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(54) **Title:** SYSTEM AND METHOD FOR AUTOMATIC ANALYSIS AND TREATMENT OF A CONDITION

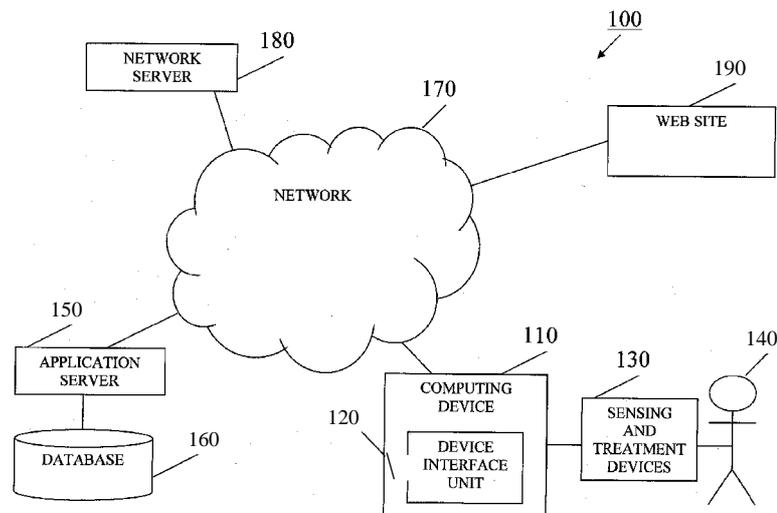


Fig. 1

(57) **Abstract:** A system and method for determining a treatment or a treatment protocol. In an embodiment, information related to a condition of a patient may be received. Information related to the patient may be obtained from a network. A treatment protocol may be determined based on the information related to a symptom and the information obtained from a network. Application of a treatment may be according to information related to a symptom and according to information related to the patient. Other embodiments are described and claimed.

SYSTEM AND METHOD FOR AUTOMATIC ANALYSIS AND TREATMENT OF A CONDITION

BACKGROUND OF THE INVENTION

[001] Various methods and systems exist for skin analysis and for skin treatments. In a typical scenario, a patient visits a physician that examines the patient and recommends a treatment, e.g., a specific cream or a surgical procedure. As the treatment progresses, the physician may reexamine the patient, determine whether the treatment is effective and may further adjust the treatment.

[002] Systems and/or methods for semi-automatic skin analysis or treatment exist. For example, device assisted skin analyzers and methods for determining a treatment based on questionnaires are known in the art. However, current systems and methods focus on diagnostics and recommendations of standard, off the shelf topicals and/or devices but fail to effectively combine actual personalized treatment steps which may be essential for achieving the desired results. Furthermore, current systems and methods do not enable determining a treatment based on information other than information obtained from the patient.

BRIEF DESCRIPTION OF THE DRAWINGS

[003] Embodiments of the invention are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like reference numerals indicate corresponding, analogous or similar elements. The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with objects, features, and advantages thereof, may best be understood by reference to the following detailed description when read with the accompanying drawings and in which:

[004] Fig. 1 shows high level block diagram of an exemplary system according to embodiments of the present invention;

[005] Fig. 2 shows exemplary flow according to embodiments of the invention; and

[006] Fig. 3 shows high level block diagram of an exemplary computing device according to embodiments of the present invention.

[007] It will be appreciated that for simplicity and clarity of illustration, elements shown in the figures have not necessarily been drawn accurately or to scale. For example, the dimensions of some of the elements may be exaggerated relative to other elements for clarity, or several physical components may be included in one functional block or element. Further, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[008] In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, and components, modules, units and/or circuits have not been described in detail so as not to obscure the present invention. Some features or elements described with respect to one embodiment may be combined with features or elements described with respect to other embodiments. For the sake of clarity, discussion of same or similar features or elements may not be repeated.

[009] Although embodiments of the invention are not limited in this regard, discussions utilizing terms such as, for example, "processing," "computing," "calculating," "determining," "establishing", "analyzing", "checking", or the like, may refer to operation(s) and/or process(es) of a computer, a computing platform, a computing system, or other electronic computing device, that manipulates and/or transforms data represented as physical (e.g., electronic) quantities within the computer's registers and/or memories into other data similarly represented as physical quantities within the computer's registers and/or memories or other information non-transitory storage medium that may store instructions to perform operations and/or processes.

[010] Although embodiments of the invention are not limited in this regard, the terms "plurality" and "a plurality" as used herein may include, for example, "multiple" or "two or more". The terms "plurality" or "a plurality" may be used throughout the specification to describe two or more components, devices, elements, units, parameters, or the like. For

example, "a plurality of devices" may include two or more devices. Unless explicitly stated, the method embodiments described herein are not constrained to a particular order or sequence. Additionally, some of the described method embodiments or elements thereof can occur or be performed simultaneously, at the same point in time, or concurrently.

[Oil] The present invention relates to a method and system for treating various conditions, pathologies, symptoms or phenomena. As described herein, a system and method for automatic analysis and treatment of a condition may receive information related to a condition of a patient, obtain from a network information related to the patient and determine a treatment based on the information related to the condition and the information obtained from the network. A treatment may include suggestions and/or recommendations that may be automatically provided by a system based on information provided by a patient or information collected by remotely controlled devices. A system may control application or other aspects of a treatment. For example, devices may be remotely controlled.

[012] In particular, an embodiment may be directed to a treatment of skin conditions, symptoms, phenomena and/or pathologies. More particularly, the present invention enables automatically diagnosing a symptom, phenomena or pathology, determining a personalized treatment, a treatment protocol or a treatment method, implementing the treatment and performing a follow up and/or adaptation of the treatment. The terms "treatment protocol" and/or "treatment" as used herein may refer to any usage of treatment devices and/or substances. The terms "treatment protocol" and/or "treatment" may be used herein interchangeably. For example, a treatment protocol or treatment may include instructions for a specific usage of various devices in order to heat or cool a skin or to apply a pressure (e.g., in a massage).

[013] A treatment protocol or treatment may include application of various substances (e.g., a lotion) including amounts to be used as well as various devices and their configuration. The terms "treatment protocol" and "treatment" may further include a duration, a frequency or other settings or parameters, e.g., an amount, a temperature or voltage level. For example, a treatment protocol may include instructions, definitions, or sets of configuration parameters, usable in order to configure and/or operate a device. For example, a treatment protocol may include a reference to a specific device or device type to be used. Additionally, a treatment protocol may include any settings of a device or

instructions related to a usage of a device. The terms "treatment protocol" and "treatment" may be used herein interchangeably.

[014] As further described herein, determining a treatment and monitoring an execution of a treatment may be done automatically by a computerized system. For example, a system may perform skin analysis for a user or patient, may determine a treatment for one or more identified conditions or phenomena and may further monitor and control an execution of the treatment, thus providing a comprehensive and automated solution. Embodiments of the invention may be applicable to a variety of diseases, pathologies, phenomena, disorders, illness or conditions. For example, embodiments of the invention may be used for blood diagnostics or analysis. Other embodiments may be applicable to diagnosing or examining saliva or treating organs such as tongue, eyes, iris etc. Accordingly, although specific exemplary skin related conditions or phenomena are discussed herein, it will be understood that embodiments of the invention are not limited to a specific condition, phenomenon or disease.

[015] As described herein, a system according to embodiments of the invention may include or may be operatively connected to dedicated sensing and/or treatment devices and may include dedicated software, hardware and/or firmware modules and/or network servers or website(s). Embodiments of the present invention enable skin treatment methods based on automated analysis, automated treatment assessment and automated device configuration. Embodiments of the present invention may acquire information from a number of sources and may follow up a progress of a treatment and/or perform refinement or corrections of a treatment based on automatically acquired information.

