

A SYSTEM FOR CONDUCTING DEMENTIA THERAPY, AND A METHOD FOR STIMULATING EMOTIVE RESPONSES

Related Applications

[001] The present invention claims priority to Singapore patent application no. 10202401543U filed on 30 May 2024, the disclosure of which is incorporated in its entirety.

Field Of Invention

[002] This invention relates to a system for conducting dementia therapy, and a method for stimulating emotive responses in a patient in dementia therapy using the system. In particular, the invention is a system for evoking memories of dementia patients through visual, audio and tactile stimulations.

Background Of Invention

[003] Dementia is generally used to describe symptoms associated with a decline in memory, cognitive abilities, decision-making and communication skills that interfere with performing daily activities. It is caused by various underlying conditions or diseases that damage brain cells. Whilst most changes in the brain that cause dementia are permanent and progressive, some of the symptoms may improve or slow down when the condition is treated or addressed.

[004] As of today, when this disclosure is prepared, there is no medication for curing dementia, but there are treatments that can help relieve or eliminate symptoms. An example is US Patent 11,766,576B2 that reveals a method for treating degenerative dementia with low intensity focused ultrasound pulsation (LIFUP) device. An ultrasonic transducer is attached to the head of a patient, whereby an ultrasonic beam that is focused on a target area of the brain is applied thereto. The focused ultrasonic beam includes a plurality of groups of pulses. Each group of pulses includes multiple individual pulses, wherein the individual groups of pulses are repeated at a rate between 1-4 Hertz to stimulate a deep sleep patient episode for promoting removal of substances that accumulate in the interstitial pathways, in which these substances are responsible for degenerative dementia.

[005] Another example is US Patent 11,406,825B2 which discloses devices, systems and methods that allow a patient to self-treat neurodegenerative diseases such as dementia,

Alzheimer's disease, ischemic stroke, post-concussion syndrome and chronic traumatic encephalopathy by electrical non-invasive stimulation of a vagus nerve. The system comprises a handheld stimulator connected to a smartphone, that is applied to the surface of the patient's neck. Location of the stimulator on the patient's neck can be adjusted with the use of a camera of the smartphone. The stimulator has a signal generator for generating an electrical current, with one or more electrodes adapted to contact an outer skin surface of a patient diagnosed with a neurodegenerative disease. The stimulator transmits the electric current from the electrodes transcutaneously through the outer skin surface, wherein the electric current modulates a vagus nerve at a target region within the patient, thereby modifying the neurodegenerative disease. This disclosure teaches that the electrical impulses can modify activity of the vagus nerve such that inhibitory transmitters, such as norepinephrine (NE) and acetylcholine (Ach) are released in the brain for reducing or eliminating neuroinflammation caused by the neurodegenerative disease or disorder, thereby slowing, or arresting the progression of the disease or disorder.

[006] Although the disclosures in US Patent 11,766,576B2 and US Patent 11,406,825B2 are non-invasive, they are medical treatments that involve ultrasonic or electric wave penetration into the body's tissues. Apart from these treatments, there are also therapies that can improve the quality of life, mood, and symptoms by being physically active, and participating in activities and social interactions that stimulate the brain and maintain daily function.

Summary Of Invention

[007] An object of the present invention is to provide a system for conducting dementia therapy and a method for stimulating emotive responses in a patient in the therapy using the system through building meaningful engagements for patients, especially elderlies, with dementia. In particular, the therapy is a non-medical treatment. Such therapy aims to evoke the memory of dementia patients, especially those who rely heavily on repetition in everyday life via sounds, sights, and personal habits to retain memory. The invention utilises the integration and influence of actions, gestures and exercises to help elicit memories, eg. of happy moments or events. It taps on procedural memory, which is responsible for motor skills, and the familiarity of daily activities like cooking or eating to stimulate greater recollections during the therapy. Stimulating the senses has been proven effective in instilling motivation, alertness and tranquillity. By re-enacting familiar gestures, personal

memories that patients associate with sensorial interaction with connected devices of the system can be unearthed. Apart from that, mood and wellbeing of the patients can also be improved. The invention also adopts a positive psychology approach by assisting patients and caregivers to focus on the skills and achievements of the patients in performing the gestures and exercises rather than on dementia.

