c, via the display, a notification indicative of one or more future operating states, e.g. on the lock screen and/or on the home screen of the accessory device.

[0281] The method may comprise displaying 312, via the display of the accessory device, a second user interface object prompting the user to provide an indicator as to whether a trend in the determined one or more future operating states is incorrect.

[0282] The method may comprise detecting 314 a second user input selecting the first user interface object or the notification; in response to detecting the second user input, opening 316 the ostomy user application. When the display is a touch sensitive display, the second user input may comprise a contact on the touch sensitive display.

[0283] The method may comprise in response to opening the ostomy user application, displaying 318 in the first application user interface a third user interface object representing the current operating state of the ostomy appliance.

[0284] In response to detecting user input to add context data, the method 300 may comprise displaying a fourth user interface object representing the context data, the fourth user interface object may comprise one or more context user interface objects indicative of one or more of calendar data, location data, environment data, nutritional data, activity data, medicine intake data and/or health data respectively.

[0285] Communicating 308 may comprise displaying the current operating state and the one or more future operating state together or separately. Communicating 308 may comprise displaying, via a display, a graph that provides the current operating state (e.g. the current remaining wear time) and/or the one or more future operating states (e.g. the one or more future remaining wear time) as a function of time, wherein a time axis comprises the current

time, a past time period before the current time (e.g. a few hours or days) and a future time window after the current time (e.g. a few hours).

[0286] Fig. 12 is a block diagram illustrating an exemplary accessory device 8 according to the present disclosure. The accessory device 8 forms part of an ostomy system (e.g. ostomy system 1 of Fig. 1) and is capable of determining of the operating states of an ostomy appliance (e.g. ostomy appliance 2 of Fig. 1) to be placed on a user' s skin, in particular the determining of a future operating state of the base plate of the ostomy appliance based on context data. The accessory device 8 comprises a memory 401; a processor 402 coupled to the memory 401; and an interface 403, coupled to the processor 402.

[0287] The interface 403 is configured to communicate with one or more devices of the ostomy system 1. Referring to Figs. 1 and 3, the one or more devices comprise a monitor device 6 disclosed herein, and/or an ostomy appliance 2 configured to be placed on a skin surface of a user or on any additional seals. The ostomy appliance 2 comprises a base plate 4. The base plate 4 may comprise a first adhesive layer 200 having a proximal surface 200B. During use, a proximal surface 200B of the first adhesive layer 200 adheres to the user's skin in the peristomal area and/or to additional seals, such as sealing paste, sealing tape and/or sealing ring. The base plate 4 may comprise one or more electrodes configured to measure electrical properties of the first adhesive layer 200. The electrical properties may be indicative of a conductive path in the first adhesive layer, thereby indicative of the moisture level, and indicative of the condition of the base plate.

[0288] The interface 403 comprises a display 403a. The interface comprises a transceiver 403b. The interface 403 is configured to obtain monitor data from the one or more devices, e.g. from the monitor device. The transceiver 403b may be configured to obtain monitor data from the one or more devices, e.g. from the monitor device 6.

[0289] The accessory device 8 may comprise one or more sensors. The processor 402 is configured to obtain context data from e.g. the one or more sensors.

[0290] The interface 403 is configured to obtain monitor data from the one or more devices, such as to receive or retrieve the monitor data from the monitor device 6. The monitor data may be indicative of a condition of the ostomy appliance, such as a condition of a proximal side of a layer of the ostomy appliance (e.g. a first adhesive layer of the base plate) that is directed towards the skin surface.

[0291] The processor 402 is configured to obtain context data from e.g. the memory 401, e.g. from one or more user applications 405 installed on the accessory device 8, and/or from the interface 403. Context data may be quantified with one or more context parameters, which may be associated one or more adjustment coefficients (e.g. scaling factors illustrated in Figs. 19A-B, 20A-B, 21A-B). The accessory device may maintain a local or remote database (or lookup table) associating a context parameter with a corresponding adjustment coefficient.

[0292] The processor 402 is configured to determine one or more future operating states of the ostomy appliance (e.g. one or more future operating states of the base plate of the ostomy appliance disclosed herein) based on the monitor data and the context data. The future operating state is indicative of a future adhesive performance of the ostomy appliance (e.g. of the future adhesive performance of the base plate 4 of the ostomy appliance 2).

[0293] The processor 402 may be configured to determine one or more future operating states of the ostomy appliance (e.g. one or more future operating states of the base plate of the ostomy appliance disclosed herein) based on the monitor data and one or more context parameters.

[0294] The interface 403 is configured to communicate the one or more future operating states, via the display 403a or the transceiver 403b, e.g. to the user, and/or to other devices.

[0295] The processor 402 may be configured to determine the one or more future operating states of the base plate based on the monitor data and the context data by determining one or more current moisture pattern types based on the monitor data, and by generating the one or more future operating states based on the one or more current moisture pattern types and the context data. Determining one or more current moisture pattern types may be based on the ostomy data and/or the parameter data (e.g. first parameter data and second parameter data), such as based on measurements obtained by the electrodes, such as measurements of resistance, capacitance and/or inductance, such as timing information. For example, the processor 402 may be configured to determine the future operating state of the ostomy appliance based on the monitor data and context data by determining one or more future moisture pattern types based on the monitor data and context data, wherein monitor data includes on the ostomy data and/or the parameter data (e.g. first parameter data and second parameter data), such as measurements obtained by the electrodes, such as measurements of resistance, capacitance and/or inductance, such as timing information, and context data includes calendar data, location data, environment data, nutritional data, health data, activity data, and/or medicine intake data.

[0296] For example, the processor 402 may be configured to determine the future operating state of the ostomy appliance by determining one or more future moisture pattern types based on parameter data (e.g. the first parameter data and second parameter data (and optionally a third parameter data)). For example, to determine one or more future moisture pattern types may comprise to select a moisture pattern type from a set of predefined moisture pattern types based on a trend identified in the monitor data over a period of time and to adjust the selection based on the context data. The set of predefined moisture pattern types may comprise a number M of moisture pattern types, such as at least three moisture pattern types, at least four moisture pattern types, at least five moisture pattern types. The number M of moisture pattern types may be in the range from four to twenty. For example, to determine one or more future moisture pattern types may comprise to select a function selected based on the context data, and to identify a future moisture pattern type by applying to the parameter data the selected function.

[0297] The processor 402 may be configured to determine the future operating state based on the current operating state, and optionally any operating state prior to the determining of the future operating state.

[0298] In one or more exemplary accessory devices, the first parameter data, the second parameter data, and the third parameter data may be indicative of resistance between the first electrode pair, the second electrode pair, and the third electrode pair, respectively.

[0299] The first parameter data, the second parameter data, and the third parameter data may be indicative of a rate of change in resistance between the first electrode pair, the second electrode pair, and the third electrode pair, respectively.

[0300] To determine a current and/or future operating state of the base plate of the ostomy appliance may comprise to determine an operating state (e.g. current and/or future operating state) from a set of operating states. In other words, to determine a current and/or future operating state may comprise selecting an operating state from a set of predefined operating states based on monitor data and context data. The set of predefined operating states may comprise a number of operating states, such as at least two operating states, at least three operating states, at least four operating states, at least five operating states. The number of operating states may be in the range from four to twenty. In one or more exemplary accessory devices, the number of operating states in the set of predefined operating states is larger than ten, such as larger than 20 or even larger than 50.

[0301] In one or more exemplary accessory devices, the processor 402 is configured to determine an operating state of the base plate if a change criterion is fulfilled. The change criterion may be based on context data and monitor data (e.g. the first parameter data, the second parameter data and/or the third parameter data). The change criterion may be fulfilled if parameter data changes, e.g. if a change in parameter data is larger than a change threshold selected based on the context data. Thus, current and/or future operating state determination may be conditional or dependent on a change in the parameter data conditioned by the context data.

[0302] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a first criteria set based on context data and parameter data (the first parameter data and/or the second parameter data), wherein the current and/or future operating state is determined to be the first operating state if the first criteria set is satisfied. The first criteria set may comprise one or more first criteria based on one or more of first parameter data, second parameter data and third parameter data. The first criteria set may comprise a first primary criterion based on the first parameter data. The first criteria set may comprise a first secondary criterion based on the second parameter data. The first criteria set may comprise a first tertiary criterion based on the third parameter data.

[0303] In one or more exemplary accessory devices, to determine a current and/or future

operating state of the base plate may be based on a first threshold set comprising one or a plurality of first threshold values. The first threshold set may comprise one or a plurality of threshold values, e.g. to be applied in the first criteria set. The first threshold set may comprise a first primary threshold value. The first threshold set may comprise a first secondary threshold value. The first threshold set may comprise a first tertiary threshold value.

[0304] The first criteria set may be given by or at least may comprise:

$(P_{1_1} < TH_{1_1})$,

$(P_{2_1} > TH_{1_2})$,

and

$(P_{3_1} > TH_{1_3})$,

wherein P_{1_1} is a first primary parameter based on the first parameter data, TH_{1_1} is a first primary threshold value, P_{2_1} is a second primary parameter based on the second parameter data, TH_{1_2} is a first secondary threshold value, P_{3_1} is a third primary parameter based on the third parameter data, and TH_{1_3} is a first tertiary threshold value, and wherein the first operating state is indicative of low degree of radial erosion or radial swelling on the base plate. The first threshold values (TH_{1_1} , TH_{1_2} and TH_{1_3}) may be the same or different, e.g. depending on the electrode configuration of the base plate. The first tertiary criterion ($P_{3_1} < TH_{1_3}$) may be omitted in the first criteria set.

[0305] The first primary parameter P_{1_1} may be indicative of the resistance between the first electrode pair (first electrode and first electrode part of the ground electrode) of the base plate.

[0306] The second primary parameter may be indicative of the resistance between the second electrode pair (second electrode and second electrode part of the ground electrode) of the base plate.

[0307] The third primary parameter may be indicative of resistance between the third electrode pair (third electrode and third electrode part of the ground electrode) of the base plate.

[0308] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a second criteria set based on context data and parameter data (e.g. the second parameter data and/or the third parameter data), wherein the current and/or future operating state is determined to be the second operating state if the second criteria set is satisfied. The second criteria set may be based on the first parameter data.

[0309] The second criteria set may comprise one or more second criteria based on context data and parameter data (e.g. one or more of first parameter data, second parameter data and third parameter data). The second criteria set may comprise a second primary criterion based on the first parameter data and a part of context data. The second criteria set may comprise a second secondary criterion based on the second parameter data and a part of context data. The second criteria set may comprise a second tertiary criterion based on the third parameter data and a part of context data.

[0310] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a second threshold set comprising one or a plurality of second threshold values. The second threshold set may comprise one or a plurality of threshold values, e.g. to be applied in the second criteria set. The second threshold set may comprise a second primary threshold value. The second threshold set may comprise a second secondary threshold value. The second threshold set may comprise a second tertiary threshold value.

[0311] The second criteria set may be given by or at least may comprise:

$(P_{1_1} < TH_{2_1})$,

$(P_{2_1} < TH_{2_2})$,

and

$(P_{3_1} > TH_{2_3})$

wherein P_{1_1} is a first primary parameter based on the first parameter data and indicative of the resistance between the first electrode pair, TH_{2_1} is a second primary threshold value, P_{2_1} is a second primary parameter based on the second parameter data and indicative of the resistance between the second electrode pair, TH_{2_2} is a second secondary threshold value, P_{3_1} is a third primary parameter based on the third parameter data and indicative of the resistance between the third electrode pair, TH_{2_3} is a second tertiary threshold value, and wherein the second operating state is indicative of medium degree of radial erosion or radial swelling on the base plate. The second threshold values (TH_{2_1} , TH_{2_2} and TH_{2_3}) may be the same or different, e.g. depending on the electrode configuration of the base plate. The second primary criterion ($P_{1_1} < TH_{2_1}$) and/or the second tertiary criterion ($P_{3_1} > TH_{2_3}$) may be omitted in the second criteria set.

[0312] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a default criteria set based on the first parameter data, wherein the current and/or future operating state is determined to be the default operating state if the default criteria set is satisfied, and in accordance with a determination that the current and/or future operating state is the default operating state, transmit a default monitor signal comprising monitor data indicative of the default operating state of the ostomy appliance.

[0313] The default criteria set may be given by or at least may comprise:

$(P_{1_1} > TH_{D_1})$,

$(P_{2_1} > TH_{D_2})$,

and

$(P_{3_1} > TH_{D_3})$

wherein P_{1_1} is a first primary parameter based on the first parameter data and indicative of the resistance between the first electrode pair, TH_{D_1} is a default primary threshold value, P_{2_1} is a second primary parameter based on the second parameter data and indicative of the resistance between the second electrode pair, TH_{D_2} is a default secondary threshold

value, P_3_1 is a third primary parameter based on the third parameter data and indicative of the resistance between the third electrode pair, TH_D_3 is a default tertiary threshold value, and wherein the default operating state is indicative of very low or no degree of radial erosion or radial swelling on the base plate. The default threshold values (TH_D_1, TH_D_2 and TH_D_3) may be the same or different, e.g. depending on the electrode configuration of the base plate.

[0314] In one or more exemplary accessory devices, to determine a current and/or future operating state of the base plate is based on a third criteria set based on context data and the third parameter data, wherein the current and/or future operating state is determined to be the third operating state if the third criteria set is satisfied, and in accordance with a determination that the current and/or future operating state is the third operating state, transmit a third monitor signal comprising monitor data indicative of the third operating state of the ostomy appliance.

[0315] In one or more exemplary accessory devices, the third operating state of the base plate corresponds to a situation wherein the first adhesive layer of the base plate has experienced a third degree of radial erosion or radial swelling, e.g. the first adhesive layer is eroded to the third radial distance of the third electrode pair.

[0316] The third criteria set may be given by or at least may comprise:

(P_1_1 < TH_3_1),

(P_2_1 < TH_3_2),

and

(P_3_1 < TH_3_3)

wherein P_1_1 is a first primary parameter based on the first parameter data and indicative of the resistance between the first electrode pair, TH_3_1 is a third primary threshold value, P_2_1 is a second primary parameter based on the second parameter data and indicative of the resistance between the second electrode pair, TH_3_2 is a third secondary threshold value, P_3_1 is a third primary parameter based on the third parameter data and indicative of the resistance between the third electrode pair, TH_3_3 is a third tertiary threshold value, and wherein the third operating state is indicative of high degree of radial erosion or radial swelling on the base plate. The third threshold values (TH_3_1, TH_3_2 and TH_3_3) may be the same or different, e.g. depending on the electrode configuration of the base plate. The third primary criterion (P_1_1 < TH_3_1) and/or the third secondary criterion (P_2_1 < TH_3_2) may be omitted in the third criteria set.