[016] Reference is made to Fig. 1 that shows an exemplary system 100 according to embodiments of the invention. As shown, system 100 may include a computing device 110 that may include (or be operatively connected to) a device interface unit 120. As further shown, system 100 may include sensing and/or treatment devices 130. Sensing and/or treatment devices 130 may include any device usable to apply or perform a treatment and/or any device or sensor usable for obtaining information from patient or user 140. It will be understood that system 100 is an exemplary system and other embodiments or implementation may be possible. For example, in some embodiments, components shown

in Fig. 1 may be omitted or combined. For example, application server 150, website, database, network server 180 and/or web site 190 may be combined into a single unit.

[017] For example, sensing and/or treatment devices 130 may include a device for analyzing skin or an exfoliation device for hair removal. Sensing and/or treatment devices 130 may include skin peeling, a skin tightening device, a cellulite treatment device, an intense pulse light hair removal device, an acne and rejuvenation device, an infusion device (e.g., designed to improve the penetration of formulations), a hair growth device, a nail's fungal infections treatment device and the like.

[018] Network 170 may be, may include or may be part of, a private or public IP network, e.g., the internet. In some embodiments, network 170 may be a combination of networks. For example, network 170 may be or may be part of, a global system for mobile communications (GSM) network. In an embodiment, network 170 may include or comprise an IP network such as the internet, a GSM related network and any equipment for bridging or otherwise connecting such networks as known in the art. It will be recognized that embodiments of the invention are not limited by the nature or type of network 170 that may be any suitable network enabling computing device 110, application server 150, network server 180 and web site 190 to interact and/or communicate information as described herein.

[019] Computing device 110 may be any suitable computing device, e.g., a laptop or notebook computer or a mobile computing device such as a smartphone. Application server 150, network server 180 and web site 190 may be any suitable computing device or system, e.g., one or more servers, workstations and/or network devices. Application server 150, network server 180 and web site 190 may have any required application installed thereon.

[020] As shown, a database 160 may be operatively connected to application server 150. Database 160 may be a commercial or proprietary data repository. Database 160 may be implemented using any suitable system, e.g., a commercial storage system. For example, database 160 may be, or may include, any component capable of storing digital information, for example, a hard disk drive or an array of disk drives, a CD-Recordable (CD-R) drive, or other suitable removable and/or fixed storage unit. In some embodiments, database 160 may include or may be a USB storage device, a network storage device or FLASH storage device. It will be recognized that the scope of the present invention is not

limited or otherwise affected by the type, nature, operational and/or design aspects of database 160. For example, database 160 may comprise any suitable number of possibly different storage devices without departing from the scope of the present invention.

[021] System 100 may perform a complete assessment and treatment of a variety of skin diseases, symptoms, pathologies, phenomena, disorders, illness or conditions. In an embodiment, user 140 may provide application server with any relevant information. For example, an online questionnaire may be provided by application server 150 to computing device 110 over network 170. User 140 may provide application server with any demographic or other relevant information, e.g., age, gender, residence location or any information that may be relevant to a skin treatment. System 100 may control or operate (e.g., using device interface unit 120) sensing and treatment devices 130 in order to obtain information related to user 140. For example, sensing and/or treatment devices 130 may include an image acquisition device that may be controlled by computing device 110 to obtain an image of a skin of user 140. Any information obtained by sensing and/or treatment devices 130 and/or computing device 110 may be provided to application server 150 and may be used, e.g., by an application on server 150, in order to determine and/or conduct a treatment method or protocol.

[022] Application server 150 may interact with user 140 (e.g., via computing device 110) and guide user 140 in performing data acquisition. In some embodiments, specific instructions provided by application server 150 may guide user 140 in setting various parameters of sensing and treatment devices 130. For example, an application on server 150 may instruct user 140 to obtain an image of a region of a skin to be treated. An application on server 150 may further provide user 140 with various parameters to be used in acquiring an image, e.g., parameters related to a distance of a camera from the skin, a zoom level, a shutter speed and the like.

[023] Instructions provided to user 140 as described herein may be based on information provided to server 150. For example, application server 150 may guide user 140 through a process of acquiring images of a skin region based on information related to the specific equipment used by user 140 or based on any other relevant information. For example, based on a model of a camera used (e.g., as provided to application server 150 by user 140), application server 150 may provide user 140 with optimal parameters to be used

in acquiring an image of a skin. When other sensing or measuring devices are used, other parameters, e.g., a voltage level or duration of a measurement may similarly be provided to user 140 by application server 150. In some embodiments, instructions related to acquiring information may be based on the specific phenomena to be treated. For example, measurements required for assessing and/or treating acne may be different from measurements required in order to assess and treat cellulite. Accordingly, based on a symptom indicated by user 140, application server 150 may determine a set of measurements required. Based on a device used for obtaining measurements, application server 150 may guide user 140 in acquiring the required information.

[024] Data acquired, e.g., by sensing and treatment devices 130, may be uploaded to application server 150 and may be analyzed. An application on application server 150 may analyze data uploaded from computing device 110 and may determine whether uploaded data is adequate for further processing. For example, an image of a skin region acquired and uploaded to application server 150 as described herein may be analyzed by application server 150 in order to determine whether the image is suitable for further image analysis. If an image provided by user 140 is unsuitable for further analysis or processing (e.g., blurred or taken from an inadequate distance), application server 150 may instruct user 140 to acquire an additional image. For example, based on a preliminary analysis of an image, application server 150 may instruct user 140 to change one or more imaging parameters and obtain an additional image. For example, application server 150 may instruct user 140 to obtain an additional image from a closer range, with more light or with a different shutter speed. Although image acquisition is mainly referred to hereinabove, it will be understood that any data acquisition by user 140 may be similarly monitored and/or guided by application server 150. For example, with respect to any measurement, server 150 may instruct user 140 to perform the measurement twice and may further compare results of two consecutive measurements in order to determine the results are consistent or accurate.

[025] As described herein, application server 150 may use information provided by user 140 in order to determine a treatment. In order to determine a treatment, application server 150 may obtain information from sources other than user 140, computing device 110 and/or devices 130. For example, application server may obtain information from web site 190 and/or network server 180. For example, information such as weather or atmospheric

conditions, pollution levels and the like may be freely and/or publicly available on the internet and may accordingly be obtained, e.g., from network server 180. For example, based on demographic or other information provided by user 140, application server 150 may determine weather and/or other environmental conditions to which user 140 is exposed and may take such information into account when determining a treatment.

[026] A treatment and/or a set of recommendations may be determined by application server 150 based on any information that may be obtained from any source or sources. For example, data related to a life style, habits or diet of user 140 may be obtained from any relevant source and may be used in determining a treatment. For example, information such as habits or life style of user 140 may be obtained from one or more web sites such as web site 190 that may be part of a social network platform. For example, based on information provided by user 140 to a social network (e.g., status updates on facebook® or tweets on twitter®) application server 150 may determine aspects such as a life style, a diet or habits of user 140 and may further determine a treatment based on such determined aspects.

[027] Additionally or alternatively, application server 150 may determine one or more recommendations for user 140. For example, recommendations may include a maximum time of exposure to sun light, a diet and the like. Recommendations determined by application server 150 may be based on any information used for determining a treatment as described herein and may further be provided to user 140 in ways similar to those used for providing a treatment protocol as described herein, e.g., using email, short message service (SMS) message or directly to computing device 110.

[028] A treatment method or protocol and/or recommendations determined by application server 150 may be dynamically and automatically updated. For example, application server 150 may periodically retrieve environmental information from network server 180 and adjust recommendations or a treatment protocol accordingly. For example, when a pollution level or sun radiation level change in the area where user 140 lives, application server 150 may update a treatment protocol or a recommendation and may inform user 140 of such update. For example, upon a change of weather conditions, sun radiation levels or other environmental conditions, application server 150 may update a treatment protocol and may automatically send an electronic mail or an SMS message to user 140 to inform user 140 of the updated treatment protocol and/or recommendations.