[008] Another object of the present invention is to provide a system to conduct dementia therapy and a method for stimulating emotive responses in a patient in the therapy that use a hand-held device which is adapted in a way, with respect to its shape, size, weight, texture and material, such that it is suitable and easy to be held and gripped by the patient to perform various gestures relating to curated daily activities with repetitive motions, such as ironing, cooking with a pan, and making tea, and so on. Besides that, the hand-held device is also designed to have inner compartments to house components such as sensors like motion tracking sensor, tactile stimulator like vibrator, communication module like wireless connection module, and power source module like battery.

[009] Further another object of the present invention is to provide a system to conduct dementia therapy and a method for stimulating emotive responses in a patient in the therapy with the system, upon detection of the patient's physical activity, produces a feedback through paired devices such as tablet, laptop, television or even the hand-held device itself in the form of visual, audio, tactile or a combination thereof that create scenes which can help patients recall past experiences. In addition, the system incorporates machine learning technology that recognises different physical activities including gestures of the patient to provide real-time feedback. The feedback is not manipulated by users of the system and is based on the detected motions on the hand-held device.

[0010] Yet another object of the present invention is to provide a system to conduct dementia therapy and a method for stimulating emotive responses in a patient in the therapy with the use of a stimulus in media form such as a video that encourages and prompts the patient to perform motions that relates to their personal memories as instructed in the therapy. The content of the stimulus is a series of relatable daily activities that are curated to ensure that the patient remains engaged and invested. Such carefully crafted programme can help delay

institutionalisation and facilitate ageing-in-place within the community by engaging mental agility and acuity of the patients.

[0011] At least one of the preceding objects is met, in whole or in part, by the present invention, in which the present invention provides a system for conducting dementia therapy, that comprises a server for controlling operation of the system; a hand-held device having at least one motion tracking sensor, for a patient to perform a motion therewith; a display device configured to present a video showing scenes with movements to provoke a response from the patient, in which the response includes motions performed by the patient on the hand-held device; and a feedback module for providing feedback to the motions as detected by the motion tracking sensor; wherein the feedback presented through one or more feedback devices evokes memories of the patient that relate to the scenes played in the video.

[0012] Preferably, the system further comprises a machine learning module for learning the response of the patient to improve the feedback provided by the feedback module.

[0013] Preferably, the hand-held device comprises a casing adapted for a palm of the patient to hold and grip the hand-held device; and a body being enclosed within the casing and having at least one compartment for housing at least one component.

[0014] Preferably, the components include any one or combination of the motion tracking sensor, a tactile stimulator, a communication module, and a power source module.

[0015] Preferably, the casing is made of an elastic material that allows the casing to be removable from the body, for eg. for cleaning or sanitizing.

[0016] Preferably, the hand-held device is provided with a contactless identifier that allows access to a platform of the system to manage the system.

[0017] Preferably, the feedback includes any one or combination of visual, audio and tactile feedback.

[0018] Preferably, the display device is configured to present either or both the visual and audio feedback.

[0019] Preferably, the tactile feedback is presented by a vibrating device being a tactile stimulator provided in the hand-held device.

[0020] Another aspect of the present invention provides a method for stimulating emotive response from a user who is a dementia patient using video and audio cues; the method comprising the steps of presenting a video on a display device that shows a scene with movements that serves as a stimulus to provoke a response from the patient to mimic the movements, in which the response includes motions performed by the patient on a hand-held device; detecting the motions performed by the patient by at least one motion tracking sensor; and providing a feedback to the motions by a feedback module; wherein the feedback creates scenes presented through one or more feedback devices to evoke memories of the patient that relates to the video.

[0021] Preferably, the method further comprises the step of learning the response of the patient to improve the feedback provided by the feedback module.

