



- (51) International Patent Classification:
A61M 21/00 (2006.01)
- (21) International Application Number:
PCT/IB2013/058818
- (22) International Filing Date:
24 September 2013 (24.09.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/708,666 2 October 2012 (02.10.2012) US
- (71) Applicant: **KONINKLIJKE PHILIPS N.V.** [NL/NL];
High Tech Campus 5, NL-5656 AE Eindhoven (NL).
- (72) Inventors: **VAN DER ZWAAG, Marjolein, Dimmie**; c/o High Tech Campus, Building 5, NL-5656 AE Eindhoven (NL). **VOGT, Juergen**; c/o High Tech Campus, Building 5, NL-5656 AE Eindhoven (NL). **GILLIES, Murray, Fulton**; c/o High Tech Campus, Building 5, NL-5656 AE Eindhoven (NL). **SPEELPENNING, Tess**; c/o High Tech Campus, Building 5, NL-5656 AE Eindhoven (NL). **TIJS, Tim, Johannes, Willem**; c/o High Tech Campus, Building 5, NL-5656 AE Eindhoven (NL).
- (74) Agents: **STEFFEN, Thomas** et al.; High Tech Campus Building 5, NL-5656 AE Eindhoven (NL).
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continued on next page]

(54) Title: USER SYSTEM FOR USE IN A MENTAL HEALTHCARE TREATMENT ROOM AND OTHER ROOMS

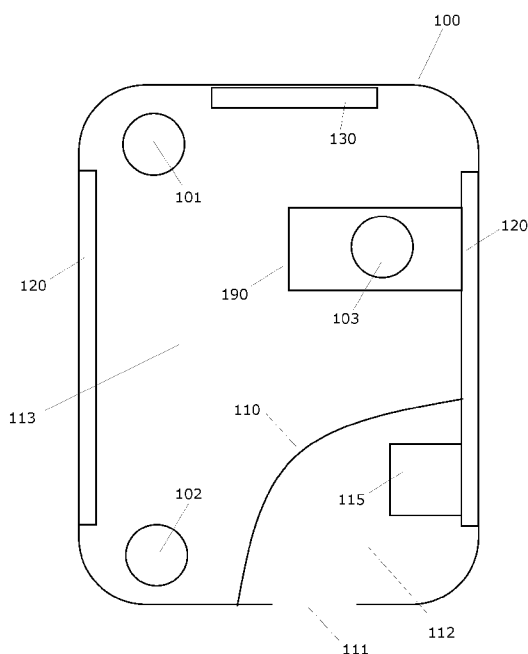


Fig. 1

(57) Abstract: The invention relates to a patient system for use by a patient in a mental healthcare treatment room (100). The patient system is configured with one or more ambient systems which are controllable by the patient. Since the ambient systems are controllable by the patient the patient may exercise maximum control over the room which may help to lower the patient's anxiety. To enable patient control of the ambient system a patient user interface is provided for selection of settings of certain conditions perceivable by the patient. For example, the user interface may be used by the patient for selection of a low lighting intensity in a zone (101-103) of the room for creating a safe zone where the patient may like to be located. Furthermore, the patient system is configured with communication facilities for communicating via a user screen (130) with other persons outside the room.



(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

USER SYSTEM FOR USE IN A MENTAL HEALTHCARE TREATMENT ROOM AND OTHER ROOMS

FIELD OF THE INVENTION

The invention relates to patient systems, particularly for patient operable system for use in a mental healthcare treatment room, and to a communication system for enabling users restricted to leave a room to communicate with other people outside the room.

5

BACKGROUND OF THE INVENTION

In the treatment of psychiatric patients, the patient's behavior can gradually intensify as a mentally sick patient is losing control. Patients may display symptoms associated with stress and panic. When a mentally sick patient feels personally confronted or attacked, the patient's behavior may become more and more unpredictable, hostile or even violent in a relatively short time. In such situations it may be necessary to separate the patient in a separation room or an extra secure room.

10

Placing a patient in separation is a last resort for both the patient and the caregiver. Research indicates that, on average, a patient placed in separation spends twice as long in a mental healthcare institution. This can lead to traumatization of the client, demotivation of the caregiver due to feelings of powerlessness, and increasing healthcare costs for the institution and government.

15

20

Due to these problems associated with placing a patient in a separation or seclusion room, it is an object of the present invention to provide a technical solution which is able to reduce the negative consequences of placing a patient in a seclusion room.

25

US 5,681,259 discloses an apparatus that promotes patient relaxation, reduces patient stress, and/or expedites patient recovery, in a health care facility or home-based convalescent environment. The apparatus includes a substantially glare-free visual display device with one or more open, natural, serene and, preferably, savanna-like landscape pictures. Such pictures,

including large size high resolution photo-realistic images, are displayed by means of a substantially glare-free display device, such as a flexible panel of fabric material positioned near a hospital bed or a like item of furniture, in close proximity to the patient so as to give the patient the perception of being in a natural and biophilic setting. In certain embodiments of the invention, the biophilic picture is removably attached to a movable wall, partition or hospital curtain structure which forms at least part of an enclosure substantially around at least part of the hospital bed.

The inventor of the present invention has appreciated that improvements within the field of patient systems is of benefit, and has in consequence devised the present invention.

SUMMARY OF THE INVENTION

It would be advantageous to achieve improvements within patient systems. It would also be desirable to enable such patient systems to improve healing of psychiatric patients. In particular, it may be seen as an object of the present invention to provide a method that solves the above mentioned problems relating to placing a patient in a separation room, or other problems, of the prior art.

To better address one or more of these concerns, in a first aspect of the invention a user system for use by a user restricted in freedom in a room is presented that comprises

- an ambient system for use in the room, where the ambient system is capable of creating or modifying a condition in the room which condition is perceivable by the patient,
- a user interface enabling the user to select an ambient setting of the ambient system, where the ambient system is responsive to an output from the user interface containing information about the ambient setting.

A user may be a patient, a mentally sick patient, a prisoners, and in general a user restricted in freedom by being located in a room. The room may be a seclusion room, an extra safe room, or a prison cell. The room may be lockable so that the user is prohibited from leaving the room. The room might not be locked for some times of a day. Possibly, the room may be a patient room in a closed ward. Accordingly, the room may include rooms that are not necessarily high secure rooms, but also rooms in a closed (and secure) ward.

In a mental healthcare room, e.g. a separation room, it may be important that the psychiatric patient has a feeling of control of the perceivable conditions in the room. By providing a patient user interface and an ambient system controllable by the user interface the patient has possibility to gain control over various ambient conditions.

5

The user system may be for use by a patient in a mental healthcare treatment room, where the user interface is a patient user interface enabling a patient to select the ambient setting of the ambient system.

- 10 In an embodiment the user system comprises a communication system for establishing a communication line for communication of data, e.g. visual content data, between the user system and external user interface devices.

- 15 In an embodiment the ambient system comprises a user screen for displaying visual content derived from the data from the communication system.

- For example, the communication system may establish a communication line for communication of visual or auditory content data between the user screen and external user interface devices located outside the room for enabling communication between the user and other contact persons.
- 20

- In an embodiment the user interface is configured to enable the user to select a communication setting for establishing the communication line between the user screen and one or more of the external user interface devices.

25

In an embodiment the user interface is configured so that the communication setting comprises settings for selecting a contact person from a list of contact persons.

- 30 In an embodiment the communication system is configured with a supervising function to enable an authorized person to supervise communication on the established communication line.

In a related embodiment the communication system is configured so that supervising information is displayed on the user screen when an established communication line is supervised by the authorized person.

- 5 In an embodiment the user system further comprises a monitoring system for monitoring characteristics of the user.

In an embodiment the communication system is configured to transmit information related to the monitored user characteristics to one or more of the external user interface devices.

10

In an embodiment the communication system is configured to transmit the information depending on a change of the monitored user characteristics.

- 15 In an embodiment the communication system is configured to transmit the information depending on an ambient setting on the user interface.

In an embodiment the user system is configurable to enable or disable selectability of the ambient setting or of different ambient settings in response to data from one of the external user interface devices.

20

In an embodiment the user system is controllable in response to data from one of the external user interface devices to change the ambient setting or change different ambient settings.

In an embodiment the ambient system comprises

- 25 - a room lighting arrangement for generating dimmed lighting in a zone in the treatment room, where the lighting arrangement comprises
- a primary light for illuminating at least a part of the room,
 - one or more controllable lights for illuminating one or more zones in the treatment room, wherein at least one of the lights is controllable to be switched off or to generate a low
- 30 lighting intensity being lower than the lighting intensity of the primary light.

Since the controllable lights may be controllable via the patient user interface, the patient is able to control the lighting intensity of a zone and, thereby, create a safe zone with dimmed lighting if the patient finds that appealing.

In an embodiment the one or more controllable lights comprise at least first and second controllable light sources for illuminating at least first and second zones, respectively, wherein the lighting intensity of at least one of the first and second light sources is controllable to be switched off or to generate a low lighting intensity.

5

By providing two or more controllable light sources, the patient may also be able to choose a location of a safe zone with dimmed lighting and, thereby, improve the patient's feeling of control.

- 10 In an embodiment the patient or user interface is configured to enable a patient or user to control if the controllable light should be switched off or generate the low light intensity. Thus, the patient or user may be able to control the lighting intensity in a safe zone via the user interface. In a related embodiment the patient user interface is configured to enable a patient to control if the first or the second light should be switched off or generate the low
15 light intensity.