[029] In some embodiments, treatment equipment or devices may be automatically configured. For example, devices may be automatically configured based on a determined treatment and/or based on an updated treatment protocol. For example, a first (or initial) treatment protocol may be determined by application server 150 based on information provided from user 140 and based on environmental information obtained from network server 180. Application server 150 may configure one or more devices according to the first treatment protocol. For example, a treatment protocol may dictate a voltage level used, a duration of a treatment, a frequency of a treatment, a temperature etc. Automatic configuration of sensing and/or treatment devices 130 may be done by application server 150 via computing device 110. For example, application server 150 may provide settings for sensing and/or treatment devices 130 to computing device 110 and device interface unit 120 may use such settings to configure sensing and treatment devices 130.

[030] With time, environmental conditions relevant to user 140 may change (e.g., sun radiation level may rise). In other cases, relevant behavior, hobbies or habits of user 140 may change. For example, user 140 may adopt a new hobby, e.g., cycling, (also known as bicycling or biking) and be exposed to weather conditions more than before. Application server 150 may automatically learn of such changes. For example, application server 150 may periodically access network server 180 in order to monitor environmental conditions relevant to user 140 and thus be aware of a change in sun radiation level at the residence area of user 140. Application server 150 may monitor information posted by user 140 on a social network and thus learn of user's 140 new cycling hobby.

[031] Upon detecting a change in relevant conditions (e.g., related to weather or hobbies as described above), application server 150 may update the first (e.g., initial) treatment protocol based on the new conditions to produce a second (or updated) treatment protocol that may be better suited to the new conditions. In order to carry out the second or updated treatment protocol, application server 150 may automatically configure one or more devices included in sensing and treatment devices 130 according to the second treatment protocol. For example, compared to an initial treatment protocol, an updated treatment protocol may dictate a lower voltage level to be used in a treatment device, a longer duration of a treatment, a higher frequency of a treatments etc. Accordingly, system 100 may automatically, dynamically and continuously adapt a treatment of a patient to

environmental or other conditions. Similarly, system 100 may automatically, dynamically and continuously update a treatment protocol based on any relevant aspect of a life style of a treated patient, e.g., a diet, a hobby, a job etc.

[032] Reference is now made to Fig. 2 that shows an exemplary flow or method according to embodiments of the invention. It will be understood that operations in the flow described herein with reference to Fig. 2 are not constrained to a particular order or sequence. Additionally, some of the described method embodiments or elements thereof can occur or be performed at the same point in time. In some embodiments, some of the operations may be skipped or omitted. For example, following a treatment, some but not all of the operations in the flow (e.g., collecting information related to the patient) may be repeated.

[033] The method or flow shown in Fig. 2 and described herein may enable a treatment of various skin symptoms, pathologies or other phenomena based on analysis of personal and environmental information. Treatment as referred to herein may include treatment assessment, actual treatment, follow up and treatment refinement or corrections. The method described herein may be implemented by a dedicated system, e.g., system 100 described above. It will be understood that in some embodiments, some of the described method elements can occur or be performed simultaneously, at the same point in time, or concurrently. In some embodiments, some of the operations or elements of a method as described herein may be omitted or repeated.

[034] As shown by block 210, the flow may include receiving information from a user. For example, application server 150 may enable a user to subscribe for a service. Subscription may be required in order to register into the system, for commercial aspects as well as for obtaining relevant personal data. Users' registration may also facilitate a personal profile management for future follow up and additional activities. During registration, a user may be required to supply personal data such as age, gender, skin conditions, skin tone, hair color, eye color, ethnicity, sensitivities, allergies, health condition, residence location, activities or hobbies, e.g., indoors or outdoors activities such as, swimming, hiking, etc. Other information obtained from a user as shown by block 210 may include eating habits, sensitivities or allergies. In some cases, personal data received as shown by block 210 may include hormonal fluctuations and monthly menstrual cycle.

[035] Receiving information from a user as shown by block 210 may be performed by providing a user with an online questionnaire. An online questionnaire (e.g., provided to user 140 by application server 150 via computing device 110) may be dynamically and/or automatically updated or changed (e.g., by application server 150) based on information provided by a user. For example, based on one or more answers provided by a user, additional questions may be included in an updated online questionnaire. For example, based on a specific sensitivity or allergy indicated by a user, application server 150 may prompt a user to provide additional information that may be required in order to determine a treatment for a patient suffering from the specific sensitivity or allergy. Accordingly, receiving information from a user as shown by block 210 may be an iterative process that may include requesting information from a user based on information provided by the user.

[036] As shown by block 220, the method or flow may include automatically collecting information from additional sources.

[037] For example, application server 150 may obtain information related to environmental conditions, weather conditions, demographic information or any other information relevant to user 140. For example, based on a residential address provided by user 140, application server 150 may interact with network server 180 to obtain information related to weather conditions in the region where user 140 lives. Similarly, any relevant environmental conditions or parameters may be obtained, for example, an ultra violet (UV) radiation level in the region, a pollution level or any other parameter that may be relevant may be automatically obtained by application server 150. Relevant environmental information automatically obtained for a user may include, or be related to, an average and/or actual sun radiation level, various atmospheric conditions, day and night times, pollutants etc. Obtained weather information may include a weather forecast, average and actual temperatures, humidity, wind, rain, etc.

[038] Collecting, receiving or otherwise obtaining information from additional sources as shown by block 220 may include obtaining information provided by a user to various systems or applications. For example, information posted or provided by a user in a social network may be obtained. For example, by identifying specific terms or phrases such as outdoor, vacations, illness, etc. posted by user 140 on a social network, blog or elsewhere, application server 150 may enrich, extend or augment data required for

determining a skin treatment method or protocol. The information collected as shown by block 220 may include specific and personal recommendations addressed to a user and made by others. It will be understood that although obtaining information related to the user from a web site is mainly described herein, other sources may be accessed. For example, medical information may be obtained by application server 150 from a medical institute, e.g., using a password provided by user 140.

[039] Automatically obtained information may include statistical or other data. For example, statistical information or parameters related to an ethnic group of the user, or to a residential area of the user may be obtained and analyzed. For example, based on statistical information application server 150 may learn that a specific illness is common in the region where user 140 lives. In another possible case, based on statistical data, application server 150 may learn that a specific illness and/or treatment is common for a specific ethnic group. Methods of treatments (e.g., devices or lotions used) may be learned by analyzing statistical or other information. For example, application server 150 may learn that a specific treatment is common in a specific state or that a specific device is authorized or approved for use in a specific country. Statistical or other information obtained by application server 150 from various sources may be used in determining a treatment. For example, a success rate or popularity of a specific treatment or device may be taken into account by application server 150 when determining a treatment or a recommendation.

[040] In an embodiment, a user may be required to confirm automatically collected data rather than provide it. For example the user may be asked to confirm an ethnicity or a residence location automatically determined by a system. For example, provided with a user name of user 140, application server 150 may interact with a social network (e.g., hosted by web server 190) and may automatically obtain additional information related to user 140. Information automatically obtained may be presented to user 140 that may be prompted to confirm the information and/or modify the information. Accordingly, obtaining information related to a user may include automatically obtaining information related to the user and prompting the user to confirm obtained information.

[041] Information collected as described herein may be used to define a set of skin tests and measurements as shown by block 230. The composition of the set of measurements may be performed by a system (e.g., application server 150 in system 100)

and may further be reviewed, refined and/or approved by a user. The skin measurements may be performed by a dedicated device (e.g., included in sensing and treatment devices 130), for example, a skin analyzer. As described herein, the measurement device may be connected to a system such that any measurement obtained may be provided to the system. For example, any measurement obtained by a device included in sensing and treatment devices 130 may be provided to application server 150 by computing device 110.