[0022] Preferably, the feedback is a visual feedback presented by the display device through the video.

[0023] Preferably, the feedback is an audio feedback presented by either or both an audio device and the display device with audio playing function.

[0024] Preferably, the feedback is a tactile feedback presented by a vibrating component provided at the hand-held device.

[0025] Preferably, the method further comprises the step of scanning a contactless identifier provided on the hand-held device for accessing a platform with an interface to manage a system executing the method.

[0026] One skilled in the art will readily appreciate that the invention is well adapted to carry out the objects and obtain the ends and advantages mentioned, as well as those inherent therein. The embodiments described herein are not intended as limitations on the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] To facilitate an understanding of the invention, there are illustrated in the accompanying drawings the preferred embodiments from an inspection of which when considered in connection with the following description, the invention, its construction and operation and many of its advantages would be readily understood and appreciated.

[0028] **FIG. 1** shows a display device presenting a video that acts as a stimulus for a patient to perform motion with a hand-held device according to an embodiment of the present invention;

[0029] **FIG. 2** shows a plurality of casing of the hand-held device;

[0030] **FIG. 3** shows a plurality of body of the hand-held device;

[0031] **FIG. 4** shows a front or back view of the hand-held device;

[0032] **FIG. 5** shows a side view of the hand-held device;

[0033] **FIG. 6** shows a top view of the hand-held device;

[0034] **FIG. 7** shows a bottom perspective view of the hand-held device;

[0035] **FIGs. 8A** and **8B** show a process flow of an application executing a method of stimulating emotive responses of a user using the above hand-held device and system;

[0036] **FIGs. 9A** and **9B** show a task selection process when a video in the application shown in **FIG. 8A** or **8B** is selected to play; and

[0037] **FIG. 10A** shows a screenshot of a home page of the above application; **FIG. 10B** shows a screenshot of a page of the application when a breakfast scene is selected, whilst **FIG. 10C** shows three video images of the breakfast scene, which are then depicted in **FIGs. 10D – 10F**.

Description Of Invention

[0038] For a better understanding of the invention, preferred embodiments of the invention that are illustrated in the accompanying drawings will be described in detail.

[0039] The present invention relates to a system for conducting dementia therapy and a method for stimulating emotive responses in a patient in the therapy using the system. The therapy is for patients experiencing dementia, especially those who rely heavily on repetition in everyday life via sounds, sights and personal habits to retain memory. Users of whom the therapy is performed on, via the system that executes the method, are patients of dementia.

[0040] The system comprises a server for controlling operation of the system, a hand-held device **100** for a patient to perform a motion therewith, a display device **200** configured to present a video showing a scene with movements, and a feedback module for providing feedback to the motion performed by the patient. Both the display device **200** and hand-held device **100** are paired and in communication with the server. Control of the system can be carried out through a platform that is accessible via an application **300** using an electronic device like a smartphone, tablet, computer and smart watch, or operating through a web browser. The application **300** is installed in the electronic device before the therapy. Preferably, the display device **200** is equipped with a computing system that can run the application **300** or web browser with internet connection to access the platform. A tablet that provides convenience to watch the video and a touchscreen for easy control of the platform through the application **300** is most preferred to be used as the display device **200**. A secure connection between the hand-held device **100**, the server, and the display device **200** or any devices that allow access to the platform through the application **300** or web browser is implemented in the system.

[0041] **FIG. 1** illustrates an exemplary display device **200** presenting a video that acts as a stimulus for a patient to perform a motion with the hand-held device **100**. The stimulus provokes a response from the patient to the movements, in which the response includes the motion performed by the patient with the hand-held device **100**. The platform provides a library of curated videos to be selected and played on the display device **200** through an interactive and customizable user interface with clear and concise instructions for initiating the therapy sessions and navigating settings. In a preferred embodiment, the content of the curated videos is a series of scenes of relatable to daily activities, such as cooking, pounding

with a pestle, flipping a pan, tilting a pot to pour a drink, eating, and the like that were curated to ensure that the patients remained engaged and invested. Tailored therapy sessions with a variety of customizable scenes can be played for patients to engage in virtual reenactments. Apart from visual stimuli, audio can also be played through any paired devices to help stimulate responses of the patient to perform the motions on or with the hand-held device **100**. The audio can be music or sound related to the movements shown in the video that is being played.