- In an embodiment the patient or user system further comprises one or more heating devices capable of heating one or more of the zones. Localized heat may be an important trigger for a patient or user in choosing a safe zone or may be important for giving the patient or user a
20 safe feeling. For example, the heating devices may be infra-red lights configured to illuminate individual zones.

- In an embodiment the patient or user system further comprises a detection unit capable of detecting the location of a patient or user in the room, and a control unit for determining
25 which of the at least first and second lights that should be switched off or generate the low light intensity dependent on of the detected location.

- By combining a location-detection unit with a control unit for the controllable lights the system may be capable of automatically determining if a safe zone should be created at a new
30 location.

In an embodiment the patient or user system further comprises a high intensity controllable light for illuminating an entry zone, wherein the high intensity controllable light is

controllable to generate a high lighting intensity being higher than the lighting intensity of the primary light.

- 5 In a related embodiment the patient or user system further comprises an information display for displaying scheduled activities to the patient or user, wherein the high intensity controllable light is controllable by the information display so as to enable generation of the high lighting intensity prior to and/or during a scheduled activity.

- 10 According to this embodiment, the patient or user may be prepared for a planned activity by the information display but also by the increased lighting intensity at the entry zone prior to the scheduled activity. The increased lighting intensity may also facilitate a safe feeling of the patient or user since a person located at the entry zone is illuminated by bright light.

- 15 In an embodiment at least one of the controllable lights are controllable to generate an increase in lighting intensity depending on how frequent the patient or user interacts with the user interface. For example, a frequent use of the user interface may indicate that the patient's mental state is improved and, therefore, the lighting intensity may advantageously be increased.

- 20 In an embodiment the user system further comprises an external user interface device.

A second aspect relates to a room, e.g. a treatment room, comprising a user or patient system according to the first aspect.

- 25 In an embodiment the room or treatment room further comprises a light which is controllable to generate different light intensities and/or light colors dependent on the time of day. The light may advantageously be configured as a cove light.

- 30 In an embodiment the room or treatment room further comprises a marking on the floor for indicating a public zone near an entry door of the room.

In an embodiment the room or treatment room further comprises a screen for displaying images of a caregiver during communication between the patient and the caregiver.

The images of the caregiver or supervisor (e.g. a supervisor working in a jail) may be adapted or modified in different ways and possibly dependent on measured observations of the patient or user. For example, the eye height of the displayed image of the caregiver may be adjusted relative to the eye height of the patient viewing the screen.

5

A third aspect relates to a method for providing mental healthcare to a patient in a treatment room, to a method for providing ambient conditions to a user restricted in freedom in a room, where the method comprises:

- creating or modifying a condition in the room or treatment room by use of an ambient
- 10 system, where the condition is perceivable by the patient or user,
- using a user interface or a patient user interface, performing a patient or user selected selection of an ambient setting of the ambient system, where the ambient system is responsive to an output from the user interface or patient user interface containing information about the ambient setting.

15

In general the method of the third aspect may provide ambient conditions to a user restricted in freedom.

- In summary the invention relates to a patient system for use by a patient in a mental
- 20 healthcare treatment room. The patient system is configured with one or more ambient systems which are controllable by the patient. Since the ambient systems are controllable by the patient the patient may exercise maximum control over the room which may help to lower the patient's anxiety. To enable patient control of the ambient system a patient user interface is provided for selection of settings of certain conditions perceivable by the patient.
- 25 For example, the user interface may be used by the patient for selection of a low lighting intensity in a zone of the room for creating a safe zone where the patient may like to be located.

- In general the various aspects of the invention may be combined and coupled in any way
- 30 possible within the scope of the invention. These and other aspects, features and/or advantages of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be described, by way of example only, with reference to the drawings, in which

Fig. 1 illustrates a treatment room 100 for patients such as a seclusion room for use in mental healthcare,

Fig. 2 illustrates an ambient system in the form of a room lighting arrangement 200 for generating dimmed lighting in a zone 101-103 in a treatment room 100,

Fig. 3 illustrates a communication system 300 enabling a caregiver to communicate with the patient via a screen 130,

Fig. 4 illustrates modification of a recorded image of a caregiver by adapting the vertical screen position 403 of the caregiver,

Fig. 5 illustrates an automation system 500 for optimizing the caregiver's interventions,

Fig. 6 illustrates a patient system 600 for use by a patient and comprising one or more ambient systems, and

Fig. 7 illustrates a patient system 700 configured with a communication system 300, 730.

DESCRIPTION OF EMBODIMENTS

Fig. 1 shows a treatment room 100 for patients such as a seclusion room for use in mental healthcare. In mental health care a situation can gradually intensify as a mentally sick patient is losing control. Patients may display symptoms associated with stress and panic. When a mentally sick patient feels personally confronted or attacked, the patient's behavior may become more and more unpredictable, hostile or even violent in a relatively short time. In such situations it may be necessary to separate or seclude the patient in a seclusion room or other high safety room.

The seclusion procedure has some negative consequences for the healing of the patient. The procedure may damage the patient-staff communication and may lead to a lack of trust by the patient. The patient often has the feeling of a loss of control over his situation which in turn leads to a high level of anxiety which compounds a psychotic episode. In consequence the healing of the patient may take longer time due to the seclusion procedure.

The availability of one-to-one communication with staff may be important in the healing process of patients in mental health institutes. This type of communication is related with mutual trust, comfort, and openness for treatment from the patient side. Unfortunately,

maintaining regular one-to-one communication between patient and staff can be very difficult in mental health institutes. This can be related to among others, possible violent behavior of the patient, the current mental state of the client, the fact that the staff cannot always stay with the client because they have other work related obligations (e.g., taking care of other patients). The patients may receive a treatment program including the duration and number of contact times with the personnel. This treatment program gives a very clear structure to patients so that the patient knows what to expect. However, the format of this guidance program does not take the current mental state of the patient into account. There can be an increased need for contact with a staff during some specific phases of the mental state of the patient. This particular contact moment could be crucial to prevent the current mental state of the patient to slow down recovery or even become worse.

Imprisoned people may experience some of the same negative consequences of being restricted in freedom as mentally sick patients being isolated in seclusion rooms.

Accordingly, embodiments of the invention may apply both the seclusion rooms for patients and prison cells for prisoners, and in general to users restricted in freedom by being located in a room (100) of which the room is lockable so that the user is prohibited from leaving the room.

Embodiments of the invention presented here may be able to reduce the negative consequences of a seclusion procedure or other treatment procedure by providing a patient system for use by a patient in a mental healthcare treatment room. The patient system comprises an ambient system for use in the treatment room, where the ambient system is capable of creating or modifying a condition in the treatment room which condition is perceivable by the patient. The patient system further comprises a patient user interface enabling the patient to select an ambient setting of the ambient system, where the ambient system is responsive to an output from the patient user interface containing information about the ambient setting.

Observational studies have shown that a secluded patient often chooses to locate himself at a particular location in the room for a majority of the seclusion period. This location need not necessarily be the bed in the seclusion room but often showed to be an area in a corner of the room that had a heating pipe under the floor. Observations also showed that patients miss a structure when isolated and look for cues of what will happen next and in particular when

their next contact moment with staff will be. Furthermore, patients often lose track of the time of day and this in turns interferes with the day-rhythm.

The treatment room 100 is configured with a number of zones 101-103 which can be illuminated with a dimmed lighting relative to lighting of other parts of the room. The patient may prefer to locate himself at such zones with a dimmed lighting or no lighting. Such zones may be preferred since the dimmed illumination provides the patient with a clear view of the otherwise well-illuminated room. Accordingly, the zones 101-103 may be referred to as safe zones 101-103.

One of the zones 101-103 may be located near the bed 190 and other zones may be located in corners of the room.

One or more controllable lights such as spot lights are provided for illuminating the zones with a possibly dimmed light or a spot may be switched off to create as much darkness as possible. Spots may be provided for so that each zone can be illuminated independent from others; e.g. one spot light may be provided for each of the zones 101-103. A primary light may be provided for illuminating other parts of the room. The primary light may be configured as a plurality of spot lights so that the zones are substantially not illuminated by the primary light. That is, the spots of the primary light may be arranged so that zones 101-103 are not directly illuminated by light from the primary light spots, but diffused light from the primary light spots may create some illumination of the zones 101-103.

The treatment room has an entrance 111. A region of the room adjacent to the entrance 111 may define an entry region or public region 112. The entry region 112 may be marked on the floor, e.g. by floor painting or by a highlighted boundary 110, for indicating the extent of the entry zone. A toilet may be located within the entry region 112 since the toilet may have a negative association and, therefore, it may be better to locate the toilet in the entry region 112 than the private region 113.

The treatment room 100 may further comprise a screen 130, e.g. a large computer screen. The screen may be used for displaying images of a caregiver during communication between the patient and the caregiver.

The treatment room 100 may further comprise a light 120 such as a cove lighting which is controllable to generate different light intensities and/or light colors dependent on the time of day and possibly also dependent on the video content being displayed on the screen 130.