[042] A system may guide a user through the set of measurements, providing feedback on correct performance and configuring the measurement device according to each test. For example, an application on application server 150 may guide user 140 in performing a set of measurements and may also configure one or more of sensing and treatment devices 130 as needed. Exemplary measurements performed as shown by block 230 may be related, for example, to skin disorders, melanoma, moisture, elasticity, sebum, lines and wrinkles, pores, texture, evenness, smoothness, discoloration, pigmentation, spots, skin tone, cellulite, keratin, acne, PH, temperature, hair condition, nail's fungal infections, etc.

[043] As shown by block 240, the method or flow may include data analysis. For example, data collected as described herein with reference to blocks 210, 220 and 230 may be used as input to a skin condition analysis. Data analysis as shown by block 240 may be performed based on skin attributes, characteristics or any other parameter or data provided by sensing and treatment devices 130. For example, parameters or data such as an image of a skin, a temperature or a tension may be analyzed in order to determine a condition of the skin. In some embodiments, prior to analyzing information as shown by block 240 the information may be displayed to the user and the user may confirm the information or the user may modify the information. For example, the user may mark one or more measurements as wrong or inaccurate and the system may repeat the measurements. A cycle of presenting measurements to a user, receiving a rejection of a measurement and repeating a rejected measurement may be repeated until all measurements are accepted by a user. In some embodiments, a user may override a measurement.

[044] For example, the user may replace a temperature reading by manually inserting a temperature reading and the manually entered reading may be used in analyzing data as shown by block 240. In an embodiment, after receiving a confirmation from a user, data

may be analyzed. For example, computing device 110 may present (e.g., on a display screen connected to computing device 110) a set of values to user 140, and, after receiving an indication from user 140 that the set of values is correct or acceptable, computing device 110 may upload the set of values to application server 150 where the values may be used as input to an analysis process.

[045] An analysis system (e.g., an application on application server 150) may be a learning machine (implementing any algorithm) and may take into consideration previous results from the same user or patient (e.g., historical information stored on database 160).

[046] An analysis system may dynamically update a treatment based on feedback received from a set of patients associated with a common condition. For example, results or information related to users defined to be similar to the current user may be used. In other cases, feedbacks supplied by the same user or other users may be used by an analysis system. For example, an analysis may include comparing previous results or measurements to new measurements or results. For example, images taken in the past may be compared to current images in order to identify a progress of an illness or an effectiveness of a treatment.

[047] Analysis of data and measurements may be based on any applicable measurements, e.g., optical and/or analog measurements. Analysis may further be based on user's preferences or guidelines and/or any information pertaining to the user, e.g., information obtained from the internet as described herein. Analysis may be based on rules, criteria or other parameters learned by a system based on statistical and/or historical data.

[048] For example, analog skin measurements used in an analysis may include temperature measurements, elasticity measurements, moisture measurements, etc. Temperature measurements may be implemented by a thermocouple sensor, by a thermistor sensor, by an infra-red sensor or by any other temperature sensing solution implemented by one of sensing and/or treatment devices 130. Elasticity measurements may be implemented by a strength or sensor or by an optical measurements. Moisture measurements may be conducted by stimulating the measured tissue with different electrical pulses and measuring the tissue's electrical characteristics, such as conductivity, impedance, etc. In some embodiments, moisture may be measured using optical measurements or means.

[049] Optical skin measurements may include a digital imager such as CCD or CMOS camera, either black and white or red green and blue (RGB), possibly combined with dedicated lenses and illumination sources of a variety of wavelengths or at least one portion of the visible or non visible light spectrum. Optical skin measurements may include close range as well as distant sampling of the skin.

[050] Optical skin measurements may also include secondary samples of attribute sensitive accessories, such as litmus paper. An attribute sensitive accessory may be applied by a user on specific areas and, thereafter, analyzed as an optical skin measurement. Analysis as shown by block 240 may include analyzing optical skin measurements by pattern recognition algorithms, color/wavelength sensitive algorithms, illumination source sensitive algorithms, intensity, sharpness, etc. Analysis as shown by block 240 may include analyzing analog skin measurements based on averages, normal ranges, expected ranges, previous results, etc. Analysis as shown by block 240 may be performed based on information that may be personalized and/or defined specifically for the current user.

[051] Data analysis as shown by block 240 may be based on information obtained from any source, e.g., a server on the internet or a social network. For example, an analysis may be according to, or based on, any information obtained as described herein with respect to blocks 210, 220 and/or 230. For example, statistical information related to an ethnic group or a region may be taken into account when analyzing data related to a user. Likewise, user hobbies or life style as learned from information obtained from a social network may be used when analyzing measurements. For example, knowing that user 140 spends relatively many hours in the sun (e.g., based on an indication that surfing is one of the user's hobbies), application server 150 may adjust various coefficients or other parameters related to an analysis or to an analysis result such that an analysis result accurately reflects the user condition.

[052] During the data analysis, previous results of the same user, other users' relevant feedbacks and any new data acquired by the system may be used as part of the analysis inputs. For example, any information such as previous analysis results may be stored in database 160 and used in an analysis of measurements obtained from user 140. Accordingly, analysis as shown by block 240 may include analyzing measurements or other data obtained from user 140 in conjunction with information obtained from other

sources. As described herein, analysis of medical data or measurements may be based on, or in accordance with, information related to user 140 obtained from the internet, e.g., a social network or other sources. Analysis of medical data or measurements may be based on information previously stored by a system, e.g., in database 160. Analysis of medical data or measurements may be based on statistical or other information related to any relevant aspect, e.g., an ethnic group, a geographical region, a socio-economic class or status or any other aspect. Application server 150 may then combine all information sources for a better personalization and adaptation of the treatment, e.g., certain treatments cannot be carried out on dark skin individuals, other treatments are age dependent, some treatments may require specific adaptations due not only to the patient condition but also due to the patient habits and regional environmental conditions. Furthermore, treatments may be tailored based on local regulations for different topical and devices. Accordingly, a treatment suggested by a system according to embodiments of the invention may be generated based on any information related to a patient that may be obtained from any source, e.g., a social or professional network on the internet. Additionally or alternatively, information such as weather, pollution radiation level and the like may be used in order to generate a treatment protocol.

[053] As shown by block 250, the flow may include producing analysis results. Analysis results produced as shown by block 250 may include diagnostic information, e.g., analysis results may be or may include an identification of a symptom, a diseases, a pathology, an illness or a condition of the skin. Analysis results produced as shown by block 250 may include further diagnostics. For example, in addition to identifying a symptom, analysis results may also include a grading, scoring or ranking of the symptom. For example, in addition to an identification of a symptom, the state or severity of the symptom may be indicated in the analysis results.

[054] For example, a quantitative scale system may be implemented for each relevant measurement, analysis result and/or examined or analyzed attribute. Accordingly, analysis results may be ranked or scored according to a scale. Associating analysis results with a score, rank or grade may enable a user to better understand or use produced analysis results. For example, by observing a severity level of a symptom over a number of measurements (and treatments), the effectiveness of the treatment may be better realized or

assessed. Based on a number of scores or ranks associated with a respective number of (possibly consecutive) results, a system may automatically determine whether a treatment is effective. For example, if the severity level or score of a symptom is constant over a predefined period of time or over a predefined number of treatments, a system may alert the user, e.g., indicate that a treatment may be not be effective. For example, upon producing analysis results as shown by block 250, an application on application server 150 may store a score or rank in database 160. Upon producing analysis results as shown by block 250, the application may further retrieve one or more scores or ranks previously stored in database 160 and may compare past or historical scores with a current score. Based on comparing or otherwise relating historical or previous scores (or results) with current or new scores or results system 100 may automatically determine whether a treatment is effective.

[055] A scoring or scaling system may be defined in order to be sensitive enough to reflect the improvements of the treatment. In some embodiments, a scale may be used as a "filter", preventing or filtering out significantly different results when close conditions are examined. The scoring scale may be tunable by the user, giving the choice of higher results/score resolution in expense of measurement noise. Attributes which do not contain visual information may be quantified in a similar scale. The scale may be discrete or continuous.