[0317] The interface 403 may be configured to communicate by displaying, via the display 403a, the current operating state and/or one or more future operating states and/or a characteristic feature indicative of the future operating states. The characteristic feature may be in form a graph of a function or of a set that provides the current operating state and/or one or more future operating states over time. For example, the interface 403 is configured to communicate by displaying, via the display 403s, a graph that provides the current remaining wear time and/or the one or more future remaining wear time vs. time, wherein a time axis

comprises the current time, a past time period before the current time (e.g. a few hours or days) and a future time window after the current time (e.g. a few hours).

[0318] The interface 403 may be configured to communicate the current and/or future operating state of the ostomy appliance by notifying the user via the interface 403, such as by displaying a notification on a display 403a of the accessory device 8. The notification may comprise the user interface object representative of the current and/or future operating state. The notification may comprise a notification indicator to open an application related to the ostomy appliance.

[0319] The interface 403 may be configured to communicate the one or more future operating states by displaying, via the display 403a, a first user interface object indicative of one or more future operating states.

[0320] The interface 403 may be configured to communicate the one or more future operating states by displaying, via the display 403a, a notification indicative of one or more future operating states, e.g. on the lock screen and/or on the home screen of the accessory device.

[0321] The interface 403 may be configured to display, via the display 403a of the accessory device 8, a second user interface object prompting the user to provide an indicator as to whether a trend in the determined one or more future operating states is incorrect.

[0322] The processor 402 and the interface 403 may be configured to detect a second user input selecting the first user interface object or the notification; in response to detecting the second user input, to open the ostomy user application. When the display is a touch sensitive display, the second user input may comprise a contact on the touch sensitive display.

[0323] The processor 402 and the interface 403 may be configured to in response to opening the ostomy user application, to display in the first application user interface a third user interface object representing the current operating state of the ostomy appliance.

[0324] The interface 403 may be configured to display a fourth user interface object representing the context data, in response to detecting user input to add context data.

[0325] Figs. 13a-d show exemplary user interfaces 500, 520, 560, 580.

[0326] First user interface 500 of Fig. 13a comprises a first user interface object 502 indicative of the one or more future operating states or representing a first notification indicative of the one or more future operating states.

[0327] First user interface 500 may comprise a plurality of user interface objects, e.g. a first user interface object 502 indicative of the one or more future operating states or representing a first notification indicative of the one or more future operating states.

[0328] The first user interface 500 may comprise additional user interface objects 504, representing earlier notifications.

[0329] The first user interface 500 may comprise a lock screen of the accessory device, and/or a home screen of the accessory device.

[0330] A second input selecting any of user interface objects 502, 504, may be detected by the accessory device, and in response to detecting the second input, the accessory device launches or opens an ostomy user application, (e.g. an ostomy user application installed on the accessory device). For example, detection of second input that corresponds to selection (e.g. a touch, a tap, a press, a press and hold gesture, a force press) any of user interface objects 502, 504 triggers the launch and opening of the ostomy user application installed on the accessory device.

[0331] Fig. 13b shows an exemplary user interface, such as a first application user interface 520.

[0332] The first application user interface 520 comprises a third user interface object 521 representing the current operating state.

[0333] The first application user interface 520 comprises user interface object 526 representative of a graph of a function or of a set that provides user interface objects 528 representing previous operating states, third user interface object 521 representing the current operating state and user interface object 524 representative of one or more future operating states over time T, e.g. over a time window comprising at least of part of an elapsed time prior to the current time, current time and a future time period after the current time. The graph comprises values indicative of operating states in the y-axis. The operating state may comprise wear time such as remaining wear time. The first application user interface 520 may comprise a user interface object 530 representing a summary status of the base plate comprising a wear time user interface object 532 (e.g. a remaining wear time, and/or an elapsed wear time) and a recommendation user interface object 534. The wear time user interface object 532 may be an indicator of the elapsed or remaining wear time for the presently worn ostomy appliance, such as the presently worn base plate. The wear time user interface object 532 may comprise a day indicator and an hour indicator (e.g. 2 Days and 15h). The recommendation user interface object 534 may be a text prompt in the like of: "Your base plate is worn, Change is recommended," "Everything is fine, no problems detected".

[0334] The first application user interface 520 may be seen as one of the user interface screen displayed by the ostomy user application.

[0335] The first application user interface 520 may comprise a user interface object 536 to access a settings interface of the ostomy user application.

[0336] The first application user interface 520 may comprise a fifth user interface object 538

indicative of the connection between the monitor device and the base plate. The fifth user interface object 538 may indicate a connection state for the connection between the monitor device and the base plate (such as connected, not connected, searching, failed connection).

[0337] The first application user interface 520 may comprise a sixth user interface object 540 indicative of battery status of the monitor device. The sixth user interface object 540 may indicate a remaining battery time, and/or a remaining battery percentage (e.g. state of charge).

[0338] A first application user interface 560 of Fig. 13c comprises a user interface field 522 configured to accept discourse input.

[0339] A first application user interface 560 of Fig. 13c comprises an add context data user interface object 523 to input (e.g. to add) context data e.g. activity data, health data, nutritional data, so as to edit directly the data taken into account for determining the one or more future operating states. The user interface field 522 may be populated by context data obtained from a second application.

[0340] By enabling a direct editing of the data taken into account for determining the one or more future operating states, the determined one or more future operating states may be adjusted based on the input context data as compared to the determined one or more future operating states prior to input of the context data.

[0341] The first application user interface 580 of Fig. 13d comprises a fourth user interface object representing context data, i.e. calendar event user interface object 550 (e.g. a calendar event occurring in the future) and which has been taken into account in the determination of the future operating state.

[0342] The fourth user interface object representing context data may be displayed in response to detecting an input to add calendar data as context data e.g. on user interface object 523. The fourth user interface object may comprise one or more context user interface objects indicative of one or more of calendar data, location data, environment data, nutritional data, activity data, medicine intake data and/or health data respectively.

[0343] The calendar event user interface object 550 is displayed as e.g. superimposed in the first application user interface 520, on the user interface object 526 at a time corresponding to the time of the calendar event.

[0344] Fig. 14 shows an exemplary graphical representation of parameter data as a function of time. In this example, the parameter data in the y-axis is in Volts and time is in the x-axis. Curve 1100 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate. Curve 1102 shows, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate. Curve 1104 shows, as a function of time, third parameter data indicative of voltage measured by the third electrode pair of the base plate. Curves 1108, 1116, 1118 show, as a function of

time, fourth primary parameter indicative of voltage measured by the fourth electrode pair of the base plate, fourth secondary parameter indicative of voltage measured by the fourth electrode and the fifth electrode of the base plate, and fourth tertiary parameter indicative of voltage measured by the fifth electrode pair of the base plate respectively. Curves 1110, 1112, 1114 show, as a function of time, a gradient of fourth primary parameter indicative of voltage gradient measured by the fourth electrode pair of the base plate, a gradient of fourth secondary parameter indicative of voltage gradient measured by the fourth electrode and the fifth electrode of the base plate, and a gradient of fourth tertiary parameter indicative of voltage gradient measured by the fifth electrode pair of the base plate respectively. Fig. 14 shows the upper voltage threshold value represented as curve 1000, the medium voltage threshold value represented as curve 1002, the lower voltage threshold value represented as curve 1004, and curve 1006 is a gradient limit.

[0345] Curves 1108, 1116, 1118 as well as curves 1110, 1112, 1114 show that no moisture is detected at the proximal side of the first adhesive layer by the fourth electrode pair.

[0346] At a time less than 5h, curve 1100 shows that moisture is detected by the first electrode pair as the first parameter data crosses the upper voltage threshold value while curve 1102 shows that moisture is not detected by the second electrode pair as the second parameter data has not crossed the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a first operating state.

[0347] At time between 5h and 10h, curve 1102 shows that moisture is detected by the second electrode pair as the second parameter data crosses the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a second operating state.

[0348] At time around 45h, curve 1104 shows that moisture is detected by the third electrode pair as the third parameter data crosses the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a third operating state.

[0349] Fig. 15 shows an exemplary graphical representation of parameter data as a function of time. In this example, the parameter data in the y-axis is in Volts and time is in the x-axis. Curve 1202 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate. Curve 1204 shows, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate. Curve 1200 shows, as a function of time, third parameter data indicative of voltage measured by the third electrode pair of the base plate. Curves 1206, 1208, 1210 show, as a function of time, fourth primary parameter indicative of voltage measured by the fourth electrode pair of the base plate, fourth secondary parameter indicative of voltage measured by the fourth electrode and the fifth electrode of the base plate, and fourth tertiary parameter indicative of voltage measured by the fifth electrode pair of the base plate respectively. Curves 1212, 1214, 1216 show, as a function of time, a gradient of fourth primary parameter indicative of voltage gradient measured by the fourth electrode pair of the base plate, a gradient of fourth secondary parameter indicative of voltage gradient measured by the fourth electrode and the

fifth electrode of the base plate, and a gradient of fourth tertiary parameter indicative of voltage gradient measured by the fifth electrode pair of the base plate respectively. Fig. 15 shows the upper voltage threshold value represented as curve 1000, the medium voltage threshold value represented as curve 1002, the lower voltage threshold value represented as curve 1004, and curve 1006 represents a gradient limit.

[0350] Curves 1206, 1208, 1210 as well as curves 1212, 1214, 1216 show that moisture is detected at the proximal side of the first adhesive layer by the fourth electrode pair, the fourth and fifth electrode, and the fifth electrode pair at a time starting at 60h until 90h. As the three electrode pairs are triggered as shown by the decreases shown by 1206, 1208, 1210 and as the curves 1212, 1214, 1216 show a gradient below 80%, this is indicative of the presence of sweat at the proximal side of the first adhesive layer.

[0351] At a time of 30min, curve 1202 shows that moisture is detected by the first electrode pair as the first parameter data crosses the upper voltage threshold value while curve 1204 shows that moisture is not detected by the second electrode pair as the second parameter data has not crossed the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a first operating state.

[0352] At time around 40h, curve 1204 shows that moisture is detected by the second electrode pair as the second parameter data crosses the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a second operating state.

[0353] Fig. 16 shows an exemplary graphical representation of parameter data as a function of time. In this example, the parameter data in the y-axis is in Volts and time is in the x-axis. Curve 1300 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate. Curve 1302 shows, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate. Curve 1304 shows, as a function of time, third parameter data indicative of voltage measured by the third electrode pair of the base plate. Curves 1306, 1308, 1310 show, as a function of time, fourth primary parameter indicative of voltage measured by the fourth electrode pair of the base plate, fourth secondary parameter indicative of voltage measured by the fourth electrode and the fifth electrode of the base plate, and fourth tertiary parameter indicative of voltage measured by the fifth electrode pair of the base plate respectively. Curves 1312, 1314, 1316 show, as a function of time, a gradient of fourth primary parameter indicative of voltage gradient measured by the fourth electrode pair of the base plate, a gradient of fourth secondary parameter indicative of voltage gradient measured by the fourth electrode and the fifth electrode of the base plate, and a gradient of fourth tertiary parameter indicative of voltage gradient measured by the fifth electrode pair of the base plate respectively. Fig. 16 shows the upper voltage threshold value represented as curve 1000, the medium voltage threshold value represented as curve 1002, the lower voltage threshold value represented as curve 1004, and curve 1006 is a gradient limit.

[0354] Curves 1306, 1308, 1310 as well as curves 1312, 1314, 1316 show that moisture is

detected at the proximal side of the first adhesive layer by the fourth electrode pair at a time starting at around 25h. As leakage electrodes (i.e. the fourth electrode pair, the fourth and fifth electrode, and the fifth electrode pair) are trigger as shown by the decreases shown by 1306, 1308, 1310 and as curve 1312, 1314, 1316 show a gradient above 80%, this is indicative of the presence of output at the proximal side of the first adhesive layer. This indicate severe leakage. It may be determined that the ostomy appliance is in a sixth operating state.

[0355] At a time of 5h, curve 1300 shows that moisture is detected by the first electrode pair as the first parameter data crosses the upper voltage threshold value while curve 1302 shows that moisture is not detected by the second electrode pair as the second parameter data has not crossed the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a first operating state.

[0356] At time around 15h, curve 1302 shows that moisture is detected by the second electrode pair as the second parameter data crosses the upper voltage threshold value. At this stage, it is determined that the ostomy appliance is in a second operating state.

[0357] At time around 30h, curve 1304 shows that moisture is detected by the third electrode pair as the third parameter data crosses the upper voltage threshold value. In an example where the curves 1306, 1308, 1310 had not dropped below corresponding thresholds, curve 1304 indicates that moisture has reached the third electrode pair, and the present disclosure enables determining that the ostomy appliance is in a third operating state.

[0358] Fig. 17 shows an exemplary graphical representation of parameter data as a function of time and a whitening zone diameter (e.g. related to a radial thickness of a whitening ring surrounding the stomal opening) as a function of time. Fig. 17 illustrates the moisture propagation in the first adhesive layer as a function of time, and illustrates a correlation between parameter data detected by the first electrode pair and the second electrode pair of the base plate and actual moisture on the proximal surface of the first adhesive layer of the base plate. The actual moisture propagation in the first adhesive layer may appear as a whitening zone (e.g. a white ring around the stomal opening) in the first adhesive layer. Moisture affects the first adhesive layer in that the moisture reacts with the composition of the first adhesive layer to form the white ring around the stomal opening, and thereby reduces adhesive performance of the base plate. Fig. 17 is obtained by experiments where water is applied from the stomal opening of the base plate to follow, using the electrodes of the base plate, the radial propagation of moisture leading to radial erosion of the first adhesive layer of the base plate.

[0359] Curve 1502 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate. Curve 1504 shows, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate. Curve 1506 shows a diameter of the white ring as a function of time. The first parameter data shows a decrease in e.g. voltage measured by the first electrode pair over time. It is also seen that the voltage of the second electrode pair drops at a later time than

when the first parameter data shows a decrease in e.g. voltage dropped. This correlates well with the diameter of the white ring which goes from around 25-26mm when the first electrode pair is triggered (e.g. first parameter data shows a decrease) to 38mm when the second electrode pair is triggered (second parameter data shows a decrease). This corresponds substantially to the location of the first electrode pair at twice the first radial distance R1, and of the second electrode pair at twice the second radial distance R2.

[0360] It is noted that various regions and countries have various routines and recommendations to support optimal use of an ostomy appliance. For example, in regions of Europe, it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in an optimal state (corresponding to a first operating state) when the radial thickness of the whitening ring is between 0-15 mm (for a user not in compliance with a preferred use), such as between 0-7mm (for a user in compliance with a preferred use), such as between 0-5mm (recommended by a nurse).

[0361] For example, in Europe, it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in suboptimal state (corresponding to a second operating state) and thereby indicate a consideration to change the base plate when the radial thickness of the whitening ring is such as between 5-10mm (recommended by a nurse), between 7mm and 10mm (for a user in compliance with a preferred use), and/or between 15mm and 30mm (for a user not in compliance with a preferred use).