[0042] On the other hand, the hand-held device **100** is designed in a way to make it suitable for motions to be performed thereon or therewith for the patients to practise holding, grabbing and releasing the hand-held device. The ergonomic design of the hand-held device **100** enhances comfort of its users. The motions include gestures and actions acted onto the hand-held device **100** by the patient that mimics the movements shown in the video presented on the display device **200**. In a preferred embodiment of the invention, the hand-held device **100** comprises a casing **110** adapted for a palm of the patient to hold and grip the hand-held device **100**; and a body **120** being enclosed within the casing **110** and having at least one compartment for housing at least one component. **FIG. 2** illustrates the casing **110** whereas **FIG. 3** shows the body **120** of the hand-held device **100**. The hand-held device **100** is formed to have a weight that enables the patient to easily perform the motion and mimic the movements shown in the video on the display unit **200**. Preferably, at an upper corner of the hand-held device **100**, there is a hole for locating a power-on indicator.

[0043] The casing **110** is in the form of a sleeve made of an elastic material that allows the body **120** to be removed from the casing **110**; the casing **110** enables easy cleaning to maintain hygiene of the hand-held device **100**. Preferably, the casing **110** is formed with a ribbed texture to provide tactile stimulation. The elastic material is preferably silicone, especially silicone with soft touch coating and matte finishing. The Shore hardness of the casing **110** is preferred to be in the range of A5 to 30, and more preferably to be A20. The casing **110** can be washed or sanitized. As shown in **FIGS. 2** and **5**, the casing **110** is generally cylindrical and tapered from a substantially middle portion of the casing **110** towards the top of the casing **110** with two opposing flat surfaces that form a flat-oval tube. Therefore, the casing **110** has two main portions being the lower cylindrical portion **111** and the upper flat-oval tube portion **112**. **FIG. 4** shows a front or back view of the casing **110**. The shape, size

and texture of the casing **110** are selected to allow the patient's palm to open for promoting therapeutic effect, and close to hold or grip the hand-held device **100**. The shape, size and texture of the casing **110** contribute to evoking sensory memory.

[0044] FIG. 3 illustrates the body **120** of the hand-held device **100** which is to be at least substantially insertable held inside the casing **110**. The body is preferably made of plastic, in particular, ABS plastic with a waterproof seal. To allow the casing **110** to fit around the body **120** of the hand-held device **100**, the body **120** has a generally similar shape as the casing **110**, with a lower cylindrical portion **121** and an upper flat-oval tube portion **122**. The side view of the casing **110** enclosing the body **120** is shown FIG. 5, whereas the top view of the hand-held device **100** is shown in FIG. 6. FIG. 7 illustrates a bottom perspective view of the hand-held device **100**.

[0045] From FIG. 7, it can be observed that the body **120** is hollow and has at least one compartment for housing one or more components which include any one or combination of a motion tracking sensor, a tactile stimulator, a communication module, and a power source module. The motion tracking sensor may include any one or combination of an accelerometer, gyroscope, magnetometer, inertial measurement unit, and the like. In a preferred embodiment, the hand-held device **100** employs advanced motion-tracking technology, including a high-resolution accelerometer and gyroscopic sensors that can accurately capture and analyse hand gestures during therapy sessions. The tactile stimulator can be any device that provides various types of tactile sensations to the skin such as a vibrating component. Besides that, the communication module includes a group of components or devices that enable communication between different systems, devices, or networks, which can be wireless modules, ethernet modules, etc. Preferably, Bluetooth is applied for wireless connection of the hand-held device **100** with other devices including the display device **200** and the server. The term "power source module" refers to a group of components or devices that provide electrical power to the hand-held device **100**, such as batteries, voltage regulators, power converters, and other circuitry required to generate and regulate electrical power. The battery of the hand-held device **100** can be charged to replenish the energy stored therein. Preferably, the battery is a rechargeable battery, such as a lithium-ion battery, that ensures portability and ease of use during therapy sessions. The hand-held device **100** is made to be energy-efficient and optimised for low power consumption. For example, the hand-held device **100** can be equipped with an automatic