[056] Results scores or any other information produced based on an analysis of data as described herein may be provided in various ways. For example, analysis results produced by an application on application server 150 may be presented to user 140 on a display screen of computing device 110. Results, scores, indications and any additional information may be displayed or presented as charts, tables, graphs or in any other suitable way or form. Historical or past results may be retrieved from database 160 and displayed as well. Accordingly, user 140 may be provided with a graphical or other representation of a progress of a treatment.

[057] A system (e.g., system 100) may gather statistical information related to any aspect discussed herein. For example, statistical information related to a specific symptom, possibly with respect to a specific ethnic group may be gathered, obtained or calculated by system 100. For example, statistical information may be obtained from the internet or it

may be manually provided or entered into database 160. Statistical information may be collected by system 100 based on information obtained as described herein from a plurality of users such as user 140. Analysis results produced as shown by block 150 may include comparing or otherwise relating results for a specific user to an average or other result calculated based on statistical data. For example, a progress of a treatment may be compared to the an average progress of a similar treatment as seen with respect to a large number of similar users or patients. For example, the progress of a treatment of a user may be compared to the progress of a treatment of users belonging to the same ethnic group, living in the same geographical area or users who are exposed to similar weather conditions. Accordingly, analysis or other results may be evaluated, ranked or scored based on any statistical or other results or information, e.g., normal or expected range of results.

[058] As shown by block 260, the flow may include determining a treatment. A treatment determined as shown by block 260 may be based on analysis results produced as shown by block 250 as well as based on other information, parameters or data., For example, a treatment or treatment protocol may be based on user preferences. In an embodiment, a user may indicate preferred treatment methods and a system may select or determine a treatment based on such indicated preferences. In an embodiment, based on an analysis of a symptom, a set of suitable devices may be automatically determined and the set may be presented to the user. A set of suggested devices or treatment methods may be determined based on various considerations. For example, only devices cleared for use by a regulatory authority may be presented to a user. Accordingly, the set of treatment methods, devices or substances may be determined based on a geographical location (e.g., a state). Other considerations in automatically compiling a list or set of treatment devices or substances may be a price of devices or substances, availability of devices or substances in the location of a user etc. Information related to treatment devices or substances may be stored in database 160, e.g., prices, availability, clearance for use, popularity and the like. For example, an administrator may store such information in database 160. In some cases, information related to devices or substances may be obtained from users. For example, devices or substances used by users may be recorded in database 160.

[059] Accordingly, following an analysis of a symptom, illness or other phenomena, a set of devices, substances or other treatment related objects may be determined based on

one or more criteria. Criteria for selecting treatment devices or substances may be received from a user. For example, a user may indicate that he or she wants to be provided with a sorted list of suitable devices where the sorting is according to price, e.g., in ascending order such that the cheapest device is at the top. In another example, the user may want a list of lotions sorted according to a popularity, e.g., such that the most popular lotion is at the top of the list.

[060] Determining a treatment as shown by block 260 may include recommendations. Recommendations determined and provided to a user may be related to any applicable aspect. For example, based on an analysis of a symptom produced as shown by block 250 and further based on a life style of a user (e.g., as determined based on information posted by the user on a social network) system 100 may determine a recommended diet for the user. In other cases, based on an occupation or job, recommendations related to physical activities may be determined and provided to a user. Other factors used in determining recommendations may be an environmental conditions, ethnic group or any information related to a user and collected or determined as described herein

[061] In some embodiments, analysis results may be ranked according to a scale. For example, for each symptom, a severity scale may be defined and the results of an analysis of the symptom may be ranked or scored according to the severity scale. A set of treatments for a specific identified symptom may be determined. For example, a first treatment may be recommended for, or associate with, a low severity of a symptom and a second treatment may be recommended for, or associate with, a higher severity of the same symptom.

[062] For example, a set of severity levels N ($N = 1, 2, 3$ and so on) may be associated with a symptom and a set of N respective treatments may be associated with the N severity levels. A result of an analysis of the symptom may determine a severity level of the symptom and, accordingly, the analysis result may be associated with the associated severity level. Accordingly, treatment for the symptom may be determined (or selected) by matching the severity level associated with the analysis result with a severity level associated with a treatment. In an embodiment, a user may be presented with a set of possible treatments suitable for a respective set of severities of an analyzed symptom. A system may indicate the suggested treatment based on a determined severity. A user may

select a treatment as suggested or may select another treatment. For example, the user may select a treatment suitable for a lower severity or a treatment suitable for a higher severity of a symptom.

[063] After receiving feedback from a user (e.g., an acceptance of a proposed treatment), a system may create a personalized treatment protocol represented. In some embodiments, a treatment protocol may be based on a personal profile generated and maintained based on personal information (e.g., obtained as described herein with respect to block 220), previous analysis results and/or additional relevant data.

[064] A treatment protocol may include one or more objectives or goals. For example, an image showing possible results of a treatment may be presented to a user. In an embodiment, a number of images showing a number of possible results that may be achieved using a respective number of substances or devices may be presented. For example, usage of a first device may cause a first effect and usage of a second device may cause a second effect. Likewise, a first and second substances may bring about a respective first and second aesthetic effects. Possibly prior to determining a treatment protocol, a system may present to a user possible effects and relevant treatment methods, receive a selection from a user and generate a treatment protocol based on the selection.

[065] A personalized treatment protocol may be created independently of treatment devices available to a user or it may be based on devices available to the user. For example, user 140 may indicate which devices are in his or her possession (or available for purchase in his or her area) and a treatment protocol generated by application server 150 may be based on devices indicated as available. In other embodiments, a treatment protocol may be defined based on the analysis results produced as described herein and/or based on user preferences and additional information. For example, a treatment protocol may be generated based on information related to a life style, diet, hobbies or any other aspect, e.g., as determined based on information collected from social networks or from professional networks. A personalized treatment protocol may be based on a dedicated substance prescription, creating a tailored compound. This may be also a claim.

[066] As shown by block 270, the method and flow may include performing a treatment. Performing a treatment may include configuring devices based on a determined treatment protocol. For example, a treatment protocol may include configuration

parameters such as a temperature or voltage level that may be set for a device. In other cases, a duration or frequency parameter may be configured. A treatment protocol may include the most appropriate configuration and activation of devices, e.g., by limiting or allowing energy levels, defining the time between treatments, complementary substances, treatment guidelines, etc. A treatment protocol may include device configurations, usage, dosage, timing methodology, time of treatment, time between treatments, etc. In an embodiment, an application on server 150 may remotely configure sensing and/or treatment devices 130. For example, an application on application server 150 may communicate a set of configuration parameters to computing device 110 and device interface unit 120 may use such configuration parameters to configure sensing and/or treatment devices 130. Accordingly, a treatment may be remotely controlled by a remote application. Additionally or alternatively, a treatment protocol may include instructions to a user, e.g., amount of substance (e.g., lotion) to apply to a region of skin etc.

[067] Performance of a treatment may include verifying configuration of a treatment device. For example, device interface unit 120 (that may receive configuration parameters for sensing and/or treatment devices 130 may continuously or otherwise interact with sensing and/or treatment devices 130 in order to verify their configuration is appropriate. In some embodiments, if device interface unit 120 determines that a device included in sensing and/or treatment devices 130 is not configured correctly, device interface unit 120 may terminate a treatment (e.g., deactivate a treatment device) and/or alert user 140. In some cases, device interface unit 120 may automatically reconfigure a wrongly configured treatment device.

[068] Performance of a treatment may include indicating to a user that a treatment needs to be performed. For example, using email or SMS messages application server 150 may remind or indicate to user 140 that a treatment session is scheduled or needs to be performed or that a substance needs to be applied. For example, a treatment protocol may include application of a first lotion during a first week and application of a second lotion or substance during a second week. In such case, application server 150 may send a daily or weekly email or SMS message to user 140 reminding user 140 to apply the correct substance. Any other guidance may be provided using any communication means. For

example, user 140 may be provided with guidance on a display screen of computing device 110.