- 5 Fig. 2 shows an ambient system in the form of a room lighting arrangement 200 for generating dimmed lighting in a zone 101-103 in a treatment room 100. The lighting arrangement comprises a primary light 210 for illuminating at least a part of the room. For example, the primary light may be configured, e.g. by use of directional light sources or spot lights, to illuminate a private region 113 of the patient 100, where the illumination of the
10 private region 113 may exclude illumination of the safe zones 101-103 and possibly also the entry region 112.

The lighting arrangement 200 further comprises one or more controllable lights 201-203 for illuminating the safe zones 101-103. At least one of the controllable lights is controllable to
15 be switched off or to generate a low lighting intensity being lower than the lighting intensity of the primary light 210. The controllability of the controllable lights may be provided by a controller 298 which may be embodied as a controllable on-off switch connected to a single light or all lights 201-203, or a controllable light dimmer capable of dimming light from one or more of the lights 201-203.

20

The controllable lights 201-203 are configured so that one or more lights are controllably arranged to illuminate a single safe zone 101, or so that one or more lights are controllably arranged to illuminate a plurality of safe zones 101 so that each zone can be illuminated independently from other zones. Thus, in an embodiment, at least first and second
25 controllable light sources 201-202 may be arranged for illuminating at least first and second zones 101-102, respectively, so that the lighting intensity of at least one of the first and second light sources is controllable to be switched off or to generate a low or dimmed lighting intensity.

- 30 In order to enable the patient to control the light intensity in a safe spot, a user interface 699, e.g. a touch screen, comprised by the patient system 600 (see Fig. 6) may be configured to enable a patient to control the light intensity generated by the controllable light 201-203, e.g. by enabling the patient to select if the controllable light should be switched off or generate a low light intensity, and/or configured to enable a patient to change color of light generated by

the controllable light 201-203. For example, the user may be able to select from a selection of predetermined light intensities or light states (a light state may include a light color) including a switched off light state.

- 5 Additionally or alternatively, the patient user interface 699 may be configured to enable a patient to select the location of a safe zone 101-103 by enabling the user to select one out of a plurality of available zones 101-103. Thus, the patient user interface may be configured to enable a patient to control if the first or the second light 201-202 or other light associated with respective zones 101-103 should be switched off or generate a low light intensity.

10

The controllability of the controllable lights 201-203 may be achieved by configuring the controller 298 to be controllable via the user interface 699 so that the light state, i.e. on-off state or dimming state of the lights 201-203, may be controlled in an intuitive way from a user interface displayed on a touch screen.

15

The patient may prefer locations in the room which are warmer than other locations.

- 20 Therefore, in order to enable heating of a zone illuminated by a low lighting intensity or not illuminated the room lighting arrangement may include one or more heating devices 231-233 capable of heating one or more of the zones. For example, the heating devices may be infrared lights configured to illuminate individual zones. Alternatively, the heating devices may electrical heating wires integrated in the floor at the location of a safe zone 101-103.

The heating devices may be controlled by the controller 298 or other controller, so that a given heating device is activated when the patient selects one of the available safe zones 101-103.

25

In an embodiment the room lighting arrangement may further comprise a detection unit 297 capable of detecting the location of the patient in the room and a control unit (e.g. the controller 298) for determining which of the at least first and second lights 201-202 that should be switched off or generate the low light intensity dependent on the detected location.

30

As an example where this embodiment is relevant, consider a situation where the patient moves to the toilet 115. In this situation the patient may feel more comfortable if a safe zone is created at the location of the toilet by dimming the illumination at the location of the toilet 115. Accordingly, a controllable light 201-203 may be provided at the location of the toilet to

enable creation of a safe zone 101-103 at the location of the toilet. The detection unit 297 may simply be embodied by a switch at the location of the toilet e.g. a door switch, a pressure switch integrated with the toilet or a photo detector configured to detect when the patient is near the toilet. Alternatively, the detection unit 297 may be embodied by an image analysis unit configured to determine location of the patient by analysis of video images. The control unit may be configured so that when the detection unit detects that the patient is near or within a safe-zone 101-103, then the control unit instructs one of the controllable lights, possibly via the controller 298, to switch off light or reduce lighting intensity. The control unit may be embodied by the controller 298.

The control of the at least first and second lights 201-202, including switching off, switching on, lowering light intensity and increasing light intensity, dependent on the detected location as determined by the detection unit 297 may be performed automatically without input from the patient or user, or semi-automatically wherein a change of the lighting of any one or more of the at least first and second lights 201-202 is initially suggested to the patient, e.g. via the user screen 130 or information display 296, so that the patient or user can determine if the suggested change should be invoked, e.g. via an input to the interface (699).

This semi-automatical change of lighting conditions may be beneficial for mental health care as some patients are suspicious and if lighting is changed all of the sudden via an automatic system they could think that, for example, aliens or any another external source are controlling the room.

In an embodiment the room lighting arrangement comprises a high intensity controllable light 211 for illuminating the entry zone where the high intensity controllable light 211 is controllable to generate a high lighting intensity being higher than the lighting intensity of the primary light 210.

In relation to or unrelated to the high intensity controllable light 211, an information display 296 for displaying scheduled activities to the patient may be provided. In relation to the high intensity controllable light 211, the high intensity controllable light 211 may be controllable by the information display so as to enable generation of the high lighting intensity prior to and/or during a scheduled activity. Accordingly, in response to a scheduled event the information display may send instructions to the high intensity controllable light, possibly via

some controller such as the controller 298, to increase the illumination intensity when the scheduled activity starts or a few minutes before the activity starts.

The user interface may be configured to monitor how often the patient interacts with the user interface, e.g. by counting the number of times that the patient presses a button in the user interface. A high frequency of interaction with the user interface may indicate a high level of alertness of the patient suggesting that the light intensity of a safe spot 101-103 may be increased. Accordingly, at least one of the controllable lights may be controllable, e.g. via the controller 298, to generate an increase in lighting intensity depending on how frequent the patient interacts with the user interface 699.

Fig. 3 shows a communication system 300 enabling a caregiver to communicate with the patient via the screen 130. The screen 130 may be dimensioned to enable displaying a real size image of the caregiver (the image of the caregiver may be recorded by a camera outside the treatment room 100). In an embodiment the communication system further comprises a monitoring system 301 for monitoring characteristics of the patient, e.g. patient behavior (aggressive or relaxed behavior). The monitoring system may be embodied by a camera for imaging the patient and an image processing unit for analysing image content. In a further embodiment the communication system comprises a caregiver information display 302 for informing the caregiver about the characteristics of the patient monitored by the monitoring system 301. In another embodiment the communication system 300 comprises a video processing unit 303 configured to modify the recorded image of the caregiver so that a modified image of the caregiver can be shown on the screen 130, and/or configured to modify the recorded voice of the caregiver so that a modified voice of the caregiver can be presented to the patient by an audio system configured for enabling communication between the caregiver and the patient.

Fig. 4 illustrates an embodiment of the communication system 300 wherein the video processing unit 303 is configured to modify the recorded image of the caregiver by adapting the vertical screen position 403 of the caregiver relative to a measured eye level 401 of the patient. The eye level 401 may be measured by the monitoring system 301.

If the caregiver is in an authoritarian role then he can chose to reinforce this by modifying the vertical screen position or eye position 403 in order to elevate the eye position. Should,

however, the caregiver feel the patient needs to have the feeling of authority then the caregiver may modifying the vertical screen position 403 by lowering the eye level. The image processing unit may be configured to modify the recorded image in such a way that the patient is not even aware that the image has been shifted vertically. The eye level of the caregiver can also be adjusted by the caregiver as the relationship normalizes so that eventually the eye-levels are equal and the relationship balanced. A user interface for the caregiver may be provided for enabling the caregiver to modify the image shown on the screen 130.

In a related embodiment, the video processing unit 303 may additionally or alternatively be configured to modify the voice of the caregiver by modifying the spectral frequency of the voice presented for the patient via the audio system. For example, the voice of the caregiver may be modified so that a deeper and, thereby, more authoritative voice is presented for the patient in case the patient might benefit from this.

In an embodiment the video processing system 303 is configured to enable the patient to adjust the vertical screen position 403 of the caregiver and/or to enable the patient to adjust the spectral frequency content of the voice of the caregiver.

Thus, in this embodiment then the eye level and/or voice properties are not adapted by the caregiver based on his judgment but instead controlled by the patient. For example, the screen 130 may be provided with an arrow interface 402 as in Fig. 4 to instruct the patient that if required he can move the picture or eyelevel of the caregiver. The movement of the picture may be performed by image processing to displace the image or by moving the camera to get the camera pointing at the caregiver at an angle determined by the patient. The movement of the image may be displayed or otherwise presented for the caregiver to allow the caregiver to see if the patient exercises the control and also where he places the caregiver with respect to his own eye level. This can be used by the caregiver to assess his relationship with the patient and the role that the patient would subconsciously like the caregiver to take.

In a related embodiment, the video processing system 303 is configured to adjust the spectral frequency content of the voice of the caregiver dependent on the amount of adjustment of the vertical screen position 403 as performed by the patient. For example, the voice may be made deeper when the vertical screen position 403 is adjusted upwards. Thereby the vertical position chosen by the patient may be augmented by audio manipulation so that if the patient

puts the caregiver in a high position on the video screen then the audio is made deeper to enhance the patients need for the caregiver to be in an authoritarian role.