shut-off feature that powers off the hand-held device **100** after a period of inactivity. A fully charged battery provides sufficient power for multiple therapy sessions, and users including patients can easily recharge the hand-held device **100**, for eg, using a standard USB cable.

[0046] Further, the hand-held device **100** may be provided with a contactless identifier that allows access to the platform of the system to operate the system. The contactless identifier can be either or both a QR code and NFC tag. Preferably, the material of the contactless identifier is either printed paper or plastic. The NFC tag is assigned with a unique token ID and contains a chip that stores data including a link that allows access to the platform via the above application **300** or a web browser, whereas the QR code is encoded with a URL to access the platform through the application **300** or a web browser.

[0047] The feedback module includes one or more feedback devices to provide feedback to the motion as detected by the motion tracking sensor located in the hand-held device **100**. The feedback presented through the feedback device evokes memories of the patient that relates to the video that is selected to play, wherein the feedback includes any one or combination of visual, audio, and tactile feedback. The feedback device can be any device that can present the feedback, which includes the display device **200** to present either or both the visual and audio feedback, and the hand-held device **100** to present the tactile feedback. The visual feedback may be videos played or any visual effects shown on the display device **200**. On the other hand, the audio feedback can be sound or pleasant music.

[0048] The system further comprises a machine learning module for learning the response of the patient to improve the feedback provided by the feedback module, wherein the machine learning module runs a machine learning algorithm that recognises different motions performed on the hand-held device **100** to provide real-time feedback that can more effectively stimulate the patient's senses in instilling motivation, alertness, and tranquillity for greater recollection of the patient to elicit the patient's memories, such as, happy and memorable moments or events.

[0049] The present invention also provides a method for stimulating emotive responses in a patient by using visual and audio cues through the system as described above. The method of stimulating emotive responses in the patent includes, presenting a video chosen from the platform to be played on the display device **200**. The patient is guided to move the hand-held device **100** in predefined motions mimicking the movements of an activity in a scene shown

in the video. The motions performed by the patient are detected by at least one motion tracking sensor located within the hand-held device **100**. Information obtained from the detection is sent to the server for the feedback module to provide feedback to the motion performed, wherein the feedback triggers further scenes in the video through one or more feedback devices to evoke memories of the patient.

[0050] For example, the display device **200** presents a visual feedback through the video, wherein the video is curated to present pleasant visuals or scenes with predefined movements selected to coordinate with motions performed onto or with the hand-held device **100** that relate to the activity experienced by the patient in the past. In another example, the feedback is an audio feedback presented by either or both an audio device or the display device **200** with audio playing function. The audio feedback may be sounds related to the activity experienced by the patient in the past or pleasant music. In addition, the feedback can also be a tactile feedback, which is also known as haptic feedback, presented by a vibrating component provided inside the hand-held device **100**. The vibrating component may vibrate in a way that relates to the activity experienced by the patient in the past and provide tactile cues to guide the patients during the therapy sessions.

[0051] The method further comprises the step of using a machine learning module to learn the response of the patient for improving the feedback provided by the feedback module.

[0052] The method further comprises the step of scanning a contactless identifier being either or both an NFC tag and QR code, provided on the hand-held device **100** for accessing the platform to operate the system that executes this method.