[069] As shown by the arrows connecting blocks 270 and blocks 210, 220 and 230, some of the operations in a method may be repeated. For example, following a treatment, input from a user may be received. For example, a user may indicate whether a treatment yields expected results or may otherwise provide feedback related to a treatment. Following a reception of user feed back, at least some of the operations described herein may be repeated. For example, based on user input data analysis as shown by block 240 may be performed and an updated treatment protocol may be generated and provided as described herein.

[070] A method of treating skin related issues as described herein may include dynamically updating a treatment protocol. For example, as shown by the arrows connecting blocks 270 and 220, following (or even during) an actual treatment, information related to the user may be collected. For example, weather conditions may be continuously monitored. Similarly, user life style may be continuously monitored (e.g., as described herein). Other aspects, e.g., pollution rate or levels, sun radiation level etc may all be monitored and relevant data may be collected. Based on collected data, a treatment protocol may be updated or revised. As shown by the arrows connecting blocks 270 and 230, following a treatment, new measurements may be obtained and an effectiveness or progress of a treatment may be evaluated. By iteratively performing a treatment, collecting relevant information and updating a treatment protocol, a system may automatically, continuously and/or dynamically adjust a treatment to varying conditions and to a progress of a treatment.

[071] In other cases, formulation of the treatment protocol may require an updated analysis of selected measurements or attributes, e.g., based on time between analysis and execution and/or other major changes in various relevant conditions such seasons, weather, etc. Accordingly, prior to providing a user 140 with a treatment protocol, application server 150 may determine the date and/or time when the treatment protocol was generated and may further determine the current date and/or in order to determine if the treatment protocol may still be used or if it is outdated. If a treatment protocol is determined to be

outdated, a new protocol may be generated, e.g., by repeating one or more of the operations shown in blocks 210-260.

[072] Follow up may be conducted by a system, possibly based on feedback from a user. A follow up may include obtaining new measurements and comparing new measurements with previous or older measurements. For example, possibly during a treatment that may span days or weeks, images of a skin region may be periodically taken by a user and provide to a system. A progress, success or effectiveness of the treatment may be automatically evaluated. For example, application server 150 may utilize known in the art image processing techniques in order to evaluate a progress of a treatment. Images obtained over a period of time may be presented to a user in order to enable the user to see or determine whether a treatment is indeed effective.

[073] Similarly, a system may compare previous analysis results with current analysis results in order to present to a user achievements and/or in order to redefine and/or correct a treatment protocol. As discussed herein, an updated treatment may also be based on new additional information learned by a system, such as feedback from a user, regional conditions, etc.

[074] Generally, a user may intervene during or between any of the operations described and may redefine, refine, or change preferences or parameters in order to adapt a treatment protocol to his or her own preferences. Feedback or other input received from a user may be recorded as part of a learning capabilities of the system. For example, a user profile may be updated according to feedback or other input received from a user such that user preferences are reflected in a user profile. A protocol treatment may be generated based on a user profile. For example, if a number of substances may be suitable for a specific symptom than, based in information in a user profile, a substance recorded as previously selected or approved by the user may be selected.

[075] A system may enable professionals to enter, review and/or modify information. For example, physicians, dermatologists or other professionals may associate treatments with symptoms. Professionals may review and modify automatically generated treatment protocols. Professionals may recommend treatments, substances or devices as well as usage thereof. Accordingly, automatically generated treatment protocols may be based on input form professionals. Similarly, professionals may recommend diets, exercises or other

activities in relation to symptoms or illnesses. Accordingly, automatically generated recommendations may be based on professional advice. In some embodiments, a treatment protocol may be determined by a professional. For example, if an automatic analysis of a symptom is indefinite any relevant data may be provided to a professional that may review the case and determine a treatment.

[076] Reference is made to Fig. 3, showing high level block diagram of an exemplary computing device according to embodiments of the present invention. One or more devices similar to device 300 may be used in embodiments of the invention. For example, computing device 110 and application server 150 described herein with reference to Fig. 1 may include one or more components included in computing device 300 or they may be generally similar to computing device 300. Computing device 300 may include a controller 305 that may be, for example, a central processing unit processor (CPU), a chip or any suitable computing or computational device, an operating system 315, a memory 320, a storage 330, an input devices 335 and an output devices 340.

[077] Operating system 315 may be or may include any code segment designed and/or configured to perform tasks involving coordination, scheduling, arbitration, supervising, controlling or otherwise managing operation of computing device 300, for example, scheduling execution of programs. Operating system 315 may be a commercial operating system. Memory 320 may be or may include, for example, a Random Access Memory (RAM), a read only memory (ROM), a Dynamic RAM (DRAM), a Synchronous DRAM (SD-RAM), a double data rate (DDR) memory chip, a Flash memory, a volatile memory, a non-volatile memory, a cache memory, a buffer, a short term memory unit, a long term memory unit, or other suitable memory units or storage units. Memory 320 may be or may include a plurality of, possibly different memory units.

[078] Executable code 325 may be any executable code, e.g., an application, a program, a process, task or script. Executable code 325 may be executed by controller 305 possibly under control of operating system 315. For example, executable code 325 may be an application implementing device interface unit 120 described herein with reference to Fig. 1. Executable code 325 may be a set of instructions or a code segment implementing operations performed by application server 150 described herein with reference to Fig. 1.

[079] Storage 330 may be or may include, for example, a hard disk drive, a floppy disk drive, a Compact Disk (CD) drive, a CD-Recordable (CD-R) drive, a universal serial bus (USB) device or other suitable removable and/or fixed storage unit. Content may be stored in storage 330 and may be loaded from storage 330 into memory 320 where it may be processed by controller 305.

[080] Input devices 335 may be or may include a mouse, a keyboard, a touch screen or pad or any suitable input device. It will be recognized that any suitable number of input devices may be operatively connected to computing device 300 as shown by block 335. Output devices 340 may include one or more displays, speakers and/or any other suitable output devices. It will be recognized that any suitable number of output devices may be operatively connected to computing device 300 as shown by block 340. Any applicable input/output (I/O) devices may be connected to computing device 300 as shown by blocks 335 and 340. For example, a wired or wireless network interface card (NIC), a printer or facsimile machine, a universal serial bus (USB) device or external hard drive may be included in input devices 335 and/or output devices 340. In some embodiments, an analysis device may be considered as an input device.

[081] Embodiments of the invention may include an article such as a computer or processor non-transitory readable medium, or a computer or processor non-transitory storage medium, such as for example a memory, a disk drive, or a USB flash memory, encoding, including or storing instructions, e.g., computer-executable instructions, which, when executed by a processor or controller, carry out methods disclosed herein. For example, a storage medium such as memory 320, computer-executable instructions such as executable code 325 and a controller such as controller 305.

[082] Some embodiments may be provided in a computer program product that may include a non-transitory machine-readable medium, stored thereon instructions, which may be used to program a computer, or other programmable devices, to perform methods as disclosed herein. Embodiments of the invention may include an article such as a computer or processor non-transitory readable medium, or a computer or processor non-transitory storage medium, such as for example a memory, a disk drive, or a USB flash memory, encoding, including or storing instructions, e.g., computer-executable instructions, which when executed by a processor or controller, carry out methods disclosed herein. The

storage medium may include, but is not limited to, any type of disk including floppy disks, optical disks, compact disk read-only memories (CD-ROMs), rewritable compact disk (CD-RWs), and magneto-optical disks, semiconductor devices such as read-only memories (ROMs), random access memories (RAMs), such as a dynamic RAM (DRAM), erasable programmable read-only memories (EPROMs), flash memories, electrically erasable programmable read-only memories (EEPROMs), magnetic or optical cards, or any type of media suitable for storing electronic instructions, including programmable storage devices.