In an embodiment the modification of the vertical screen position 403 of the caregiver relative to a measured eye level 401 of the patient and/or modification of the voice of the caregiver is performed automatically in response to measured levels of stress/psychosis of the patient. The measured levels of stress/psychosis may be obtained by monitoring psychophysiology signals and/or behavior of the patient. These measured data can be used as an input to the video processing system 303 or other digital data processor configured to determine the level of caregiver authority needed in terms of the vertical screen position 403 and/or spectral frequency content of the voice of the caregiver. Advantageously, this may make the communication system 300 automatic and self-calibrating.

In the above embodiments it was described that the communication system 300, e.g. by means of the video processing unit 303, was configured to modify the recorded image of the caregiver or the voice of the caregiver. Alternatively or additionally the communication system 300 or the video processing unit 303 may be configured to modify other characteristics of the caregiver and/or the treatment room.

Accordingly, in an embodiment the video processing unit 303 is configured to modify the recorded image of the caregiver by monitoring the posture of the patient using the monitoring system 301 and modifying the posture of the recorded image of the caregiver according to the recorded posture of the patient so that the image of the caregiver mimics the image of the patient. By mimicking characteristics of the patient in the image of the caregiver, the patient may find the caregiver more pleasant and trustworthy.

Alternatively, or additionally, in an embodiment, the video processing unit 303 is configured to modify the recorded image of the caregiver by modifying characteristics of the caregiver's clothing in the image displayed on the screen 130, e.g. by changing colors in the imaged clothing to suit the patient's color preferences.

In another embodiment the communication system 300 is configured to interact with the room lighting arrangement 200 in order to modify the room lighting dependent on the image content displayed on the screen 130, e.g. so that when a caregiver is displayed on the screen

then the room lighting arrangement 200, e.g. one of the controllable lights 201, is instructed by the communication system 300 to increase or decrease the lighting intensity in a region of the room 100 where the screen 130 is located.

- 5 In an embodiment the patient system 600, e.g. the video processing unit 303 or other digital data processor, is configured to determine a measure of empathy of the patient based on physiological values, posture and/or movement data of the patient. For example, determination of physiological values, posture and/or movement data of the patient may be obtained by the monitoring system 301 or other measurement systems such as systems
- 10 capable of determining skin conductance, heart rate or other physiological values. The measure of empathy may be displayed in real-time to the staff on a user interface 302, i.e. a caregiver information display 302, or a simple display comprised by the patient system 600. For example, the measure of empathy may be displayed as a color bar with green (for indicating much empathy), and red (for indicating low empathy). Such empathy feedback to
- 15 the staff can improve the amount of empathy that is displayed to the patient.

- Fig. 5 shows an automation system 500 for optimizing the caregiver's interventions. The system comprises a patient analyzer 501 configured to determine the patient health status, an intervention storage and selection unit 502, an intervention actuator 503 and an intervention
- 20 evaluation unit 504. The intervention storage and selection unit is configured to store predefined and/or previously applied interventions together with their evaluated or expected success level, possibly dependent on a given mental state of a patient. The intervention actuator 503 is configured to invoke an intervention. For example the intervention actuator 503 may be configured to send control instructions e.g. to the room lighting arrangement 200
- 25 or the communication system 300 in order to create or modifying certain conditions in the treatment room, e.g. in order to create a safe zone 101 or to modify the appearance of the caregiver. The intervention evaluation unit 504 is configured to determine the success of an applied intervention. The success of an intervention could be measured automatically, e.g. by measuring the time that a patient spent in the treatment room, or by a manual method wherein
- 30 a caregiver assesses the success of the applied intervention, e.g. by assessing the success according to a one-to-five scale.

In a given situation the patient analyzer 501 alarms a caregiver to intervene. The caregiver applies a new intervention, i.e. a caregiver-patient interaction, possibly with aforementioned

image manipulation on the screen 130, or selects an intervention from the intervention storage and selection unit 502. After actuation of the intervention by use of the intervention actuator 503, the success of the applied intervention is determined using the intervention evaluation unit 504 and determined success is stored in the storage and selection unit 502.

- 5 After a period of using the automation system 500 the storage and selection unit 502 unit may become helpful in suggesting or selecting an appropriate intervention.

Fig. 6 illustrates the patient or user system 600 for use by a patient or user in a mental healthcare treatment room wherein the system comprises one or more of the following ambient systems:

- 10 - a light 120 which is controllable to generate different light intensities and/or light colors dependent on the time of day,
- a screen 130 for displaying images of a caregiver during communication between the patient or user and the caregiver, i.e. during a caregiver-patient interaction,
15 - a room lighting arrangement 200 for generating dimmed lighting in a zone 101-103 in the treatment room 100,
- a communication system 300 enabling a caregiver to communicate with the patient or user via the screen 130 and possibly enabling modification of images or voices of the caregiver, and
20 - an automation system 500 for automating the interventions provided by the caregiver by automatically invoking any one or more of the aforementioned systems 120, 130, 200 and 300 comprised by the patient or user system 600.

Fig. 7 shows an alternative patient or user system 700 corresponding to the patient system

- 25 600. The user system 700 comprises one or more of the following systems:

- the user screen 130 for displaying visual content to the user;
- one or more external user interface device 130a, e.g. additional user screens 130a, for other users and located in other rooms 100;
- one or more external user interface devices 302, i.e. information displays for caregivers or
30 other personnel, i.e. personnel which are allowed to communicate with users;
- one or more external user interface devices 710 embodied as communication devices for receiving and transmitting data to external persons, e.g. relatives. Data transmission between the external persons and external user interface devices 710 may be performed by any

available secure communication platform such as the Internet or wireless communication networks;

- the user interface 699;

- a communication system 730, e.g. embodied by the communication system 300, for

5 enabling communication between a user via the user interface 699 and/or the user screen 130 and one or more external user interface devices 130a, 302, 710, and

- a monitoring system 701 - e.g. embodied by the monitoring system 301 and/or the automation system 500 - for monitoring characteristics of the user.

10 The user interface 699 may be configured as a touch sensitive screen or other user input device such as an input device with buttons associated with different functions. The user interface 699 may be implemented on a mobile display such as a tablet. The user interface 699 may be separate from the user screen 130 or the user interface 699 may be integrated with the user screen 130. Thus, the user interface 699 and the user screen may be integrated
15 in the same display unit, e.g. a wall mounted display. Accordingly, the user screen 130 may be configured as a touch screen so that at least part of the screen is touch-sensitive. Further, the user interface 699 may be implemented both on a mobile display and on the screen 130.

The communication system 730 is generally configured to establish a communication line for
20 communication of data between the user system 700 and external user interface devices 130a, 302, 710. The data may comprise visual content data for enabling communication of images or video, audio data for enabling communication by voice, text data for enabling written communication, or other data such as data obtained by the monitoring system 701.

25 Image or video data may be obtained from cameras. For example, the screen 130 may have an integrated camera or other cameras may be present in the room 100 for recording images of the user. Similarly, the external user interface devices 130a, 302 (with exclusion of the user interface devices 710) may have associated cameras for recording images of other users and personnel such as caregivers.

30

Advantageously, the external user interface devices 302 for personnel may be embodied by mobile displays such as tablets or smart phones. The mobile displays may be configured with a touch screen, a transceiver for communicating with the communication system 730 and a camera for recording images of the personnel-person. Alternatively or additionally, an

external user interface devices 302 may be configured as a stationary display with an associated transceiver and camera.

Providing a user system having an ambient system which comprises a user screen 130 configured for displaying visual content derived from data from the communication system in combination with the user interface 699, the communication system 730 and external user interface devices 302 for personnel has several advantages relating to the communication needs of both the client and the staff. Herein, it is understood that visual content comprises images, video, text and other information that can be displayed.

Thus, due to the communication facilities of the user system 600, 700, the system may improve the user experience and possible contribute to the recovery process and healing of a mentally sick patient. Due to the mobility of the external user interface devices 302, the personnel may also experience improved workflow since communication is not bound to a staff control room anymore, which means that the personnel is also not bound to this room. Thus, the personnel could communicate with users from anywhere.

The communication between the personnel and user in the system can be done using voice (calling), video, or text messages. Video calling may allow the personnel, e.g. in a mental healthcare unit to make an improved decision on the current mental state of the patient and, thereby, an assessment of the necessity of visiting the client and in which time span.

From a patient perspective, being able to see the personnel with who you are communicating with, and hence knowing who you are talking to can increase the trust towards the personnel and possibly improve adherence to the treatment program.

Enabling sending text messages from a patient room to the personnel and receiving an answer can relieve some urgent question from the patient, and potentially reducing anxiety. If a question, for example about the treatment occurs the patient does no longer have to wait for the contact moment to ask the questions to the personnel.

Importantly, the communication facilities in the user system 700 may additionally give the patient or other user the sense of being in control over the situation, reducing the feeling of being totally powerless.

Personnel safety is an important aspect since users being restricted in freedom by being isolated in a room, e.g. isolated mentally sick patients or imprisoned people, may have an aggressive behavior against personnel. For example, in a seclusion room 100 for mentally sick patients, a staff member is not always allowed to visit a patient on a one-to-one basis, but a minimum of two staff-members may be required. This situation wherein the personnel are overrepresented in comparison with the weak patient or prisoner can have a negative impact on the user's trust, comfort, and anxiety towards the personnel. Use of communication facilities in the user system enables one-to-one communication in a safe way.