[0053] **FIG. 8A** shows a process flow depicting steps of operating the application **300** software and a user interface appears on the display device **200**. The following paragraphs only describe briefly the process flow and not all the steps illustrated are described. As shown in **FIG. 8A**, the application **300** starts from a home page **301**, which is shown in **FIG. 10A**. In one embodiment, the home page **301** leads to a login page **302** for a user to enter a registered email and password. Once user login is successful, the application **300** launches to a patient selection page **305**, in which an interested patient name is selected, and a scan device page is displayed for the user to click to search for the above hand-held device **100**; a select device page **310** then appears for the user to select the hand-held device **100** associated with the selected patient, and, in one embodiment, a meal selection page **315** is

displayed. The user or patient can then respond by selecting the meal, whether it is breakfast, lunch or dinner, in respective step **316a,316b or 316c**; the application then brings the user/patient to a mood scale page **320**; the user/patient can then respond by entering the patient's mood according to a scale provided. The application **300** proceeds to a task selection page **325**; in one embodiment, task selection page **325a,325b,325c** may be associated with the breakfast, lunch or dinner, respectively. In other embodiments, the selection page **315** and task selection page **325** may be programmed for the user/patient to include further parts of meal preparations, such as, chopping carrots, pounding peppers, grinding chillies, pouring tea/coffee, etc. In another embodiment, the selection page **315** is programmed for user/patient to select games, such as, table tennis, badminton, etc. the task selection page **325** may be designed accordingly to the selected game. Additionally or alternatively, it is possible, that a camera located at or in the display device **200**, supported with an AI algorithm, is trained to monitor the patient's mood from the facial expressions and/or tones of voice.

[0054] From the task selection page, the application **300** prompts the user/patient to select the task of interest and an instruction page **330a** appears to help the patient proceeds further. In step **340a**, the application **300** brings the patient through the steps of playing **341** a video curated for the selected task, doing **342** an action following the earlier instructions **330a**; the video is started **343** automatically, preferably, with a counter to monitor the number of times of participation by the patient. The application **300** may provide the patient a choice to repeat **344** playing the video, in step **343**, or to play an ending video **350,350a,350b,350c**. The ending video may bring the patient back to a task selection page **325**, part 2 or part 3, as in this example, wherein the task selection page is identified by numerals **325a** and **325b**, respectively.

[0055] After playing the ending video **350,350a,350b,350c**, the application **300** launches the mood scale page **360** after patient's participation and the patient is prompted to register a mood experienced after each cycle of participation, in step **360**; naturally, with the camera at the display device, this mood detection can be automated or in addition to patient's input. The application **300** may also be programmed to register into a progress overview page **370** in an automatic manner, where the patient's task participation and emotional and mental health progress history can be assessed and discussed with the patient or be used at a back

office for health care analysis. Once the patient progress data are captured, the application brings the user/patient to a menu page, in step **380**. In one embodiment, from the menu page **380**, the user/patient clicks on a prompt to logout of the application, and the home page **301** is launched.

[0056] In another embodiment, after the menu page **380**, the application may launch the home page, and possibly, three virtual buttons are provided on the display device **200**; the first button may be for the user/patient to logout of the application, the second button for logging in, or a third button for powering off the application **300**.

[0057] In the above description, task selections, parts 2 and 3, appear in FIG. 8B; FIG. 8B is thus a continuation of FIG. 8A.

[0058] FIG. 9A continues to FIG. 9B illustrate in an embodiment the process steps **325**, **330** and **340,340a,340b,340c**. Step **340,340a,340b,340c** is shown by component steps **341**, **342**, **343**, **344** and **350,350a,350b,350c**. After playing the ending video, in step **350c**, the application **300** prompts the user/patient whether to continue participation, in step **355**; if the decision is positive, the application **300** launches the task selection page **325** again; if the selection is negative, the application **300** launches the ending mood scale page, in step **360**, for the application to capture and record patient's mood during each round of participation in a progress report, in step **370**.

[0059] To give a reader an appreciation on the use of this application **300**, FIG. 10A shows a screenshot of the home page, according to one embodiment. Other embodiments may include the virtual buttons for user interfacing and control of the application **300**.