[0362] For example, in Europe, it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in a poor state (corresponding to a third operating state) and indicate a request to change the base plate when the radial thickness of the whitening ring is more than 10mm (recommended by a nurse), such as more than 15mm (for a user in compliance with a preferred use), such as more than 30mm (for a user not in compliance with a preferred use).

[0363] For example, in other regions (e.g. America), it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in an optimal state (corresponding to a first operating state) when the radial thickness of the whitening ring is between 0-20 mm (for a user not in compliance with a preferred use), such as between 0-10mm (for a user in compliance with a preferred use), such as between 0-10mm (recommended by a nurse).

[0364] For example, in other regions (e.g. America), it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in suboptimal state (corresponding to a second operating state) and thereby indicate a consideration to change the base plate when the radial thickness of the whitening ring is such as between 10mm and 20mm (recommended by a nurse), between 10mm and 20 (for a user in compliance with a preferred use), and/or between 20mm and 40mm (for a user not in compliance with a preferred use).

[0365] For example, in other regions (e.g. America), it may be indicated to the user that an ostomy appliance with a base plate as disclosed herein is in a poor state (corresponding to a

third operating state) and indicate a request to change the base plate when the radial thickness of the whitening ring is more than 20mm (recommended by a nurse), such as more than 20mm (for a user in compliance with a preferred use), such as more than 40mm (for a user not in compliance with a preferred use).

[0366] The disclosed methods, ostomy appliances, monitor devices, and accessory devices allow to accommodate the regional preferences of user in their use of the ostomy appliance so as to adjust thresholds for the operating states to the regional preference or use.

[0367] Figs. 18A-18B shows exemplary graphical representations of peel force as a function of a peeling distance travelled by a peeling action exercising the peel force (e.g. perpendicularly to the proximal (or distal) surface of the first adhesive layer) on a first adhesive layer of a base plate disclosed herein. The peel force relates to a required force to peel the first adhesive layer off the skin surface. The peeling distance is with respect to one end of the first adhesive layer where the peel force starts to be exercised. The peeling distance relates to the size or length of the first adhesive layer and thereby may relate to a size or length of a portion the first adhesive layer affected by moisture and of a portion of the first adhesive layer not affected by moisture. The peel forces illustrated in Figs. 18A-18B are representative of adhesive performance of the first adhesive layer of the base plate to the skin surface.

[0368] Composition of the first adhesive layer of the base plate as disclosed herein in one or more embodiments is formulated to provide adhesion of the base plate to the skin surface of the user when the base plate is worn and to maintain a dry and healthy skin surface. Avoiding maceration of skin when occluding the skin with an adhesive is done by transporting sweat away from the skin and into the first adhesive layer by means of e.g. hydrocolloid types and adhesive (e.g. hydrocolloid adhesives) forming part of an absorbing element of the first adhesive layer.

[0369] For example, when the absorbing element is in contact with moisture, (e.g. water, sweat, urine or faeces), the absorbing element absorb the moisture. This reduces the adhesion of the first adhesive layer to the skin.

[0370] For example, the first adhesive layer goes from a dry adhesive state with acceptable adhesive performance (e.g. acceptable adhesion and cohesion) in to a wet adhesive state (e.g. reduced or non adhesion and low cohesion gel).

[0371] Curve 1602 of Figs. 18A and 18B shows a peel force applied to the first adhesive layer as a function of a peeling distance travelled by a peeling action exercising the peel force on the first adhesive layer in a dry adhesive state, (e.g. not affected by moisture). The peel force is expressed in Newtons while the peeling distance is expressed in mm. The length of the first adhesive layer in dry adhesive state is illustrated by X5, corresponding to length of the first adhesive layer 1608 in dry adhesive state.

[0372] Curve 1602 shows that the peel force applied to the first adhesive layer in a dry

adhesive state is equal to Y1 when the peeling distance is less than X1. At X1, the peeling force drops as the peeling distance increases towards X5 and the end of the first adhesive layer.

[0373] Curve 1604 of Fig. 18A shows a peel force applied to the first adhesive layer as a function of a peeling distance travelled by a peeling action exercising the peel force on the first adhesive layer in a wet adhesive state, (e.g. affected by moisture to the point of reaching a completely wet adhesive state, where the first adhesive layer has become a gel).

[0374] Curve 1604 shows that when the peeling distance is less than X2, the peel force applied to the first adhesive layer in a wet adhesive state is equal to Y2 which has much lower value than Y1. This shows that the adhesive performance of the first adhesive layer is reduced when the first adhesive layer is in a wet adhesive state. At X2, the peeling force drops as the peeling distance increases until the end of the first adhesive layer. It is noted that X2 is larger than X1, because the first adhesive layer in a wet adhesive state extends in volume, and thus in length due to the gelling of the components of the first adhesive layer.

[0375] The peel experiment illustrated in Fig. 18A shows a loss of adhesive performance when the first adhesive is in a wet adhesive state.

[0376] Curve 1606 of Fig. 18B shows a peel force applied to the first adhesive layer as a function of a peeling distance travelled by a peeling action exercising the peel force on the first adhesive layer illustrated 1610 which comprises a first portion 1610A in a dry adhesive state and a second portion 1610B in a wet adhesive state, (e.g. affected by moisture to the point of reaching a completely wet adhesive state, where the first adhesive layer has become a gel).

[0377] Curve 1606 shows that when the peeling distance is less than X3, the peel force applied to the first adhesive layer in a wet adhesive state is equal to Y3 which has lower value than Y1. This shows that the adhesive performance of the first adhesive layer is reduced when the first adhesive layer comprises a portion in a wet adhesive state. At X3, the peeling force drops as the peeling distance increases until the end of the first adhesive layer. It is noted that X3 corresponds to the length of the portion 1610A in dry adhesive state.

[0378] The peel experiment illustrated in Fig. 18B shows a loss of adhesive performance when the first adhesive is partly in a wet adhesive state.

[0379] Accordingly, Figs.18A-18B demonstrate that the operating state determined based on monitor data is indicative of adhesive performance of the base plate.

[0380] Figs. 19A-19B show exemplary graphical representations of a whitening zone diameter (e.g. related to a radial thickness of a whitening ring surrounding the stomal opening) as a function of time. Figs. 19A-19B illustrates the moisture propagation in the first adhesive layer as a function of time, and illustrates a diametral velocity of the moisture propagation on the proximal surface of the first adhesive layer of the base plate. The actual moisture propagation

in the first adhesive layer may appear as a whitening zone (e.g. a white ring around the stomal opening) in the first adhesive layer. Figs. 19A-19B show measurements of a diameter of the whitening zone as a function of time as moisture propagates. Moisture affects the first adhesive layer in that the moisture reacts with the composition of the first adhesive layer to form the white ring around the stomal opening, and thereby reduces adhesive performance of the base plate.

[0381] Fig. 19A is obtained by experiments where water is applied from the stomal opening of the base plate of a first type to measure a velocity of the radial propagation of moisture leading to radial erosion of the first adhesive layer of the base plate of the first type.

[0382] Fig. 19B is obtained by experiments where water is applied from the stomal opening of the base plate of a second type to measure a velocity the radial propagation of moisture leading to radial erosion of the first adhesive layer of the base plate of the second type. The second type is different from the first type, in that the composition of the first adhesive layer may be different than the first adhesive layer of the second type when compared to the first type.

[0383] Curve 2104 shows, as a function of time, a diameter of the white ring of a base plate of the first type measured from a cut for a stomal opening to the first electrode pair.

[0384] Curve 2102 shows a linear approximation of curve 2104, and thereby characterizes the velocity from the cut to the first electrode pair. The linear approximation may be formulated as a linear equation of the type $Y = v_{01} \cdot X + A$, where Y is the diameter of the white ring in millimetres (mm), X is time in hours, v_{01} is a diametral velocity of propagation of moisture in the base plate of the first type from the cut to the first electrode pair, and A relates to the diameter of the cut. In the experiment illustrated in Fig. 19A, $v_{01} = 0.6$ mm/h and A is 22 (i.e. the cut for the stomal opening has a diameter of 22mm). Other experiments have shown that v_{01} may be in the range of 0.5 mm/h to 0.8 mm/h, with an average diametral velocity v_{01} of 0.65 mm/h for moisture to propagate from the cut to the first electrode pair. To obtain radial velocity V_{01} for moisture to propagate from the cut to the first electrode pair from the results of Fig. 19A, the diametral velocity v_{01} is to be divided by two: $V_{01} = 0.3$ mm/h for the illustrated experiment.

[0385] Curve 2106 shows, as a function of time, a diameter of the white ring of a base plate of the first type measured from the first electrode pair to the second electrode pair.

[0386] Curve 2108 shows a linear approximation of curve 2106, and thereby characterizes the velocity from the first electrode pair to the second electrode pair. The linear approximation may be formulated as a linear equation of the type $Y = v_{12} \cdot X + B$, where Y is the diameter of the white ring in millimetres (mm), X is time in hours, v_{12} is a diametral velocity of propagation of moisture in the base plate of the first type from the first electrode pair to the second electrode pair, and B relates to approximate location of the first electrode pair from the center of the stomal opening. In the experiment illustrated in Fig. 19A, $v_{12} = 0.2$ mm/h and B is 27,3 mm

(i.e. the first electrode pair is place around 27,3 mm). Other experiments have shown that v_{12} may be in the range of 0.15 mm/h to 0.22 mm/h, with an average diametral velocity of 0.18 mm/h for moisture to propagate from the first electrode pair to the second electrode pair. To obtain radial velocity V_{12} for moisture to propagate from the first electrode pair to the second electrode pair from the results of Fig. 19A, the diametral velocity v_{12} is to be divided by two: $V_{12} = 0.1$ mm/h for the illustrated experiment.

[0387] Curve 2112 shows, as a function of time, a diameter of the white ring of a base plate of the second type measured from a cut for a stomal opening to the first electrode pair.

[0388] Curve 2110 shows a linear approximation of curve 2112, and thereby characterizes the velocity from the cut to the first electrode pair. The linear approximation may be formulated as a linear equation of the type $Y = v_{01} \cdot X + A$, where Y is the diameter of the white ring in millimetres (mm), X is time in hours, v_{01} is a diametral velocity of propagation of moisture in the base plate of the second type from the cut to the first electrode pair, and A relates to the diameter of the cut. In the experiment illustrated in Fig. 19B, $v_{01} = 0.3$ mm/h and A is 21.9 (i.e. the cut for the stomal opening has a diameter of 21.9 mm). Other experiments have shown that v_{01} may be in the range of 0.2 mm/h to 0.32 mm/h, with an average diametral velocity v_{01} of 0.275 mm/h for moisture to propagate from the cut to the first electrode pair. To obtain radial velocity V_{01} for moisture to propagate from the cut to the first electrode pair from the results of Fig. 19B, the diametral velocity v_{01} is to be divided by two: $V_{01} = 0.15$ mm/h for the illustrated experiment.

[0389] Curve 2114 shows, as a function of time, a diameter of the white ring of a base plate of the second type measured from the first electrode pair to the second electrode pair.

[0390] Curve 2116 shows a linear approximation of curve 2114, and thereby characterizes the velocity from the first electrode pair to the second electrode pair. The linear approximation may be formulated as a linear equation of the type $Y = v_{12} \cdot X + B$, where Y is the diameter of the white ring in millimetres (mm), X is time in hours, v_{12} is a diametral velocity of propagation of moisture in the base plate of the second type from the first electrode pair to the second electrode pair, and B relates to approximate location of the first electrode pair from the center of the stomal opening. In the experiment illustrated in Fig. 19B, $v_{12} = 0.2$ mm/h and B is 25.9 mm (i.e. the first electrode pair is place around 25.9 mm). Other experiments have shown that v_{12} may be in the range of 0.15 mm/h to 0.22 mm/h, with an average diametral velocity of 0.1 mm/h for moisture to propagate from the first electrode pair to the second electrode pair. To obtain radial velocity V_{12} for moisture to propagate from the first electrode pair to the second electrode pair from the results of Fig. 19B, the diametral velocity v_{12} is to be divided by two: $V_{12} = 0.1$ mm/h for the illustrated experiment.

[0391] The experiments illustrated in Figs. 19A-19B correspond substantially with the location of the first electrode pair at twice the first radial distance R_1 , and of the second electrode pair at twice the second radial distance R_2 .

[0392] The present disclosure exploits the derivable velocities to determine a future operating state based on monitor data and/or current operating state and/or previous operating states.

[0393] Fig. 20A shows an exemplary graphical representation of first parameter data as a function of time. In this example, the parameter data in the y-axis is in millivolts and time is in the x-axis.

[0394] Fig. 20A is obtained by experiments where semi-solid matter with various degrees of dilution is applied from the stomal opening of the base plate to follow, using the first electrode pair of the base plate, the radial propagation of moisture leading to radial erosion of the first adhesive layer of the base plate. Dilution is performed with tap water and semi-solid matter.

[0395] The exemplary results of Fig. 20A illustrates and mimics how the moisture content of the output would affect the first parameter data and thereby the operating state. This is done by mixing a semi-solid matter with water to various dilution factors. The content of moisture in real life changes the viscosity of the output and is affected by one or more factors: nutrition (type of food eaten by user, water intake, etc.), medication (e.g. vitamins/supplements, prescriptions, etc.), and health data (e.g. medical conditions of the user, diseases, ostomist, ileostomist, etc.).

[0396] Curve 2202 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 0% semi-solid matter and 100% tap water is applied from the stomal opening of the base plate.

[0397] Curve 2204 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 30% semi-solid matter and 70% tap water is applied. Curve 2204A shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 30% semi-solid matter and 70% tap water is applied.

[0398] Curve 2206 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 30% semi-solid matter and 70% tap water is applied.

[0399] Curve 2208 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 50% semi-solid matter and 50% tap water is applied.

[0400] Curve 2210 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 100% semi-solid matter and 0% tap water is applied.

[0401] Curve 2212 shows, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 100% semi-solid

matter and 0% tap water is applied.

[0402] It may be noted that the more diluted the output is the earlier the first electrode pair is triggered.

[0403] Fig. 20B shows exemplary graphical representations of first parameter data as a function of percentage of output in the mixture applied.

[0404] Curve 2214 shows a linear approximation relating the trigger times of the first electrode pair to the percentage of semi-solid matter, and thereby characterizes how the viscosity of the semi-solid matter affects the propagation of moisture in the first adhesive layer. The curve 2214 represents a linear equation with a coefficient of 10.6 with an approximation precision of 87% for the exemplary results. This support a determination of a future operating state based one or more of: nutritional data (type of food eaten by user, water intake, etc.), medication intake data (e.g. vitamins/supplements, prescriptions, etc.), and health data (e.g. medical conditions of the user, diseases, ostomist, ileostomist, etc.).