[083] A system according to embodiments of the invention may include components such as, but not limited to, a plurality of central processing units (CPU) or any other suitable multi-purpose or specific processors or controllers, a plurality of input units, a plurality of output units, a plurality of memory units, and a plurality of storage units. A system may additionally include other suitable hardware components and/or software components. In some embodiments, a system may include or may be, for example, a personal computer, a desktop computer, a mobile computer, a laptop computer, a notebook computer, a terminal, a workstation, a server computer, a Personal Digital Assistant (PDA) device, a tablet computer, a network device, or any other suitable computing device.

[084] Unless explicitly stated, the method embodiments described herein are not constrained to a particular order or sequence. Additionally, some of the described method embodiments or elements thereof can occur or be performed at the same point in time.

[085] While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents may occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.

CLAIMS

What is claimed is:

1. A system for determining a treatment, the system comprising:
a computing device to:
receive information related to a condition of a patient;
obtain from a network information related to the patient; and
determine a treatment based on the information related to the condition
and the information obtained from the network.
2. The system of claim 1, wherein obtaining information from a network includes obtaining information from a social network.
3. The system of claim 1, wherein the computing device is to receive environmental information related to the patient and determine the treatment based at least in part on the environmental information.
4. The system of claim 2, wherein the system is to dynamically update the treatment based on at least one of: information obtained from the network and information received from the patient.
5. The system of claim 1, wherein the computing device is configured to dynamically update the treatment based at least in part on feedback received from a plurality of patients.
6. The system of claim 1, wherein the condition is related to a human skin.
7. The system of claim 1, wherein the environmental information includes at least one parameters related to one of: a humidity, a UV radiation level
8. The system of claim 1, wherein the information obtained from a network is analyzed to determine a level of exposure to environmental conditions.

9. The system of claim 5, wherein the computing device is configured to dynamically update the treatment based at least in part on feedback received from a set of patients associated with a common condition.

10. A method of determining a treatment, the method comprising:
receiving information related to a condition of a patient;
obtaining from a network information related to the patient; and
determining a treatment based on the information related to the condition and the information obtained from the network.

11. The method of claim 10, wherein obtaining information from a network includes obtaining information from a social network.

12. The method of claim 10, comprising receiving environmental information related to the patient and determine the treatment based at least in part on the environmental information.

13. The method of claim 11, comprising dynamically updating the treatment based on at least one of: information obtained from the network and information received from the patient.

14. The method of claim 10, comprising dynamically updating the treatment based at least in part on feedback received from a plurality of patients.

15. The method of claim 10, wherein the condition is related to a human skin.

16. The method of claim 10, wherein the environmental information includes at least one parameters related to one of: a humidity, a UV radiation level

17. The method of claim 10, wherein the information obtained from a network is analyzed to determine a level of exposure to environmental conditions.

18. The system of claim 14, wherein the computing device is configured to dynamically update the treatment based on feedback received from a set of patients associated with a common condition.