- 10 The user interface 699 may be configured to enable the user to select a communication setting for establishing a communication line between the user screen 130 and one or more of the external user interface devices 130a, 302, 710. Selecting a communication setting may also enable selection of a contact person from a list of contact persons.
- 15 For example, the user interface 699 may comprise a selectable communication setting in the form of e.g. a button being selectable for initiating a call to a given person, i.e. a person accessible via any of the external user interface devices 130a, 302, 710. The communication setting may be configured as a list of selectable buttons or images of contact persons for initiating a call to any one or more of these persons. The user system may enable
- 20 communication between two or more persons. Thus, the patient may for example select two settings/buttons for initiating a call both to a caregiver and a relative or other caregivers.

The communication system (300, 730) is configured with a supervising function to enable an authorized person, e.g. a staff-person, to supervise communication on an established communication line between the user and e.g. a relative or other user. Thus, the personnel could listen to a conversation, view a conversation or read written communication. Compared to the current situation wherein at least two staff members are needed to accompany the patient or user in a room 100 during a face-to-face or phone conversation, the communication facilities of the user system 600, 700 enables a much more convenient solution.

30

This supervision function in principle enables secret supervision of the user which normally is not allowed. Therefore, the communication system 300, 730 may be configured so that supervising information, e.g. an image of the authorized person supervising the user

communication, is displayed on the user screen 130 when an established communication line is supervised by the authorized person.

The ambient system 120, 130, 200, 300, 500 in combination with the user interface 699

5 provides the user with functions for controlling the environment, e.g. lighting and communication with other people. Such possibility of controlling the ambient environment may improve relaxation and possibly healing of a patient. Contrarily, taking away the control can cause anxiety, stress, or distrust.

10 However, the user may not be able to cope with these control functions. Allowing too much control over the environment may cause the personnel to distrust the control facilities of the user system 600, 700 and, therefore, take away or disable the user interface 699.

The staff is the expert; they may know best what the right level of control is for the patient.

15 By providing the staff with communication tools and give them the feeling of control of what applications on the interactive touch screen a client can use at a certain stage in psychosis is a crucial aspect of the use and acceptance of the technology, and thereby the healing process, and length of stay of the client.

20 In order to enable the staff to control how much control the user has on the ambient environment in the room 100, the user system may be configurable to enable or disable selectability of the ambient setting or of different ambient settings in response to data from one of the external user interface devices. Thus, an external user interface device 302 for personnel may be configured with functions to control the selectability, availability or
25 functionality (e.g. controlling how much the volume of sound from the user screen 130 can be increased by the user) of ambient settings on the user interface (699).

For example, the user interface 699 may be configurable in response to data from one of the external user interface devices to add or remove settings on the user interface 699 for

30 enabling selection of a contact person from a list of contact persons, e.g. by adding or removing contact persons on the list of contact persons.

Additionally or alternatively, the personnel may need to be able to not only control the availability of ambient settings on the user display 699, but also to overrule the client's usage

of the system, e.g. by turning off volume if the user persistently increases the volume to high levels or by closing a communication line if the user communicates in an unacceptable manner. If there is no possibility to overrule settings performed by the user this may cause distrust among the personnel and cause that users might not allowed to use the user display 699 and, thereby, inappropriately reducing the control of the client. Additionally, the patient might not know the right level of stimuli, therefore, the staff overruling the settings might benefit for the recovery of the patient's mental wellbeing.

The ability of the personnel to influence the options present on the user interface 699 can be a start of a conversation between personnel and the user or patient. The user can then also indicate if there are options on the user screen that he/she does not want. The personnel can then remove this option. Because, the communication between user and personnel can be very difficult, this option creates an extra option for the personnel to have a conversation with the user. Possibly, this may increase trust of the user towards the personnel. Also the ability of the client to make contact with another person can be a sign of recovery. This conversation about the possible selectable ambient settings of the ambient system may provide the personnel with another change to get an impression of the user's state.

In order to provide the personnel with a possibility of overruling user settings, the user system (via the user interface (699) or ambient system) may be controllable in response to data from one of the external user interface devices to change the ambient setting or change different ambient settings. Thus, an external user interface device 302 for personnel may be configured with functions to change ambient settings set by the user.

As described previously, the monitoring system 301, 701 may be configured for monitoring characteristics of the patient, e.g. patient behavior, eye level 401, physiological values (e.g. heart rate, skin conductance, temperature, etc.), posture and/or movement data.

The monitoring system 301, 701 may be embodied by a camera for imaging the patient, e.g. a camera capable of recording images in the dark, an infrared sensor capable of measuring user activity, and an image processing unit for analysing images or data from the monitoring system. By processing images or other data, user activity data and behavioral data characterizing the user can be determined. For example certain patterns or changes in patterns, e.g. a characteristic left-right walking pattern or a "walking in circles" pattern, may

be determined from the monitored data. A body posture and or tighten of certain muscles that are persist for a certain time may be identified from images. E.g. a strained neck may be indicative of possible escalation of a mentally sick patient, depending on how long time the patient does this.

5

Additionally or alternatively, the monitoring system 301, 701 may be configured as a function on the user display 699 enabling the user, e.g. a patient, to indicate his or hers current emotional state.

- 10 The characteristics of the user may be collected over time by the monitoring system and communicated via a communication line to personnel via an external user interface 302. In order to collect user characteristics over time, the user system 600, 700, e.g. by means of the monitoring system 701 or the communication system 300, 730, may be configured to log user characteristics or monitored data.

15

For example, when a certain change in user characteristics is detected the communication system 300, 730 may transmit information related to the monitored user characteristics to one or more of the external user interface devices 130a, 302, 710, e.g. in order to inform or warn staff. The user system 600, 700 may further be configured to transmit the information

- 20 depending on time, e.g. depending on how long time a given characteristic has been present.

The processing of monitored data from the monitoring system 301, 701 may be processed, e.g. for determining patient patterns, by a processor comprised by the user system 600, 700, the monitoring system 701, the communication system 300, 730 or other unit.

- 25 Due to the possibility of configuring a mobile display as an external user interface devices 302, the user system 600, 700 may provide users, e.g. patients, with the ability to communicate with personnel which allows the personnel to intervene in the healing process of the client at any given moment from everywhere, e.g. everywhere in a psychiatric ward. Further, due to be mobility, the user system may allow the personnel to control or overrule
- 30 ambient settings in the room 100 from wherever the personnel are located, while being in contact with the user. The personnel can hence, immediately act upon a request from a user, or decide based on the current mental state of the client - received on basis of patient characteristics obtained by the monitoring system 301, 701 - to change which ambient settings can be allowed for that user.

In an embodiment monitored or logged patient characteristics may be communicated via a communication line to external user interface devices 130a, 302, 710, e.g. to interface devices of other patients. The communication of patient characteristics may depend on a setting on an external user interface indicating whether the user wishes to receive such information and/or
5 depend on the content of the patient characteristics, e.g. depend on whether values of the patient characteristics has reached a given threshold. A user interface 699 may contain ambient settings enabling the user to decide if monitored patient characteristics should be shared with other persons and/or with whom. Sharing such information among patients who are open to it, can invite patients to seek contact with other patients and vent or reduce
10 negative emotions.

According to embodiments of the invention the user screen is capable of creating or modifying a condition in the treatment room which condition is perceivable by the patient by displaying images or other persons, text information or other visual content. Further, the
15 patient user interface 699 enables the user to select an ambient setting displayed on the user screen 130, wherein the user screen 130 may display the user interface 699 or parts thereof.

It is noted that an external user interface device 130a, 302, 710 may also be accessible for other persons than those referred to above. For example, patients who are not isolated in a
20 seclusion room 100, e.g. patients in the ward, or other people connected to the user or patient may be allowed access to an external user interface device 130a, 302, 710.

While the invention has been illustrated and described in detail in the drawings and foregoing description, such illustration and description are to be considered illustrative or exemplary
25 and not restrictive; the invention is not limited to the disclosed embodiments. Other variations to the disclosed embodiments can be understood and effected by those skilled in the art in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims. In the claims, the word "comprising" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. A single processor
30 or other unit may fulfill the functions of several items recited in the claims. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage. Any reference signs in the claims should not be construed as limiting the scope.

CLAIMS

1. A user system (600, 700) for use by a user restricted in freedom in a room (100), comprising

- 5 - an ambient system (120, 130, 200, 300, 500) for use in the room, where the ambient system is capable of creating or modifying a condition in the room which condition is perceivable by the patient,
- a user interface (699) enabling the user to select an ambient setting of the ambient system, where the ambient system is responsive to an output from the user interface containing
- 10 information about the ambient setting.

2. A user system according to claim 1, wherein the user system (600, 700) is for use by a patient in a mental healthcare treatment room (100), and where the user interface (699) is a patient user interface (699) enabling a patient to select the ambient setting of the ambient
- 15 system.

3. A user system according to claim 1, comprising a communication system (300, 730) for establishing a communication line for communication of data (e.g. visual content data) between the user system and external user interface devices (130a, 302, 710).

20

4. A user system according to claim 3, where the ambient system comprises a user screen (130) for displaying visual content derived from the data (visual content data) from the communication system.