[0405] It may be envisaged that a thin output may be detected based the early triggering time of the first electrode pair and thereby the future operating state may be determined accordingly.

[0406] Due to activity (e.g. sports, bending, movement), experimental results have shown that the operating state may be affected negatively by a reducing factor ranging from 2 to 10 compared to when the user has no or little activity (e.g. a sedentary user), For example, a wear time may be reduced by a scaling factor of 2 to 10 due to an extensive activity.

[0407] Fig. 21A shows an exemplary graphical representation 2302 of parameter data as a function of time for a first type of base plate at a first predetermined temperature. The first predetermined temperature in the example depicted in Fig. 21A is 32 degrees Celsius. Fig. 21B shows an exemplary graphical representation 2304 of parameter data as a function of time for the first type of base plate at a second predetermined temperature. The second predetermined temperature in the example depicted in Fig. 21B is 37 degrees Celsius. The temperatures were selected to closely approximate human skin temperature.

[0408] Figs. 21A and 21B were obtained by applying fluid at a stomal opening of a base plate, wherein the stomal opening had a diameter of 22mm. The residual humidity of the environment for both experiments was 50%. As the fluid was absorbed by the base plate over time and the fluid propagated radially from the stomal opening outward, parameter data (e.g. voltages (mV)) was measured between a first electrode pair, a second electrode pair, and/or a third electrode pair respectively.

[0409] Specifically, in Fig. 21A, curve 2306 shows, as a function of time, a decrease in voltage for the first electrode pair at approximately 8.3 hours. Curve 2308 shows, as a function of time, a constant voltage for the second electrode pair. And, curve 2310 shows, as a function of time,

a constant voltage for the third electrode pair.

[0410] By comparison, in Fig. 21B, curve 2312 shows a decrease in voltage for the first electrode pair at approximately 7.6 hours. Curve, 2314 shows, as a function of time, a constant voltage for the second electrode pair. And, curve 2316 shows, as a function of time, a constant voltage for the third electrode pair.

[0411] Stated another way, in this example, moisture propagated approximately 11% faster when the temperature was 37 degrees Celsius in comparison to when the temperature was 32 degrees Celsius. This comparison shows that as temperature increases, wear time of the base plate decreases due to faster moisture propagation and adhesion degradation.

[0412] Another experiment was conducted where the propagation speed of fluid, applied at the stomal opening of a second type of base plate, was measured. Similar to the experiment depicted in Figs. 21A, 21B, the stomal opening had a diameter of 22mm and the residual humidity of the environment was 50%. The second type of base plate is different than the first type of base plate, in that the composition of the first adhesive layer of the first type of base plate is different than the composition of the first adhesive layer of the second type of base plate.

[0413] In this experiment, the fluid propagated between center of the hole and first electrode pair at approximately 0.15mm/hour when the temperature was 32 degrees Celsius. In comparison, the fluid propagated at approximately 0.2mm/hour when the temperature was 37 degrees Celsius. As such, this experiment similarly found that for another type of base plate as temperature increases, wear time of the second type of base plate decreases due to faster moisture propagation and adhesion degradation.

[0414] In view of the above results, a scaling factor may be applied to the operating state (e.g. wear time) of a base plate such that the scaling factor affects negatively the operating state (e.g. decreases the wear time) of the base plate as temperature increases and/or the scaling factor affects positively the operating state (e.g. increases the wear time) of the base plate as temperature decreases.

[0415] In some embodiments, the scaling factor may be predetermined. In these embodiments, the predetermined scaling factor may be constant. Alternatively, the predetermined scaling factor may be iteratively adjusted based on when the first electrode pair, the second electrode pair, and/or the third electrode pair are triggered. In at least some of these embodiments, the predetermined scaling factor may be iteratively adjusted.

[0416] The use of the terms "first", "second", "third" and "fourth", "primary", "secondary", "tertiary" etc. does not imply any particular order, but are included to identify individual elements. Moreover, the use of the terms "first", "second", "third" and "fourth", "primary", "secondary", "tertiary" etc. does not denote any order or importance, but rather the terms "first", "second", "third" and "fourth", "primary", "secondary", "tertiary" etc. are used to

distinguish one element from another. Note that the words "first", "second", "third" and "fourth", "primary", "secondary", "tertiary" etc. are used here and elsewhere for labelling purposes only and are not intended to denote any specific spatial or temporal ordering. Furthermore, the labelling of a first element does not imply the presence of a second element and vice versa.

LIST OF REFERENCES**[0417]**

- 1 ostomy system
- 2 ostomy appliance
- 4 base plate
- 6 monitor device
- 8 accessory device
- 10 server device
- 12 network
- 14 coupling member
- 16 coupling ring
- 18, 18A, 18B, 18C, 18D stoma-receiving opening
- 20 docking station
- 22 first connector
- 24 user interface
- 100 monitor device housing
- 101 processor
- 102 first interface
- 104 second interface
- 106 memory
- 108 ground terminal of monitor device
- 110 first terminal of monitor device
- 112 second terminal of monitor device

114 third terminal of monitor device

116 fourth terminal of monitor device

118 fifth terminal of monitor device

120 coupling part

121 power unit

122 antenna

124 wireless transceiver

126 loudspeaker

128 haptic feedback element

140 sensor unit

200 first adhesive layer

200A distal surface of first adhesive layer

200B proximal surface of first adhesive layer

202 second adhesive layer

202A distal surface of second adhesive layer

202B proximal surface of second adhesive layer

204 electrode assembly

206 release liner

206A distal surface of the release liner

206B proximal surface of the release liner

208 top layer

208A distal surface of the top layer

208B proximal surface of the top layer

209 coupling ring

210 coupling part of first connector

211 first connector

212 terminals of first connector

213 first intermediate element

213A distal surface of first intermediate element

213B proximal surface of first intermediate element

214 support layer of electrode assembly

214A distal surface of support layer

214B proximal surface of support layer

216 electrodes of electrode assembly

218 masking element

218A distal surface of masking element

218B proximal surface of masking element

220 electrode configuration

222 ground electrode

222A ground connection part

222B ground sensing part

224 first electrode

224A first connection part

226 second electrode

226A second connection part

228 third electrode

228A third connection part

230 fourth electrode

230A fourth connection part

230B fourth sensing part

232 fifth electrode

232A fifth connection part

232B fifth sensing part

234 first electrode part of the ground electrode

236 second electrode part of the ground electrode

238 third electrode part of the ground electrode

240 fourth electrode part of the ground electrode

242 ground terminal opening

244 first terminal opening

246 second terminal opening

248 third terminal opening

250 fourth terminal opening

252 fifth terminal opening

254 primary sensor point openings of masking element

254A primary first sensor point opening

254B primary second sensor point opening

256 secondary sensor point openings of masking element

256A secondary first sensor point opening

256B secondary second sensor point opening

258 tertiary sensor point openings of masking element

258A tertiary first sensor point opening

258B tertiary second sensor point opening

260 primary sensor point openings of first adhesive layer

260A primary first sensor point opening

260B primary second sensor point opening

262 secondary sensor point openings of first adhesive layer

262A secondary first sensor point opening

262B secondary second sensor point opening

264 tertiary sensor point openings of first adhesive layer

264A tertiary first sensor point opening

264B tertiary second sensor point opening

282 ground terminal element

282A ground terminal

284 first terminal element

284A first terminal

286 second terminal element

286A second terminal

288 third terminal element

288A third terminal

290 fourth terminal element

290A fourth terminal

292 fifth terminal element

292A fifth terminal

300 method for communicating future operating state

302 obtaining monitor data

304 obtaining the context data

304a obtaining the context data from a second application different from the first application

304b displaying a user interface field in a first application user interface of the first application

304c detecting a first user input on the user interface field,

304d determining the context data based on the detected first user input

306 determining one or more future operating states of the base plate based on the monitor data and the context data

308 communicating the one or more future operating states

308a communicating the future operating state in a first application

308b displaying, via the display, a first user interface object indicative of one or more future operating states

308c displaying, via the display, a notification indicative of one or more future operating states

310 determining a current operating state of the ostomy appliance based on the monitor data and/or the context data

A to link Fig. 11a to 11b

312 displaying, via the display of the accessory device, a second user interface object prompting the user to provide an indicator as to whether a trend in the determined one or more future operating states is incorrect

314 detecting a second user input selecting the first user interface object or the notification.

316 in response to detecting the second user input, opening the ostomy user application

318 displaying in the first application user interface a third user interface object representing the current operating state of the ostomy appliance

401 memory of accessory device

402 processor of accessory device

403 interface of accessory device

403a display of accessory device

403b transceiver of accessory device

500 exemplary first user interface screen

502 first primary user interface object indicative of the one or more future operating states or representing a first notification indicative of the one or more future operating states

504 additional user interface objects

520 exemplary first application user interface

521 a third user interface object representing the current operating state

522 user interface field

523 add context data user interface object

524 user interface object representative of one or more future operating states

526 user interface object representative of a graph

528 user interface object representative of one or more previous operating states

530 user interface object representing a summary status of the base plate

532 wear time user interface object

534 recommendation user interface object

536 user interface object to access user settings of the user ostomy application

538 fifth user interface object

540 sixth user interface object

550 calendar event user interface object

560 exemplary first application user interface

580 exemplary first application user interface

1000 curve representing the upper voltage threshold value

1002 curve representing the medium voltage threshold value

1004 curve representing the lower voltage threshold value

1006 curve representing a gradient limit

1100 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate

1102 curve showing, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate

1104 curve showing, as a function of time, third parameter data indicative of voltage measured by the third electrode pair of the base plate

1108 curve showing, as a function of time, fourth primary parameter indicative of voltage measured by the fourth electrode pair of the base plate

1110 curve showing, as a function of time, a gradient of fourth primary parameter indicative of voltage gradient

1112 curve showing, as a function of time, a gradient of fourth secondary parameter indicative of voltage gradient measured

1114 curve showing, as a function of time, a gradient of fourth tertiary parameter indicative of voltage gradient measured

1116 curve showing, as a function of time, a fourth secondary parameter indicative of voltage measured

1118 curve showing, as a function of time, a fourth tertiary parameter indicative of voltage measured

1200 curve showing, as a function of time, third parameter data indicative of voltage measured

by the third electrode pair of the base plate

1202 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate

1204 curve showing, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate

1206 curve showing, as a function of time, a fourth primary parameter indicative of voltage measured by the fourth electrode pair of the base plate

1208 curve showing, as a function of time, a fourth secondary parameter indicative of voltage measured

1210 curve showing, as a function of time, a fourth tertiary parameter indicative of voltage measured

1212 curve showing, as a function of time, a gradient of fourth primary parameter indicative of voltage gradient measured by the fourth electrode pair of the base plate

1214 curve showing, as a function of time, a gradient of fourth secondary parameter data indicative of voltage gradient measured

1216 curve showing, as a function of time, a gradient of fourth tertiary parameter indicative of voltage gradient measured

1300 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate

1302 curve showing, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate

1304 curve showing, as a function of time, third parameter data indicative of voltage measured by the third electrode pair of the base plate

1306 curve showing, as a function of time, a fourth primary parameter indicative of voltage measured by the fourth electrode pair of the base plate

1308 curve showing, as a function of time, a fourth secondary parameter indicative of voltage measured

1310 curve showing, as a function of time, a fourth tertiary parameter indicative of voltage measured

1312 curve showing, as a function of time, a gradient of fourth primary parameter indicative of voltage gradient measured by the fourth electrode pair of the base plate

1314 curve showing, as a function of time, a gradient of fourth secondary parameter indicative of voltage gradient measured

1316 curve showing, as a function of time, a gradient of fourth tertiary parameter indicative of voltage gradient measured

1502 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate

1504 curve showing, as a function of time, second parameter data indicative of voltage measured by the second electrode pair of the base plate

1506 curve showing a diameter of the white ring as a function of time

1602 curve showing peel force applied to the first adhesive layer in a dry adhesive state as a function of peeling distance

1604 a peel force applied to the first adhesive layer as a function of a peeling distance travelled by a peeling action exercising the peel force on the first adhesive layer in a wet adhesive state

1606 a peel force applied to the first adhesive layer as a function of a peeling distance travelled by a peeling action exercising the peel force on the first adhesive layer partially wet

1608 length of the first adhesive layer 1608 in dry adhesive state

1610 the first adhesive layer which comprises a first portion in a dry adhesive state and a second portion in a wet adhesive state

1610A a first portion in a dry adhesive state

1610B a second portion in a wet adhesive state

2104 curve showing a function of time, a diameter of the white ring of a base plate of the first type measured from a cut for a stomal opening to the first electrode pair

2102 a linear approximation of curve 2104

2106 curve showing, as function of time, a diameter of the white ring of a base plate of the first type measured from the first electrode pair to the second electrode pair

2108 a linear approximation of curve 2106

2110 a linear approximation of curve 2112

2112 curve showing, as function of time, a diameter of the white ring of a base plate of the second type measured from a cut for a stomal opening to the first electrode pair

2114 curve showing, as a function of time, a diameter of the white ring of a base plate of the second type measured from the first electrode pair to the second electrode pair

2116 a linear approximation of curve 2114

2202 curve showing, as a function of time, first parameter data

2204 curve showing, as a function of time, first parameter data

2204A curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 30% output and 70% tap water is applied

2206 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 30% output and 70% tap water is applied

2208 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 50% output and 50% tap water is applied

2210 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 100% output and 0% tap water is applied

2212 curve showing, as a function of time, first parameter data indicative of voltage measured by the first electrode pair of the base plate when a mixture of 100% output and 0% tap water is applied

2214 curve showing a linear approximation relating the trigger times of the first electrode pair to the percentage of output

2302 a graphical representation of parameter data as a function of time at a first predetermined temperature

2304 a graphical representation of parameter data as a function of time at a second predetermined temperature

2306 curve showing, as a function of time, a decrease in voltage for the first electrode pair at a first predetermined temperature

2308 curve showing, as a function of time, a constant voltage for the second electrode pair at the first predetermined temperature

2310 curve showing, as a function of time, a constant voltage for the third electrode pair at the first predetermined temperature

2312 curve showing, as a function of time, a decrease in voltage for the first electrode pair at a second predetermined temperature

2314 curve showing, as a function of time, a constant voltage for the second electrode pair at the second predetermined temperature

2316 curve showing, as a function of time, a constant voltage for the third electrode pair at the

second predetermined temperature

REFERENCES CITED IN THE DESCRIPTION

Cited references

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- [US2017140103A1 \[0004\]](#)
- [US2017340474A1 \[0005\]](#)
- [US6171289B1 \[0006\]](#)

Patentkrav

1. Fremgangsmåde (300), der udføres i en tilbehørsanordning (8) til et stomisystem (1), hvor tilbehørsanordningen (8) omfatter et interface (403), der er konfigureret til at kommunikere med én eller flere anordninger i stomisystemet (1), idet interfacet (403) omfatter et display (403a), hvor den ene eller de flere anordninger omfatter en monitoranordning (6) og et stomiapparat (2), der er konfigureret til at blive placeret på en brugers hudoverflade, hvor stomiapparatet (2) omfatter en bundplade (4), idet fremgangsmåden (300) omfatter:
- opnåelse (300) af monitordata fra den ene eller de flere anordninger, idet monitordataene angiver en fysisk tilstand af bundpladen (4)
 - opnåelse (304) af kontekstdata, der angiver en kontekst, hvori stomiapparatet fungerer
 - bestemmelse (306) af én eller flere fremtidige driftstilstande for stomiapparatet på basis af monitordataene og kontekstdataene, hvor en fremtidig driftstilstand angiver den fremtidige ydeevne med hensyn til vedhæftning af stomiapparatets bundplade og
 - overførsel (308) af den ene eller de flere fremtidige driftstilstande.
2. Fremgangsmåde ifølge krav 1, hvorved den fremtidige driftstilstand omfatter mindst ét af: en slidtid, en vedhæftningskvalitet og en fugtmønstergengivelse.
3. Fremgangsmåde ifølge et af de foregående krav, hvilken fremgangsmåde omfatter bestemmelse (310) af en aktuel driftstilstand på basis af monitordataene og/eller kontekstdataene.
4. Fremgangsmåde ifølge krav 3, hvorved den aktuelle driftstilstand omfatter mindst ét af: en slidtid, en vedhæftningskvalitet og en fugtmønstergengivelse.