[0060] FIG. 10B shows a screenshot when the application launches step **316a**, showing a breakfast selection, whilst FIG. 10C shows a screenshot of the task selection allowing the user/patient to select part 1, 2 or 3 of the breakfast selection. Screenshots of the breakfast selection under parts 1, 2 and 3 are shown visually in FIGs. 10D to 10F.

EXAMPLE:

[0061] This example describes the above application **300** in generalised manner. A patient selects a video with scenes of a cooking activity to be played on the display device **200**. The

patient then moves the hand-held device **100** in predefined motions mimicking the movements of the cooking activity shown in the video. A control interactive visual environment is created in the application **300** software. By using gestures sensed from motion sensors, the video can be controlled through the recorded actions. **FIGs. 9A-9B** is a composite process chart showing the mapping of the gestures of some cooking activities. Wekinator may be employed as an interactive machine learning (IML) tool to solve the complexity of gestural movements caused by many different actions of the movements required to perform the activity and the limitations resulted from the different patients' condition. The IML may be used to train and record new actions into the system to control the video using the newly recorded gestural movements.

[0062] The present disclosure includes as-contained in the appended claims, as well as that of the foregoing description. Although this invention has been described in its preferred form with a degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of examples and that numerous changes in the details of construction and the combination and arrangements of parts may be resorted to without departing from the scope of the present invention.

CLAIMS:

1. A system for conducting dementia therapy, comprising
 - a server for controlling operation of the system;
 - a hand-held device having at least one motion tracking sensor, for a patient to perform a motion therewith;
 - a display device configured to present a video showing a scene with movements to provoke a response from the patient, in which the response includes the motion performed by the patient with the hand-held device; and
 - a feedback module for providing feedback to the motion as detected by the motion tracking sensor;wherein the feedback through one or more feedback devices evokes memories of the patient that relate to the scene.
2. The system according to claim 1, further comprising a machine learning module for learning the response of the patient to improve the feedback provided by the feedback module.
3. The system according to claim 1 or 2, wherein the hand-held device comprises:
 - a casing adapted for a palm of the patient to hold and grip the hand-held device; and
 - a body being enclosed within the casing and having at least one compartment for housing at least one component.
4. The system according to claim 3, wherein the components include any one or combination of the motion tracking sensor, a tactile stimulator, a communication module, and a power source module.
5. The system according to claim 3 or 4, wherein the casing is made of an elastic material that allows the casing to be removable from the body.
6. The system according to any one of the preceding claims, wherein the hand-held device is provided with a contactless identifier that allows access to a platform of the system to operate the system.

7. The system according to any one of the preceding claims, wherein the feedback includes any one or combination of visual, audio and tactile feedback.

8. The system according to claim 7, wherein the display device is configured to present either or both the visual and audio feedback.

9. The system according to claim 7 or 8, wherein the tactile feedback is presented by a vibrating device being a tactile stimulator provided in the hand-held device.

10. A method for stimulating emotive responses in a patient by using visual and audio cues, the method comprising:

presenting a video on a display device that shows a scene with movements that provoke a response from a patient, in which the response includes motions performed by the patient with a hand-held device;

detecting the motions performed by the patient through at least one motion tracking sensor located within the hand-held device; and

providing a feedback to the motions performed by a feedback module;

wherein the feedback through one or more feedback devices evokes memories of the patient that relates to the scene shown in the video.

11. The method according to claim 10, further comprising the step of learning the response of the patient by a machine learning module to improve the feedback provided by the feedback module.

12. The method according to claim 10 or 11, wherein the feedback is a visual feedback presented by the display device through the video.

13. The method according to any one of claims 10 to 12, wherein the feedback is an audio feedback presented by either or both an audio device and the display device with audio playing function.

14. The method according to any one of claims 10 to 13, wherein the feedback is a tactile feedback presented by a vibrating component provided within the hand-held device.

15. The method according to any one of claims 10 to 14, further comprising the step of scanning a contactless identifier provided on the hand-held device for accessing a platform to operate a system that executes the method.