- 25 5. A user system according to claim 4, wherein the user interface (699) is configured to enable the user to select a communication setting for establishing the communication line between the user screen (130) and one or more of the external user interface devices (130a, 302, 710).

- 30 6. A user system according to claim 5, wherein the user interface (699) is configured so that the communication setting comprises settings for selecting a contact person from a list of contact persons.

7. A user system according to claim 5, wherein the communication system (300, 730) is configured with a supervising function to enable an authorized person to supervise communication on the established communication line.

5 8. A user system according to claim 7, wherein the communication system (300, 730) is configured so that supervising information is displayed on the user screen (130) when an established communication line is supervised by the authorized person.

9. A user system according to claim 3, further comprising a monitoring system (301, 701) for
10 monitoring characteristics of the user.

10. A user system according to claim 9, wherein the communication system (300, 730) is configured to transmit information related to the monitored user characteristics to one or more of the external user interface devices (130a, 302, 710).

15

11. A user system according to claim 10, wherein the communication system (300, 730) is configured to transmit the information depending on a change of the monitored user characteristics.

20 12. A user system according to claim 10, wherein the communication system (300, 730) is configured to transmit the information depending on an ambient setting on the user interface (699).

13. A user system according to claim 3, wherein the user system (300, 700) is configurable to
25 enable or disable selectability of the ambient setting or of different ambient settings in response to data from one of the external user interface devices.

14. A user system according to claim 3, wherein the user system (300, 700) is controllable in
30 response to data from one of the external user interface devices to change the ambient setting or change different ambient settings.

15. A user system according to claim 1, where the ambient system comprises
- a room lighting arrangement (200) for generating dimmed lighting in a zone (101-103) in the treatment room (100), where the lighting arrangement comprises

- a primary light (210) for illuminating at least a part of the room,
- one or more controllable lights (201-203) for illuminating one or more of the zones in the treatment room, wherein at least one of the lights is controllable to be switched off or to generate a low lighting intensity being lower than the lighting intensity of the primary light.

5

16. A user system according to claim 15, where

- the one or more controllable lights (201-203) comprise at least first and second controllable light sources for illuminating at least first and second zones, respectively, wherein the lighting intensity of at least one of the first and second light sources is controllable to be

10

switched off or to generate a low lighting intensity.

17. A user system according to claim 15, where the patient user interface (699) is configured to enable a patient to control if the controllable light should be switched off or generate the low light intensity.

15

18. A user system according to claim 16, where the patient user interface (699) is configured to enable a patient to control if the first or the second light should be switched off or generate the low light intensity.

20

19. A user system according to claim 15, further comprising

- one or more heating devices (231-233) capable of heating one or more of the zones (101-103).

20. A user system according to claim 19, where the heating devices are infra-red lights

25

configured to illuminate individual zones.

21. A user system according to claim 16, further comprising

- a detection unit (297) capable of detecting the location of a patient in the room,
- a control unit (298) for determining which of the at least first and second lights that should

30

be switched off or generate the low light intensity dependent on the detected location.

22. A user system according to claim 15, further comprising

- a high intensity controllable light (211) for illuminating an entry zone, wherein the high intensity controllable light is controllable to generate a high lighting intensity being higher than the lighting intensity of the primary light (210).

5 23. A user system according to claim 22, further comprising
- an information display (296) for displaying scheduled activities to the patient, wherein the high intensity controllable light (211) is controllable by the information display so as to enable generation of the high lighting intensity prior to and/or during a scheduled activity.

10 24. A user system according to claim 15, wherein at least one of the controllable lights are controllable to generate an increase in lighting intensity depending on how frequent the patient interacts with the user interface (699).

25. A user system according to claim 1, further comprising an external user interface device
15 (130a, 302, 710).

26. A room (100) comprising
- a user system (600, 700) according to claim 1.

20 27. A room according to claim 26, further comprising
- a light (120) which is controllable to generate different light intensities and/or light colors dependent on the time of day.

28. A room according to claim 26, further comprising
25 - a marking on the floor (110, 112) for indicating a public zone near an entry door of the room.

29. A room according to claim 26, further comprising
- a screen (130) for displaying images of a caregiver during communication between the
30 patient and the caregiver.

30. A method for providing mental healthcare to a patient in a treatment room (100), the method comprises:

- creating or modifying a condition in the treatment room by use of an ambient system (120, 130, 200, 300, 500), where the condition is perceivable by the patient,
 - using a patient user interface (699), performing a patient selected selection of an ambient setting of the ambient system, where the ambient system is responsive to an output from the
- 5 patient user interface containing information about the ambient setting.