5. Fremgangsmåde ifølge et af de foregående krav, hvorved overførslen af den fremtidige driftstilstand omfatter overførsel (308a) af den fremtidige driftstilstand i en første applikation, hvor den første applikation er en stomibrugerapplikation, der er installeret på tilbehørsanordningen (8).

6. Fremgangsmåde ifølge krav 5, hvorved opnåelsen af kontekstdataene omfatter opnåelse (304a) af kontekstdataene fra en anden applikation, der er forskellig fra den første applikation, idet den anden applikation er en brugerapplikation, der er installeret på tilbehørsanordningen (8).

7. Fremgangsmåde ifølge et af kravene 5-6, hvorved opnåelsen af kontekstdataene omfatter:

- visning (304b) af et brugerinterfacefelt (522) i et første applikationsbrugerinterface (520, 560, 580) for den første applikation, hvor brugerinterfacefeltet (522) er konfigureret til at acceptere diskursinput
- detektering (304c) af et første brugerinput på brugerinterfacefeltet (522), og
- bestemmelse (304d) af kontekstdataene på basis af det detekterede første brugerinput.

8. Fremgangsmåde ifølge et af de foregående krav, hvorved opnåelsen af kontekstdata omfatter opnåelse af ét eller flere af: (i) kalenderdata fra en kalenderapplikation, der er installeret på tilbehørsanordningen, (ii) lokaliseringsdata, (iii) omgivelsesdata, (iv) ernæringsdata, (v) data om medicinindtagelse, (vi) sundhedsdata og (vii) aktivitetsdata.

9. Fremgangsmåde ifølge et af de foregående krav, hvorved opnåelsen af kontekstdataene omfatter opnåelse af kontekstdataene over en tidsperiode, og hvorved en processor (402) i tilbehørsanordningen (8) er konfigureret til at lagre de kontekstdata, der er blevet modtaget i tidsperioden, i en hukommelse (401) i tilbehørsanordningen (8) eller eksternt på en lagerserver (10).

10. Fremgangsmåde ifølge et hvilket som helst af kravene 5-9, hvorved overførslen af den ene eller de flere fremtidige driftstilstande omfatter visning (308b, 308c) via displayet (403a) af et første brugerinterfaceobjekt (502) og/eller en meddelelse (502), der angiver én eller flere fremtidige driftstilstande.

11. Fremgangsmåde ifølge et af de foregående krav, hvilken fremgangsmåde omfatter visning (312) via displayet (403a) af ét andet brugerinterfaceobjekt (504), der beder brugeren om at tilvejebringe en indikator for, om en tendens i den eller de bestemte fremtidige driftstilstande er forkert.

12. Fremgangsmåde ifølge krav 10, hvilken fremgangsmåde omfatter:

- detektering (314) af et andet brugerinput, der vælger det første brugerinterfaceobjekt (502) eller meddelelsen (502)
- som svar på detekteringen af det andet brugerinput, åbning af (316) stomibrugerapplikationen.

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13. Fremgangsmåde ifølge krav 12, hvilken fremgangsmåde omfatter:

- som svar på åbningen af stomibrugerapplikationen, visning (318) i et første applikationsbrugerinterface (520, 560, 580) af et tredje brugerinterfaceobjekt (521), der repræsenterer stomiapparatets (2) aktuelle driftstilstand.

14. Fremgangsmåde ifølge et af kravene 7-13, hvorved det første applikationsbrugerinterface (520, 560, 580) omfatter det brugerinterfacefelt (522), der er konfigureret til at acceptere diskursinput.

15. Fremgangsmåde ifølge et hvilket som helst af kravene 1-14, hvorved overførslen (308) af den eller de fremtidige driftstilstande omfatter udlæsning, visning og/eller transmission af den eller de flere fremtidige driftstilstande til brugeren og/eller stomisystemets anordning eller anordninger.

DRAWINGS

Drawing

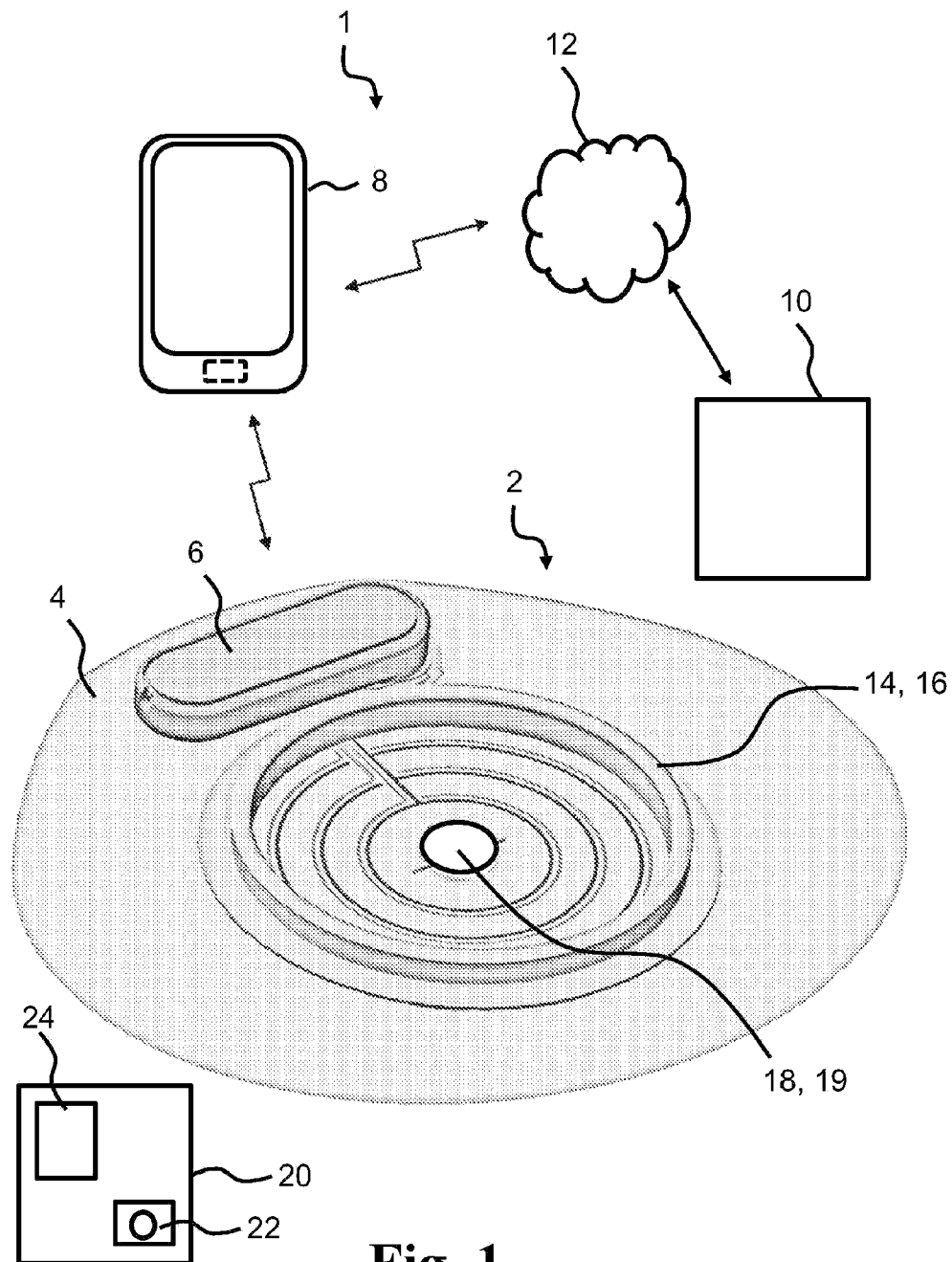


Fig. 1

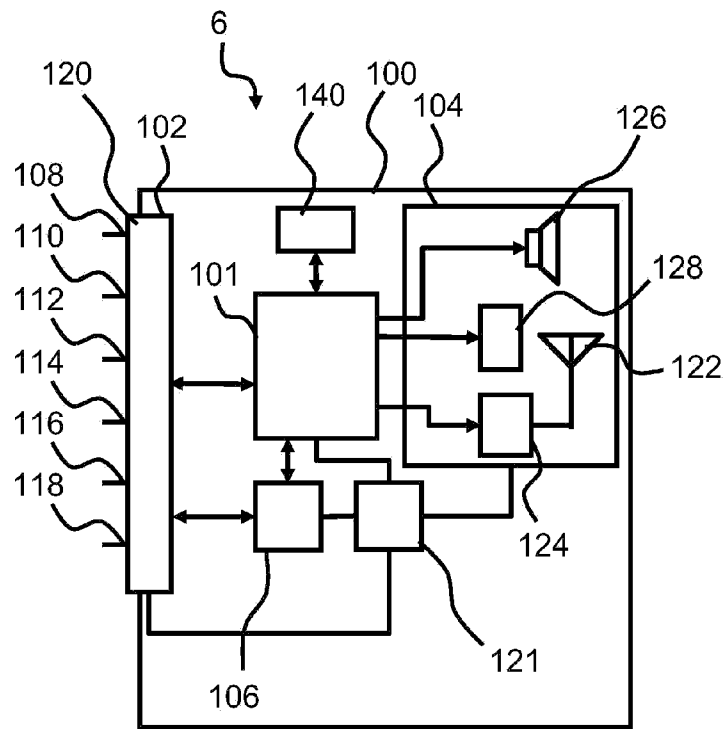
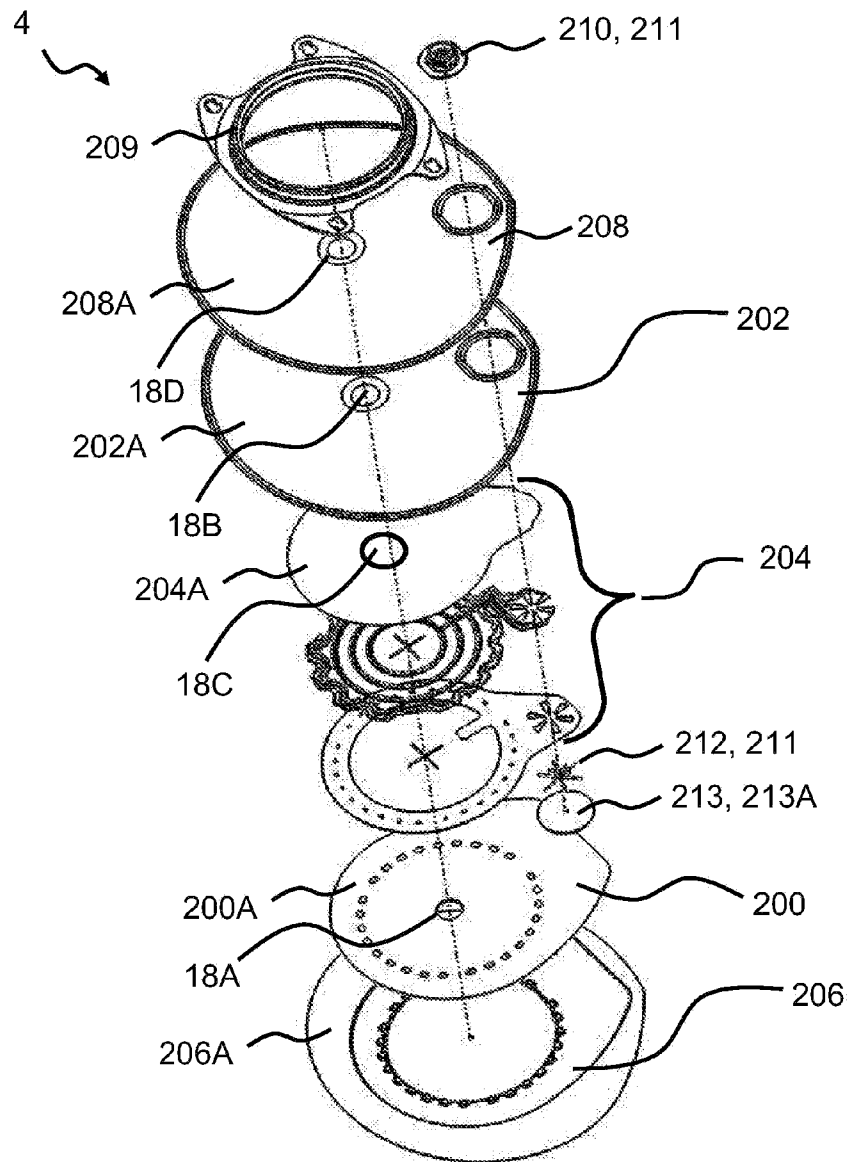
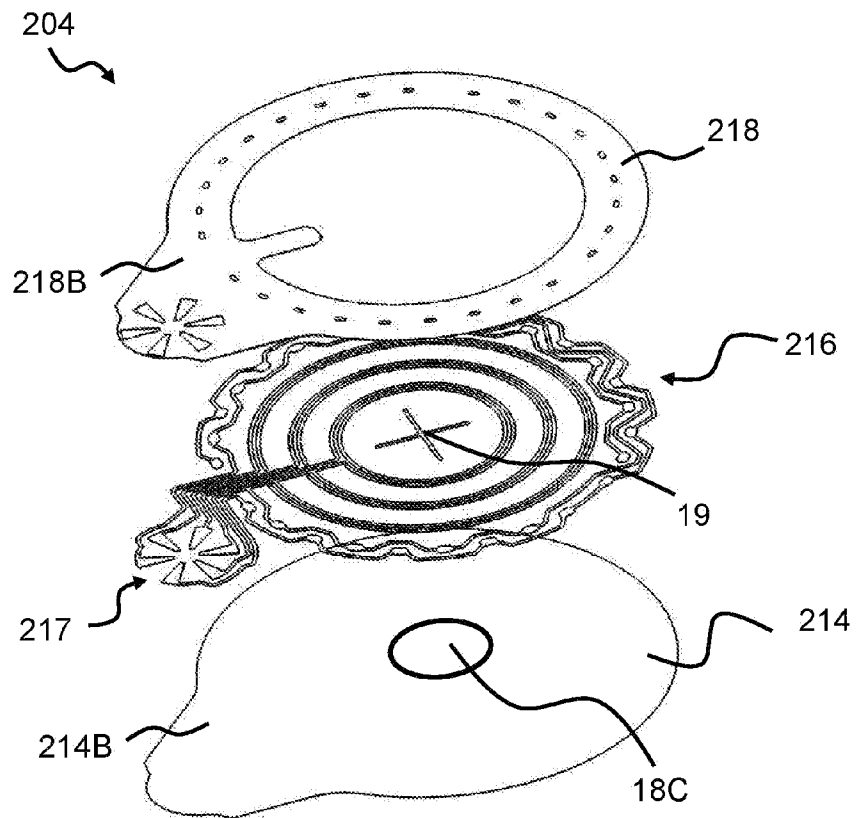