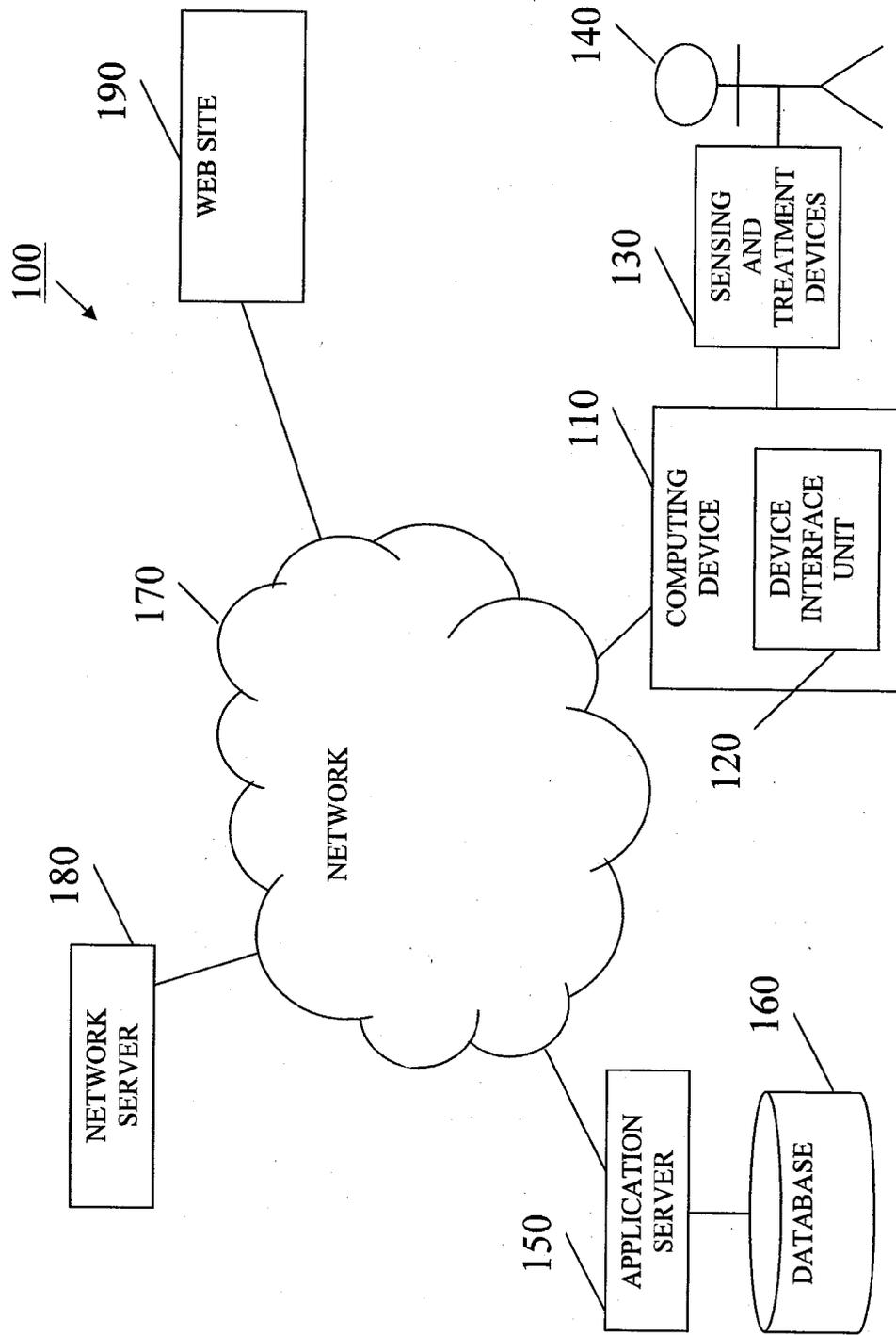


Fig. 1

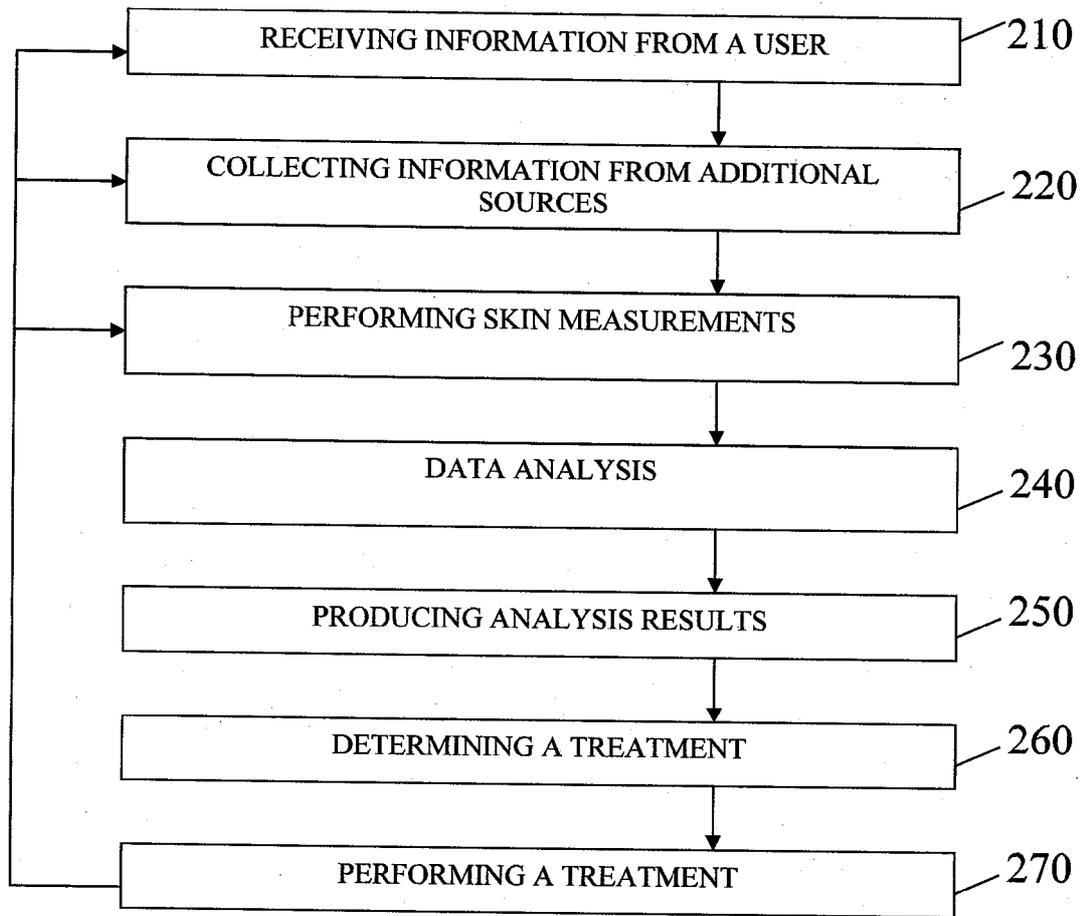


Fig. 2

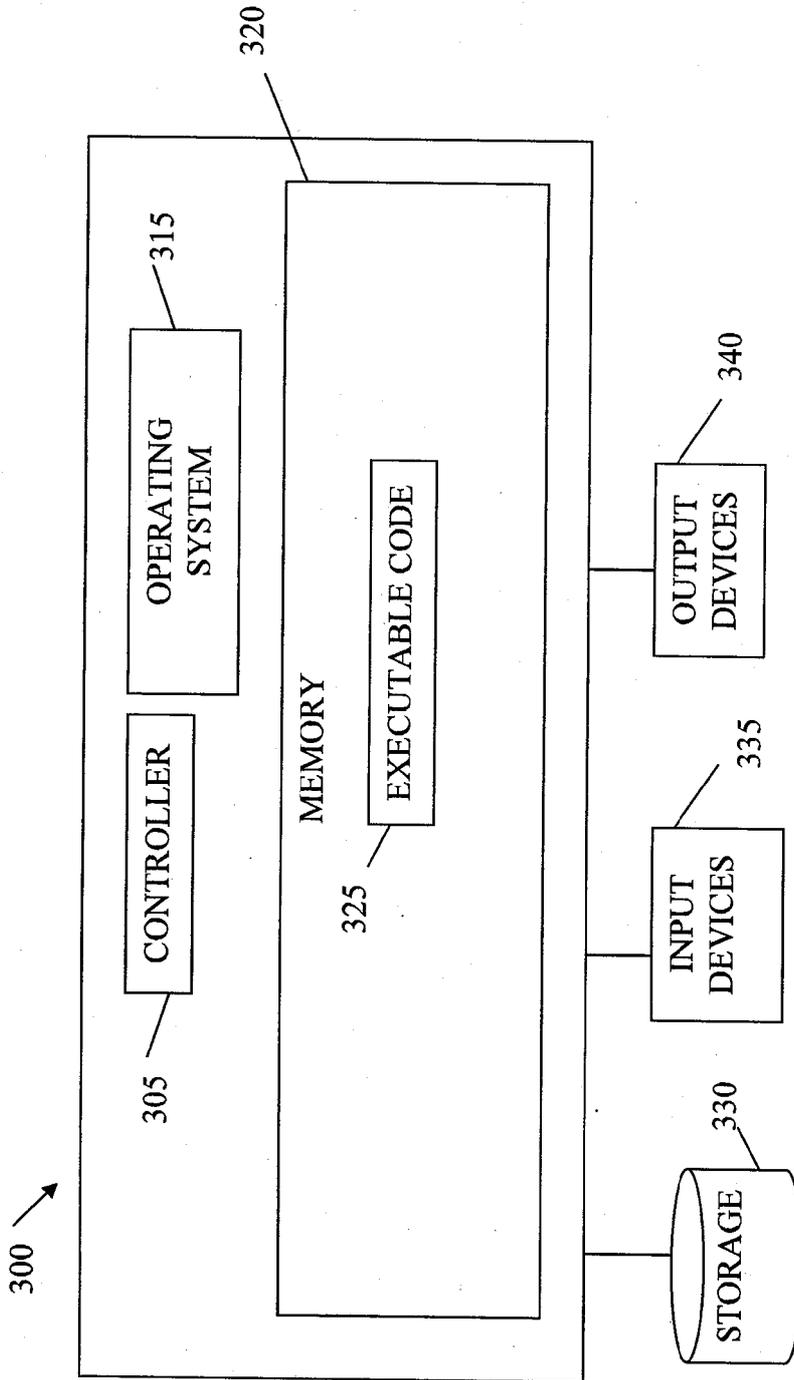


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL2013/050058

<p>A. CLASSIFICATION OF SUBJECT MATTER</p> <p>IPC (2013.01) G06F 19/00, A61B 5/00</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>																				
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols)</p> <p>IPC (2013.01) A61B 5/00, G06F 19/00</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p> <p>Databases consulted: THOMSON INNOVATION, Esp@cenet, Google Patents</p> <p>Search terms used: social network ,medical,facebook ,treatment</p>																				
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 2008/0228824 Kenedy, Andrew Alexander 18 Sep 2008 (2008/09/18) all document</td> <td>1-18</td> </tr> <tr> <td>X</td> <td>W O 2007/103377 RODRIGUEZ, Michael, 13 Sep 2007 (2007/09/13) all document</td> <td>1-18</td> </tr> <tr> <td>X</td> <td>W O 20 10/ 118 124 NEESER, Jason 14 Oct 2010 (2010/10/14) all document</td> <td>1,10</td> </tr> <tr> <td>X</td> <td>US 6177940 B1 Bond, Malcolm L 23 Jan 2001 (2001/01/23) all document</td> <td>1,10</td> </tr> <tr> <td>A</td> <td>US 7983745 B2 Hatlestad, John D 19 Jul 2011 (2011/07/19) all document</td> <td>7,8,16,17</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 2008/0228824 Kenedy, Andrew Alexander 18 Sep 2008 (2008/09/18) all document	1-18	X	W O 2007/103377 RODRIGUEZ, Michael, 13 Sep 2007 (2007/09/13) all document	1-18	X	W O 20 10/ 118 124 NEESER, Jason 14 Oct 2010 (2010/10/14) all document	1,10	X	US 6177940 B1 Bond, Malcolm L 23 Jan 2001 (2001/01/23) all document	1,10	A	US 7983745 B2 Hatlestad, John D 19 Jul 2011 (2011/07/19) all document	7,8,16,17
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<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"Z" document, member of the same patent family</p>																				
<p>Date of the actual completion of the international search</p> <p>13 Mar 2013</p>		<p>Date of mailing of the international search report</p> <p>19 Mar 2013</p>																		
<p>Name and mailing address of the ISA:</p> <p>Israel Patent Office Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel Facsimile No. 972-2-5651616</p>		<p>Authorized officer</p> <p>MAUDA Nissim</p> <p>Telephone No. 972-2-5651733</p>																		

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL2013/050058

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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International application No.
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