1/7

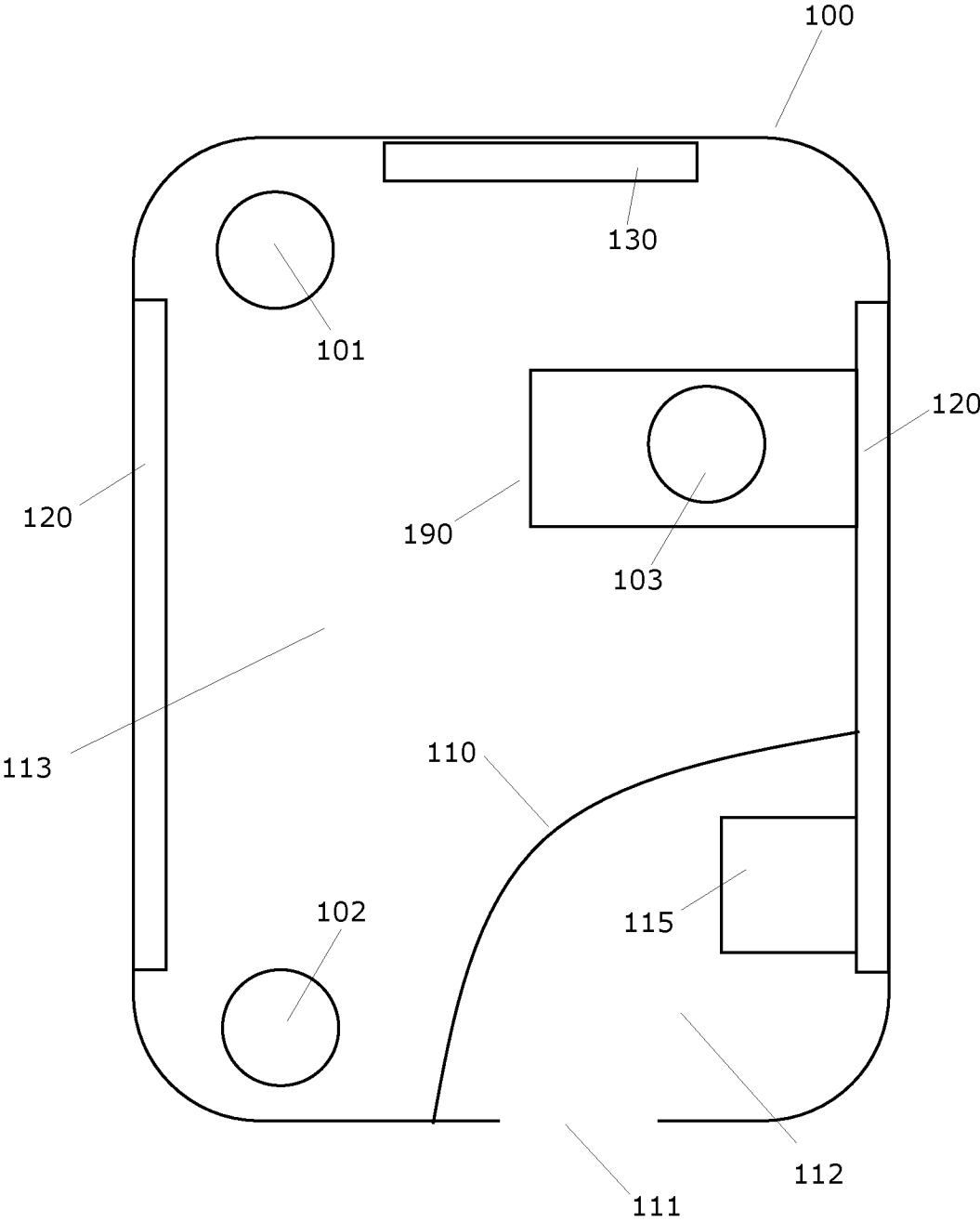


Fig. 1

2/7

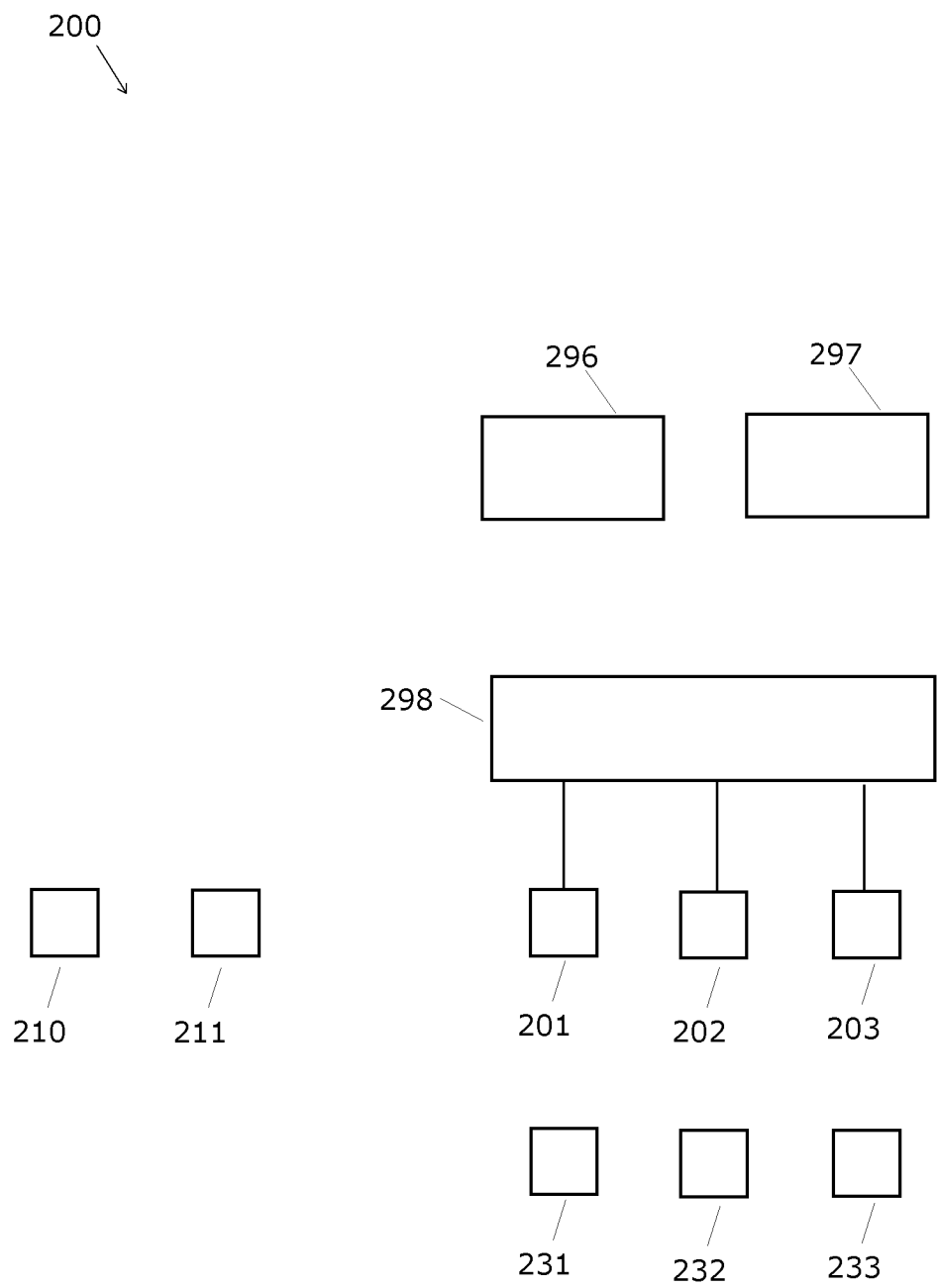


Fig. 2

3/7

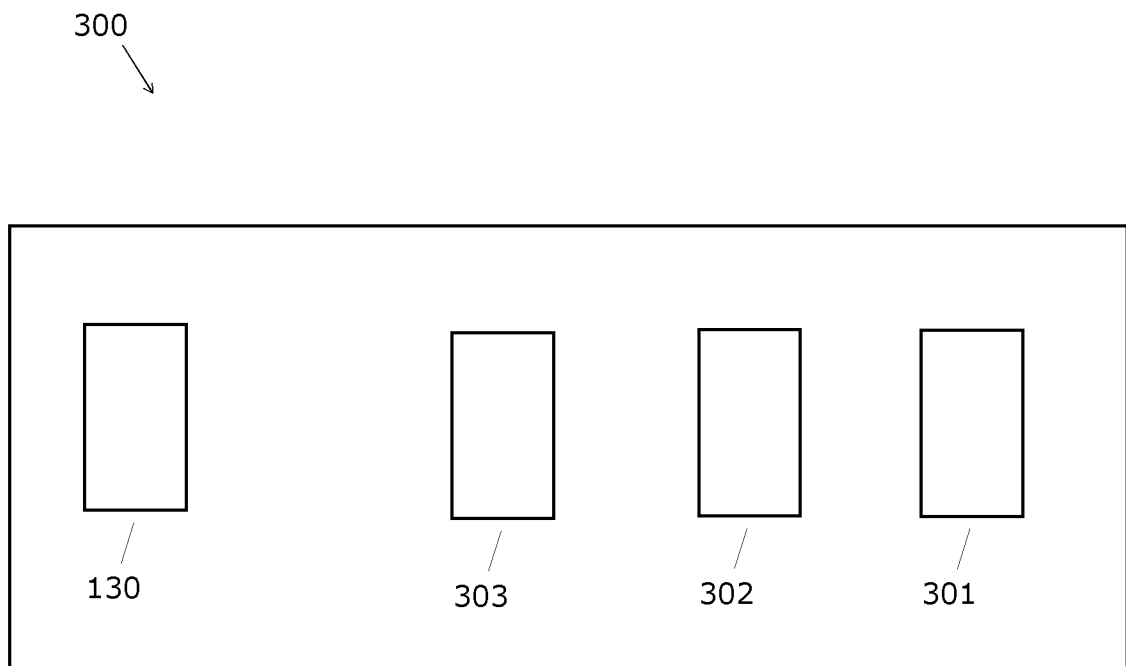


Fig. 3

4/7

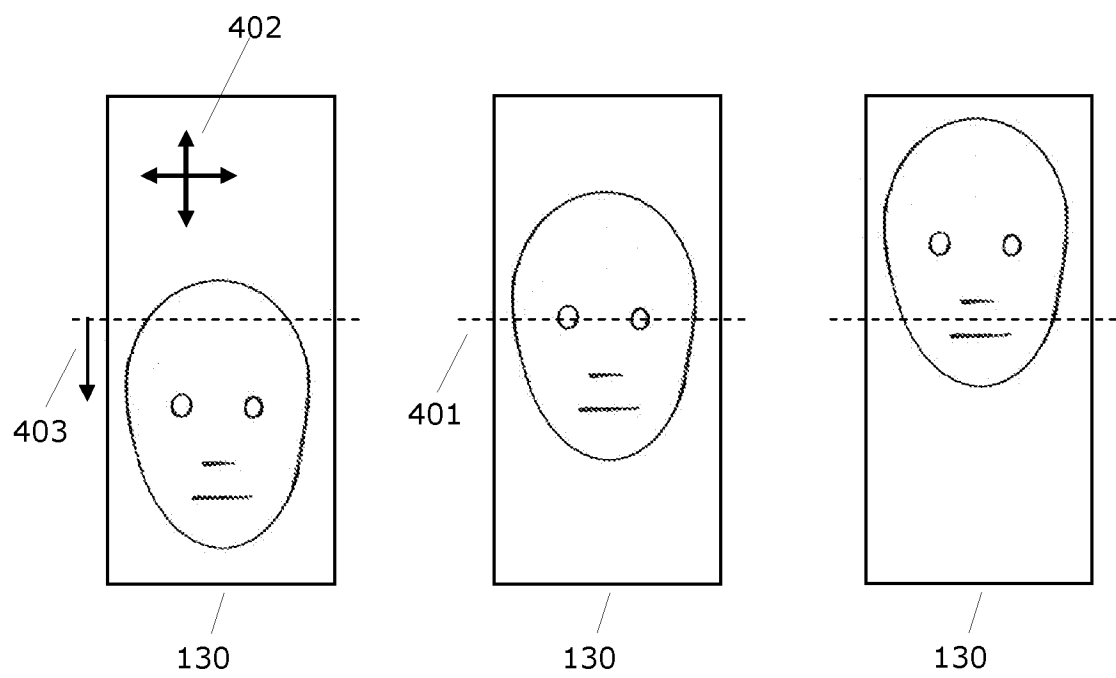