Fig. 2

**Fig. 3**

**Fig. 4**

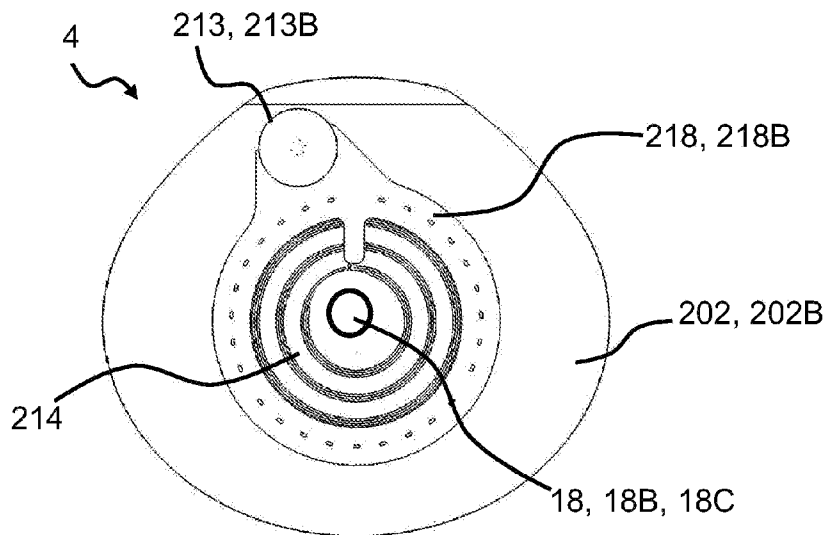


Fig. 5

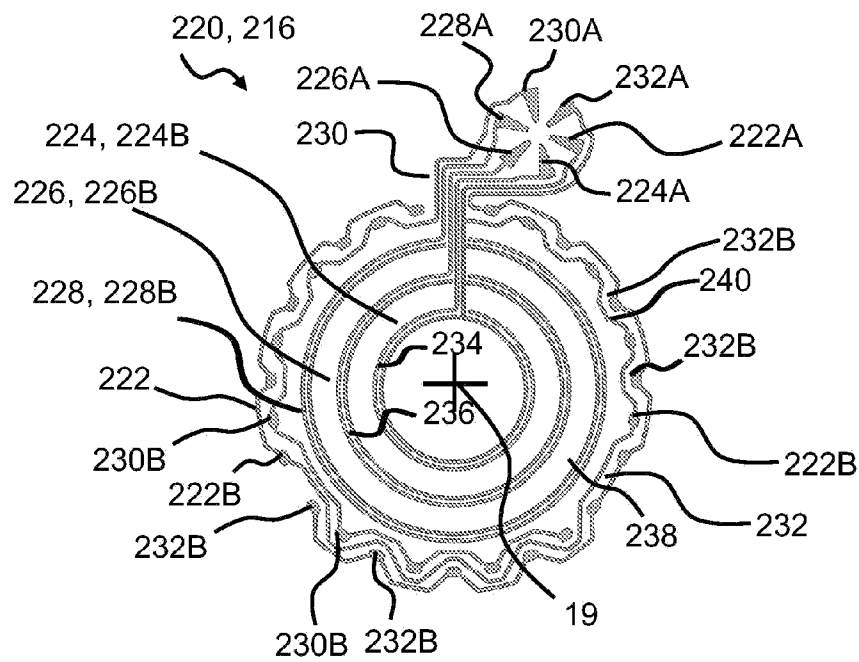
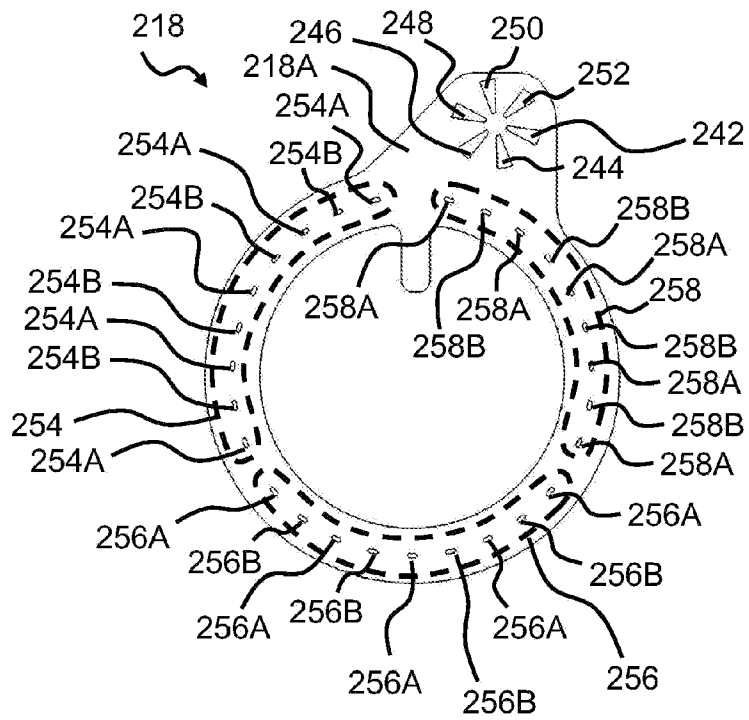
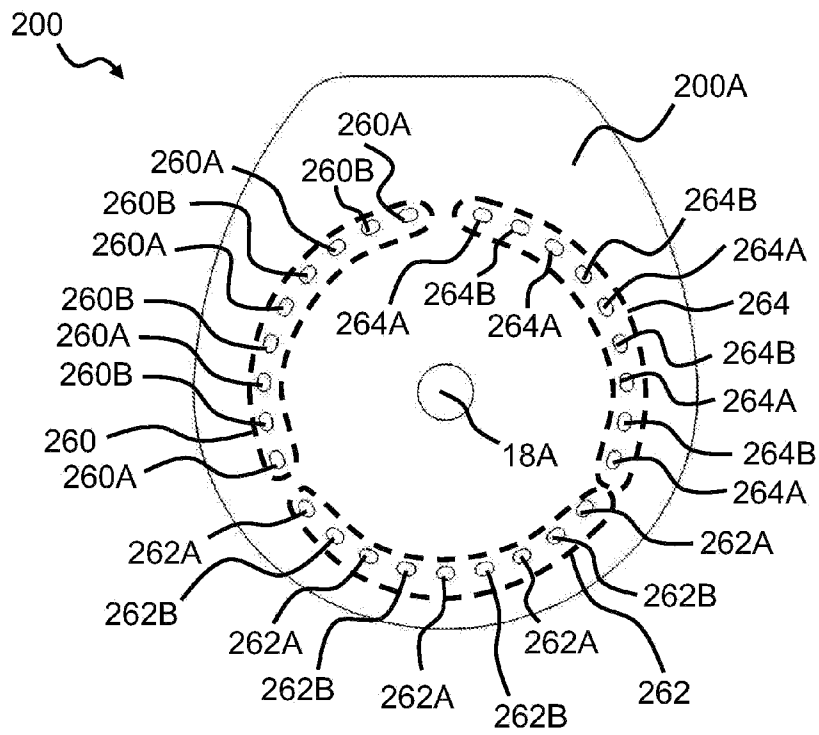
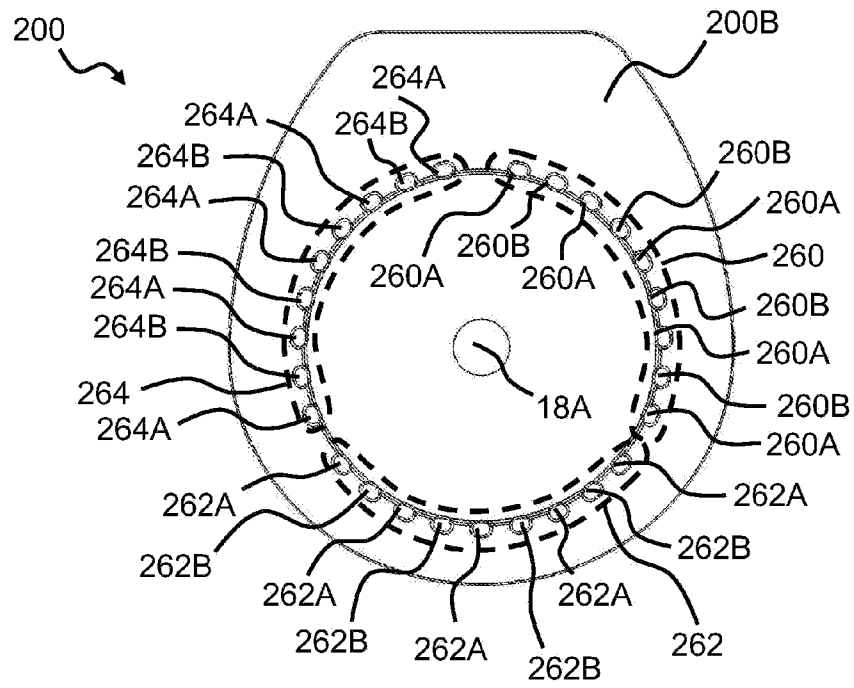
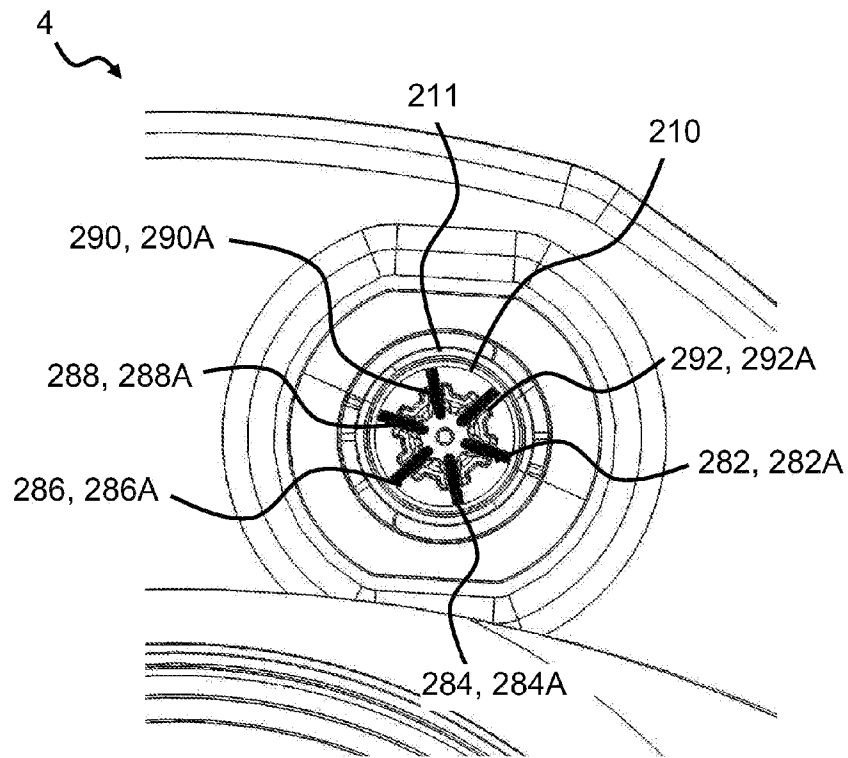