Fig. 4

5/7

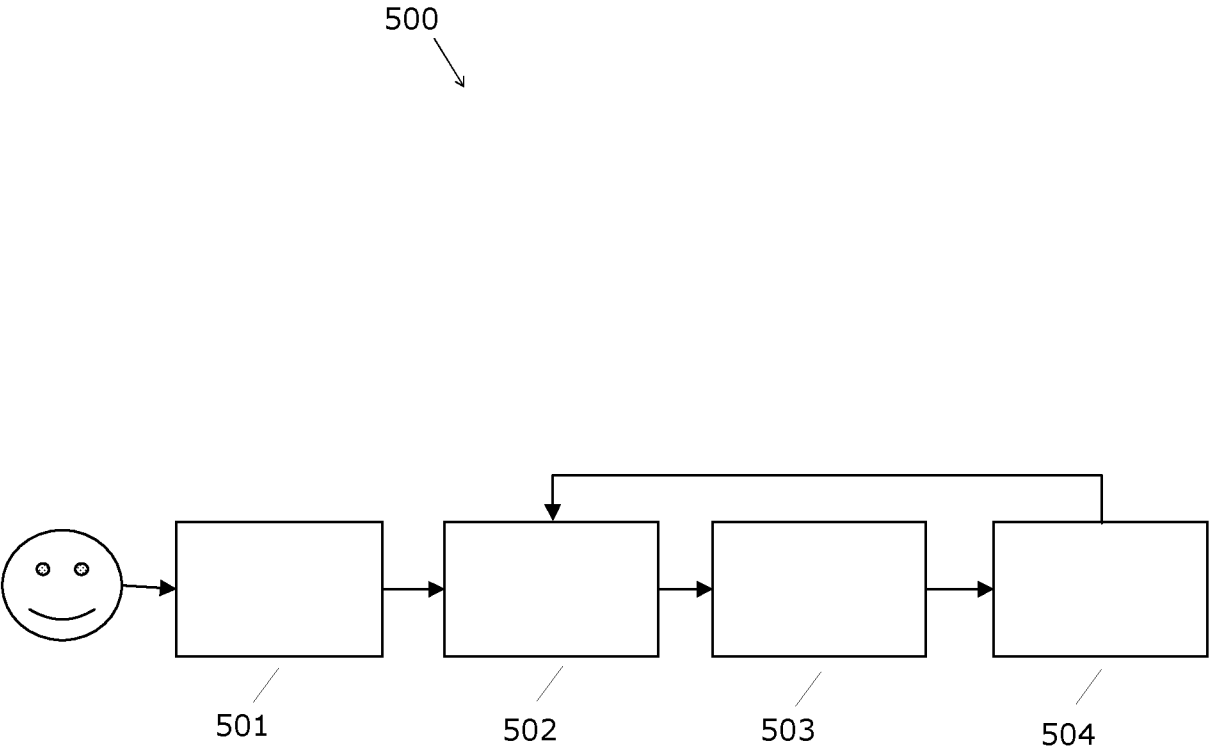


Fig. 5

600
↓

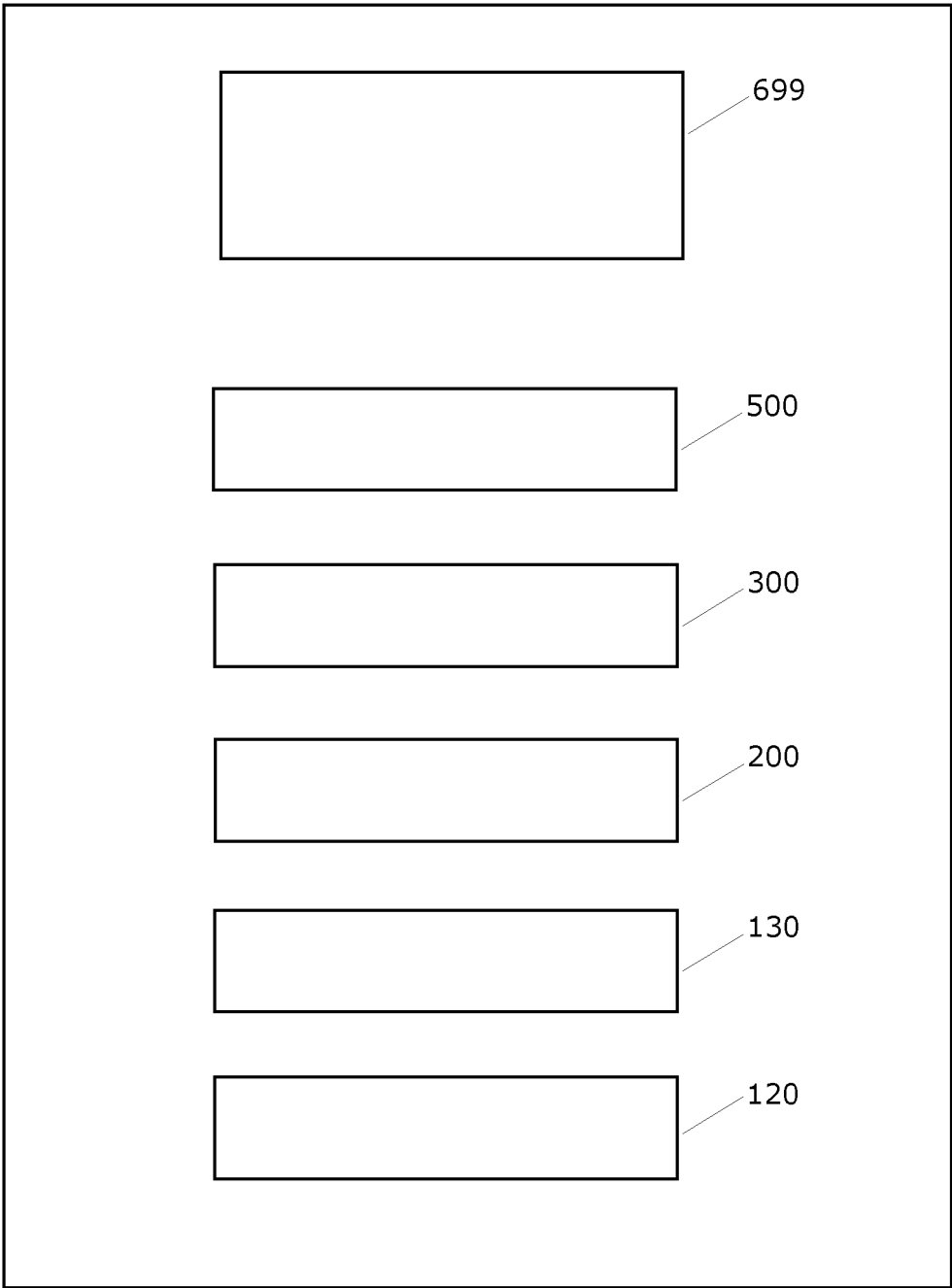


Fig. 6

7/7

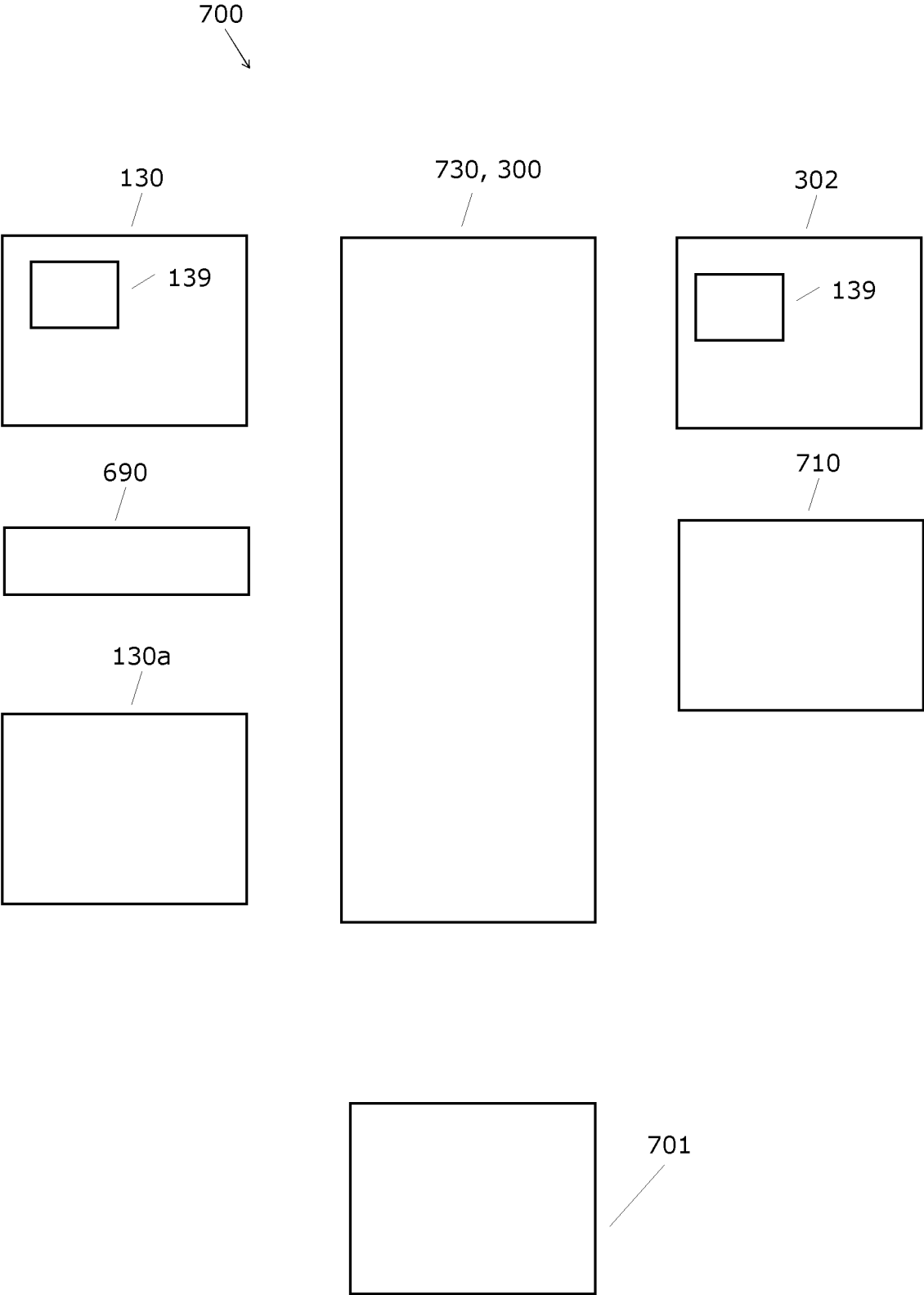


Fig. 7