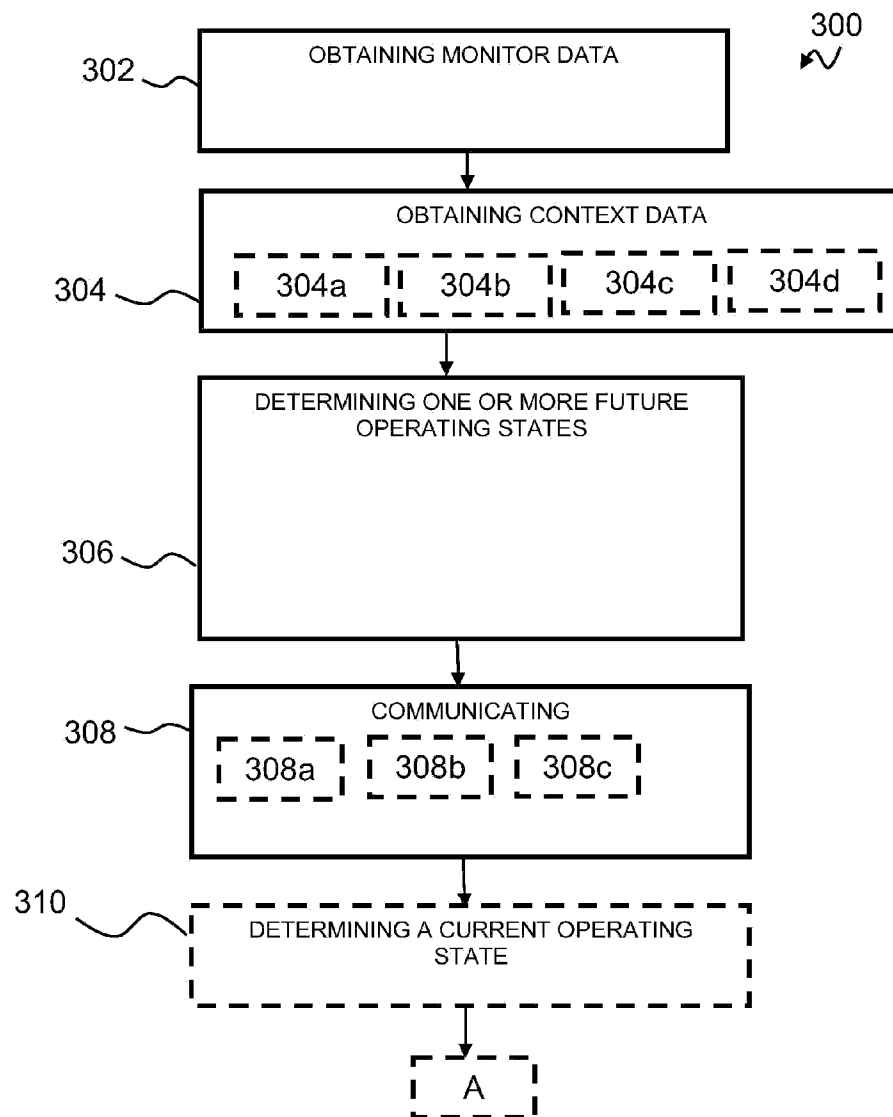
Fig. 6

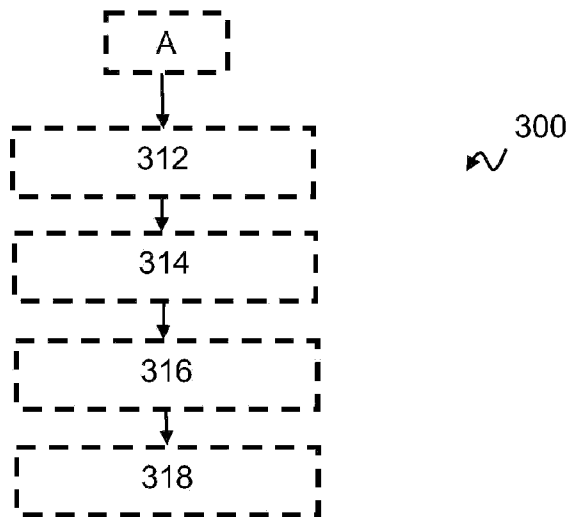
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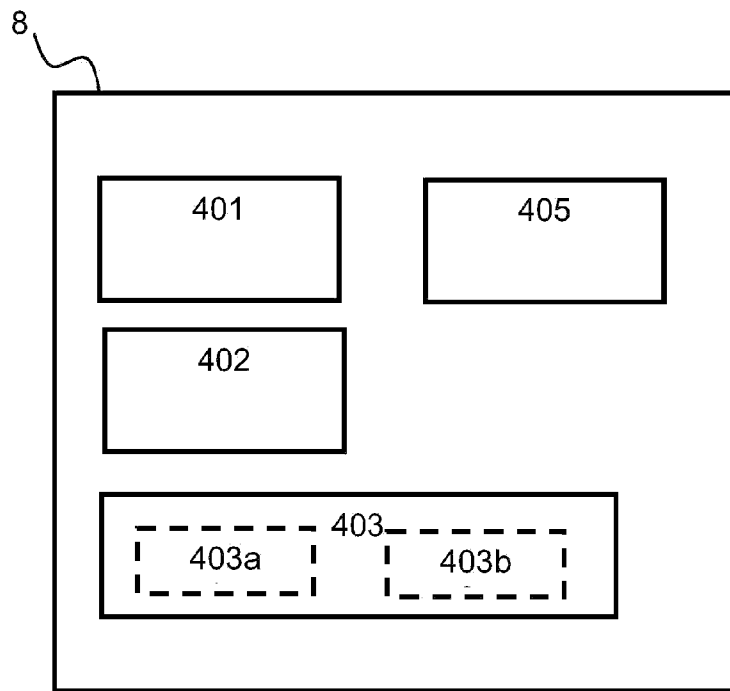
**Fig. 8**

**Fig. 9**

**Fig. 10**

**Fig. 11a**

**Fig. 11b**

**Fig. 12**

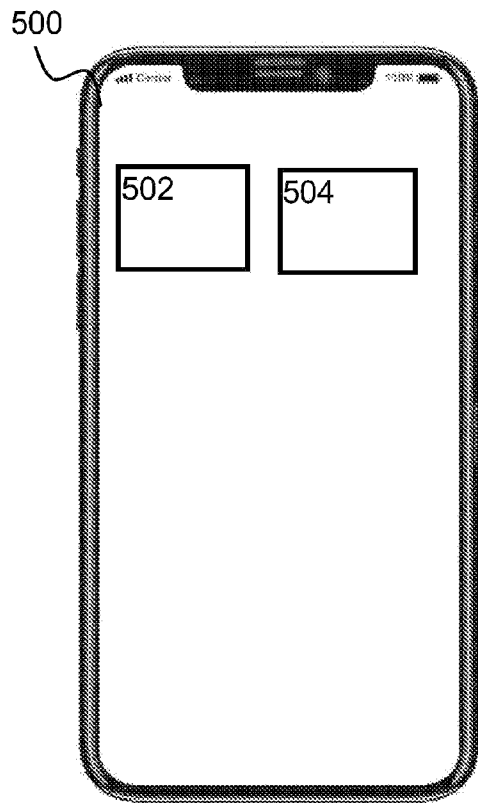
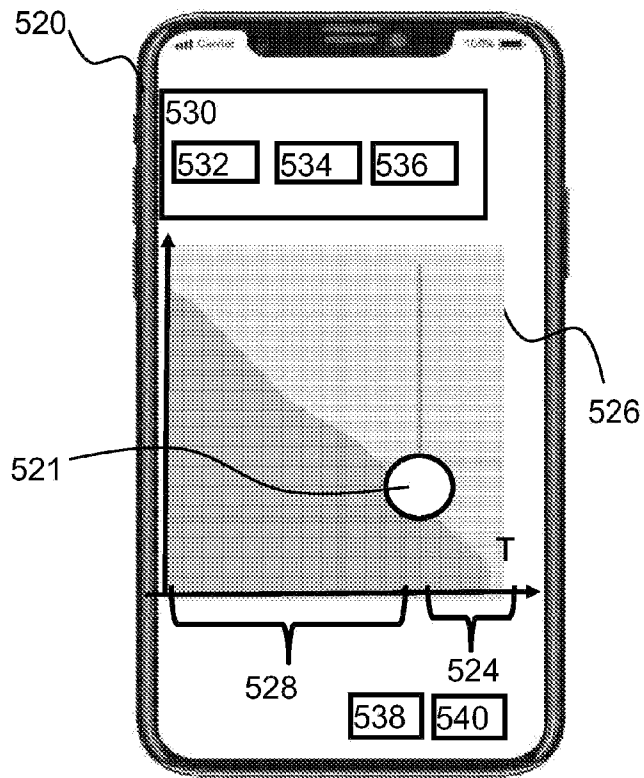
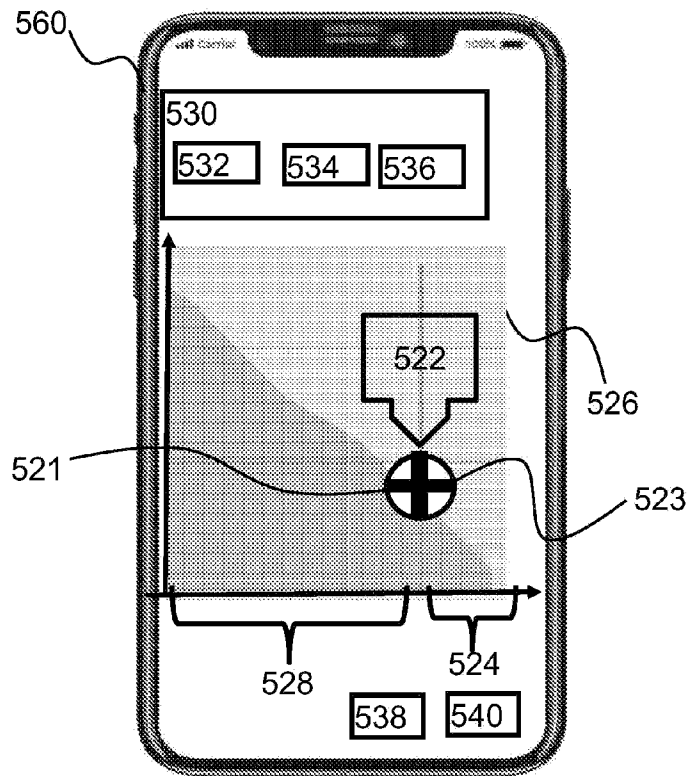
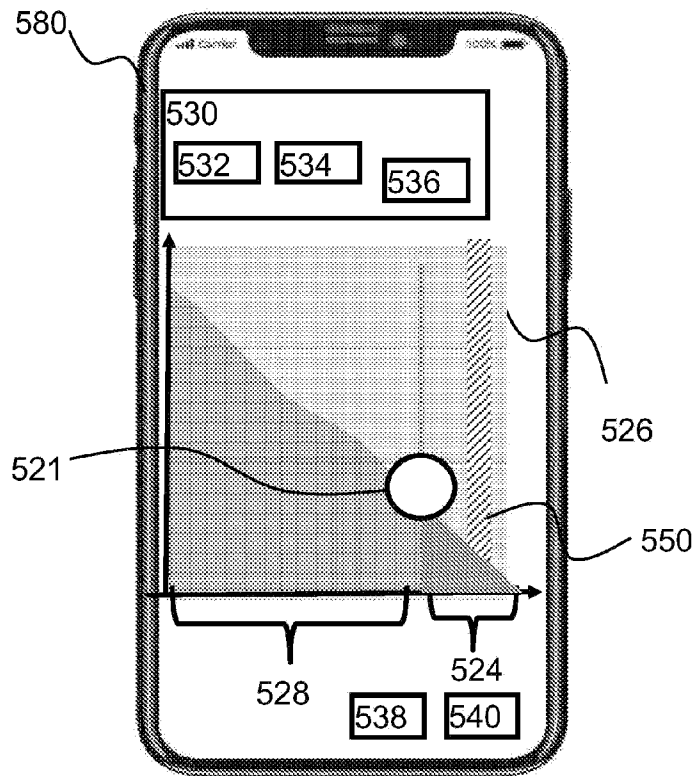


Fig. 13a

**Fig. 13b**

**Fig. 13c**

**Fig. 13d**

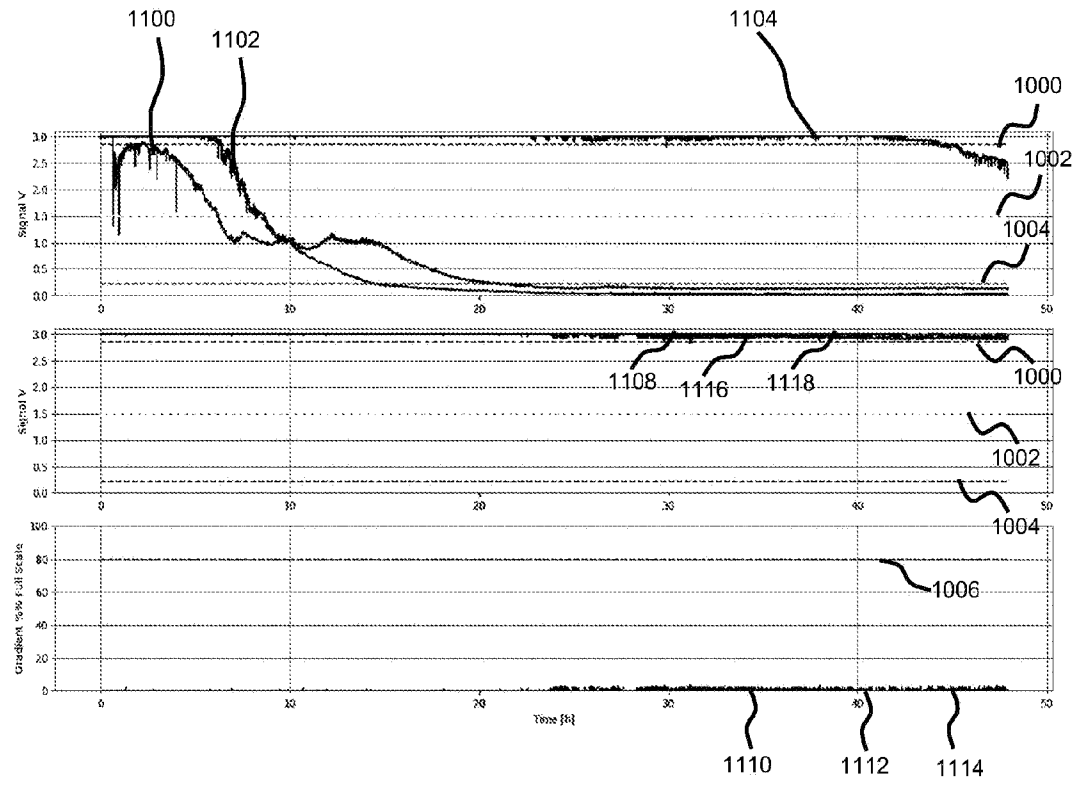
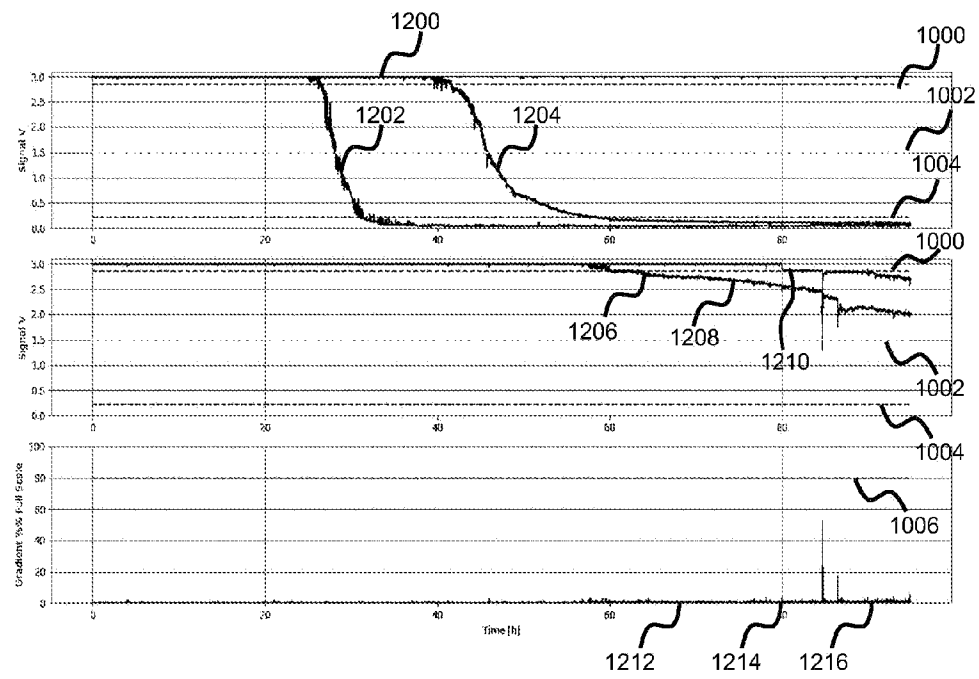
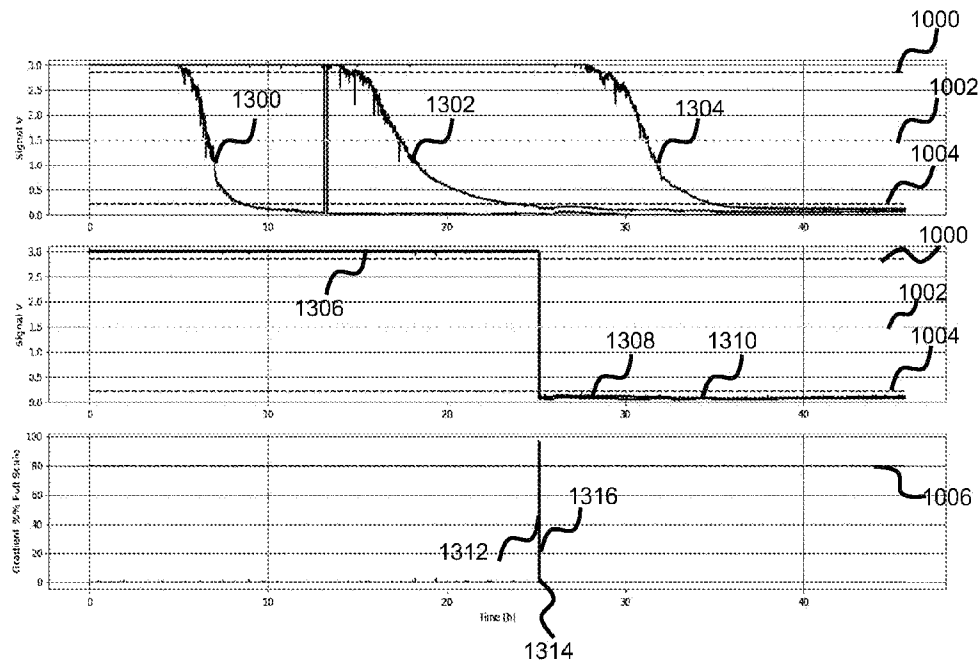
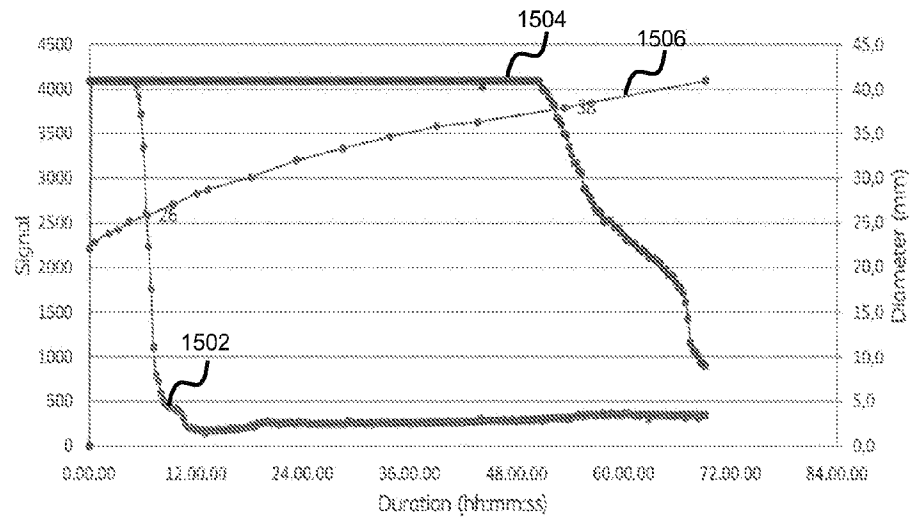
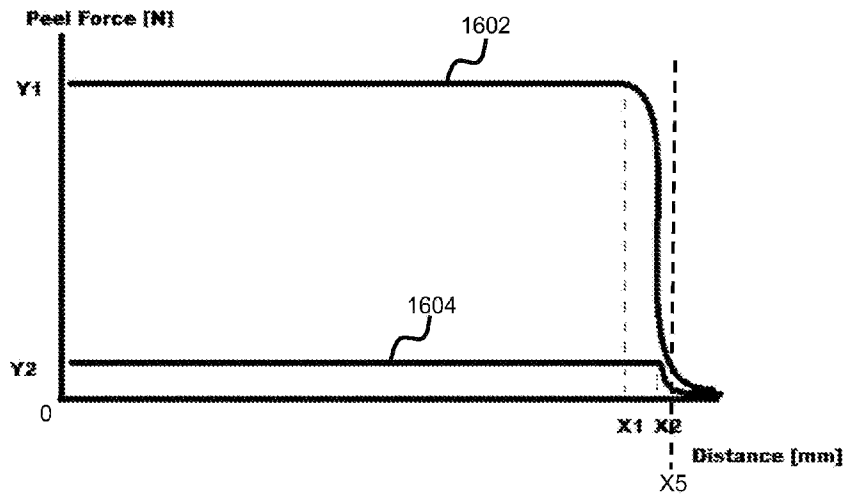
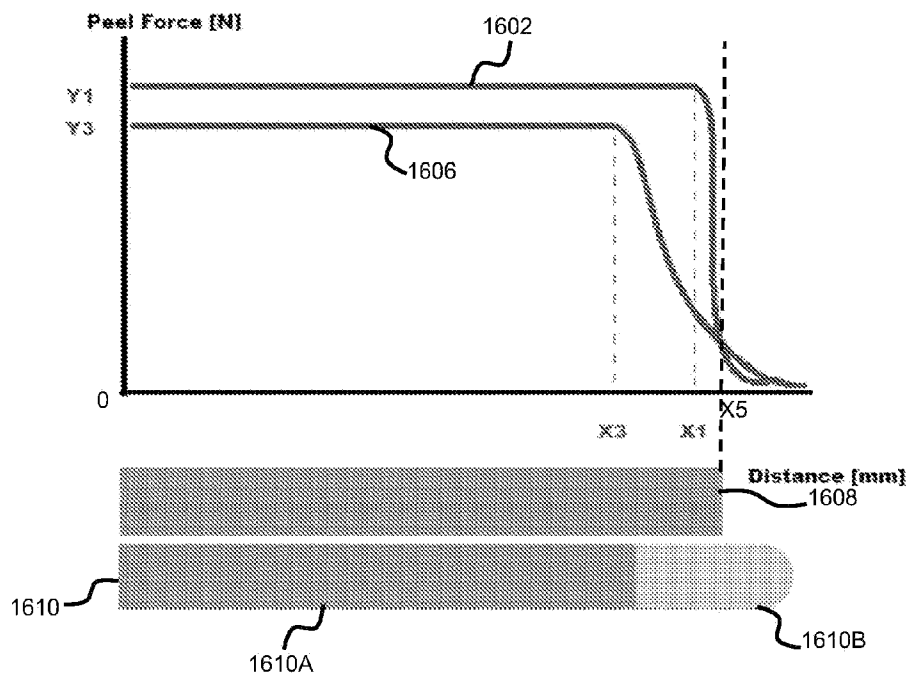


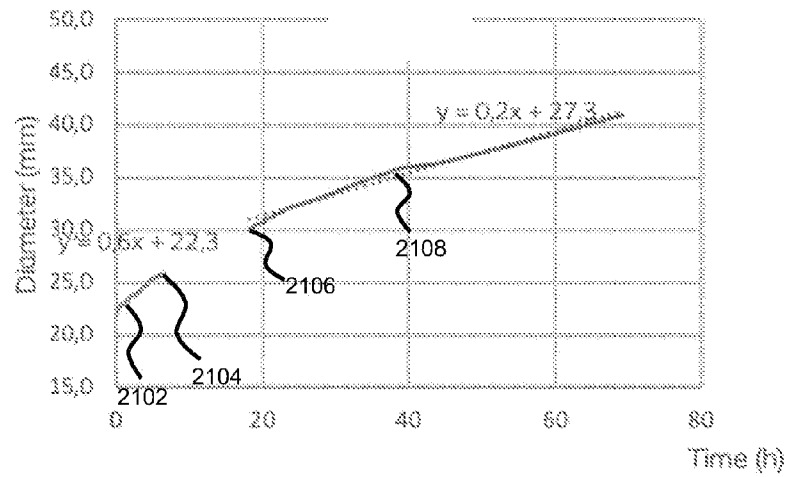
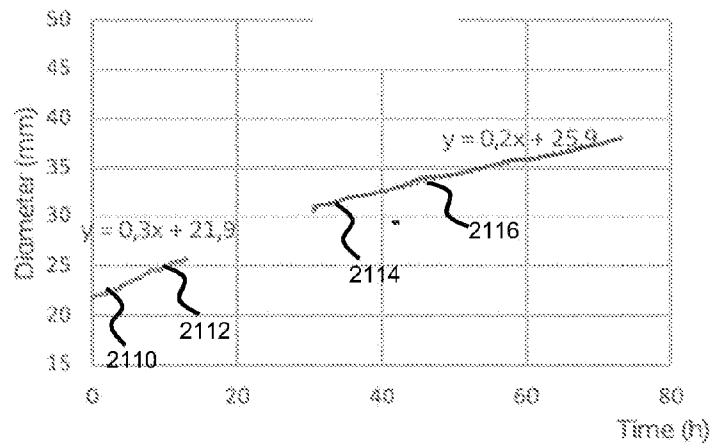
Fig. 14

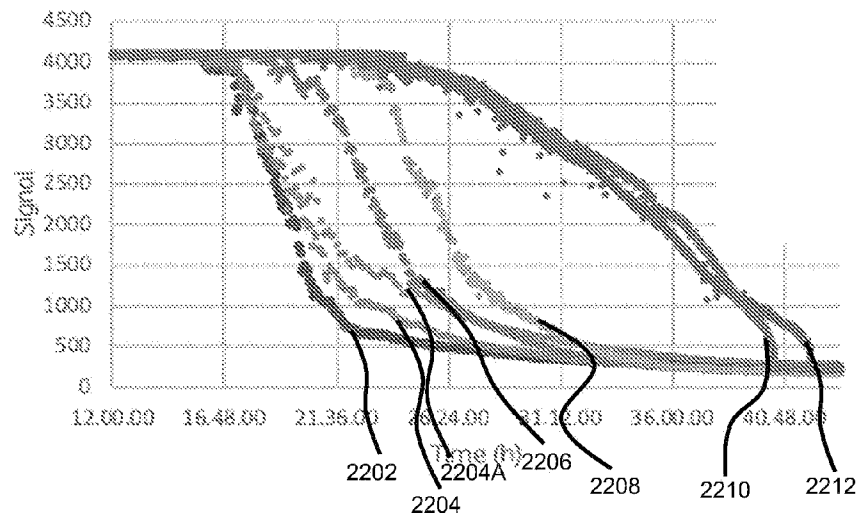
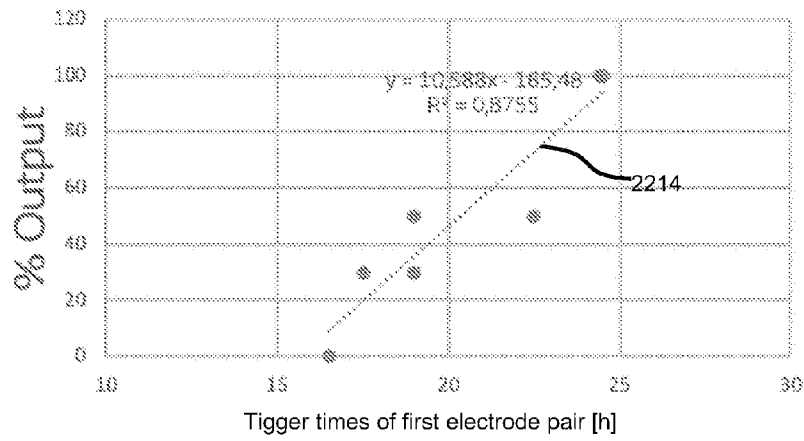
**Fig. 15**

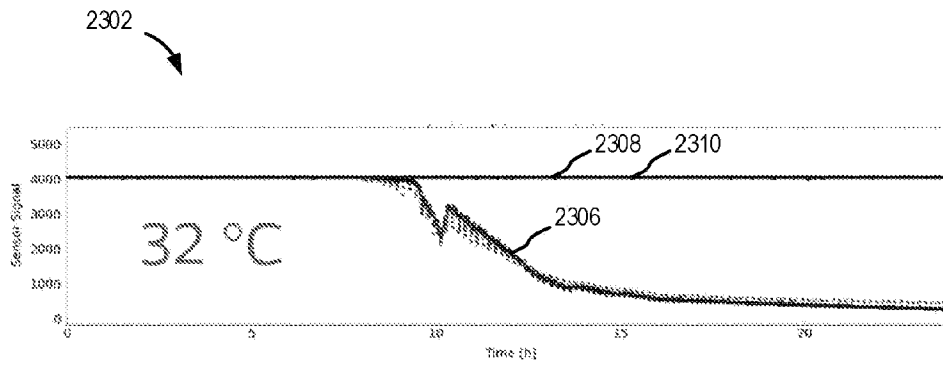
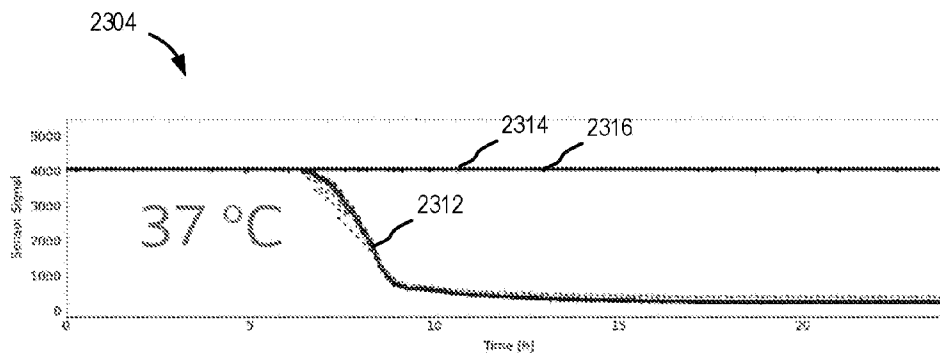
**Fig. 16**

**Fig. 17**

**Fig. 18A****Fig. 18B**

**Fig. 19A****Fig. 19B**

**Fig. 20A****Fig. 20B**

**Fig. 21A****Fig. 21B**