

CLAIMS:

1. A therapeutic device (100) for monitoring and treating medical conditions of patients, said device (100) comprising:
 - a. an input unit (102) configured to receive at least one input from a user;
 - 5 b. a plurality of sensors (104a-n) configured to monitor a plurality of pre-determined parameters associated with the health of the patient, said sensors (104a-n) further configured to generate detection signals based on said monitored parameters;
 - 10 c. a control unit (106) configured to cooperate with said input unit (102) and said sensors (104a-n), said control unit (106) comprising:
 - i. a memory (108) having a list of medical conditions to be treated and a program corresponding to each of said medical conditions, each of said programs comprising pre-determined values of at least one of voltage, current, and frequency for treating corresponding medical condition;
 - 15 and
 - ii. a controller (110) configured to receive said input from said input unit (102) and said detection signals from said sensors (104a-n), said controller (110) further configured to cooperate with said memory (108) to select a program based on said received input, detection
 - 20 signals, or combination thereof,
 - d. a waveform generator unit (112) configured to cooperate with said control unit (106) to receive said selected program, and further configured to generate a therapeutic signal of said pre-determined value of at least one of voltage, current, and frequency associated with the selected program; and
 - 25 e. a coupling means for mounting said waveform generator unit (112) proximity to the patient's body for injecting the therapeutic signal into the patient's body to facilitate treatment of the medical condition corresponding to said selected program.
2. The device (100) as claimed in claim 1, wherein said sensors (104a-n) include at least
- 30 one of an Electrocardiogram (ECG) sensor, a photoplethysmogram (PPG) sensor, an

- electroretinogram (ERG) sensor, a myogram sensor, a blood pressure sensor, a glucometer, a temperature sensor, an oxygen saturation sensor (SpO2 sensor), a heart rate sensor, an Invasive (intra-arterial) blood pressure (IBP) sensor, a heart chamber pressure sensor, a neuromuscular monitoring device, an End-Tidal CO2 sensor (EtCO2 sensor), a pulse oximeter, and a fitness tracker for tracking stress, heart rate variability (HRV), sleep data, steps, calories burnt, cumulative distance walked, and heart activity data of the patient.
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3. The device (100) as claimed in claim 1, wherein said waveform generator unit (112) is implemented using a microcontroller.
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4. The device (100) as claimed in claim 1, wherein said therapeutic signal is an electromagnetic signal.
5. The device (100) as claimed in claim 4, wherein said waveform generator unit (112) includes:
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- a. a plurality of treatment coils (206a-s) for generating said electromagnetic signal to facilitate treatment of medical condition corresponding to said selected program;
- b. a first signal generator unit (202) configured to generate a drive signal of said pre-determined values of at least one of voltage, current, and frequency associated with the selected program; and
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- c. a coil driver circuit (204) configured to cooperate with said first signal generator unit (202) to receive said generated drive signal, and further configured to condition said received drive signal based on the requirement and number of said treatment coils (206a-s), said coil driver circuit (204) configured to provide the conditioned first signal to said treatment coils (206a-
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- s) for facilitating generation of said electromagnetic signal.
6. The device (100) as claimed in claim 1, wherein said therapeutic signal is an electrical signal.
7. The device (100) as claimed in claim 6, wherein the waveform generator unit (112) includes a second signal generator unit configured to generate said electrical signal of
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- said pre-determined values of at least one of voltage, current, and frequency

associated with the selected program for facilitating treatment of medical condition corresponding to said selected program.

8. The device (100) as claimed in claim 1, wherein said therapeutic signal comprises a series of pulses.
- 5 9. The device (100) as claimed in claim 5, wherein said waveform generator unit (112) generates said electromagnetic signal for facilitating treatment of medical conditions by improving the zeta potential of cells in the body of the patient.
- 10 10. The device (100) as claimed in claim 5, wherein said treatment coils (206a-s) are electromagnetic coils.
11. The device (100) as claimed in claim 1, wherein said input unit (102) includes at least one of a keypad, a touch screen, push buttons, and toggle switches.
12. The device (100) as claimed in claim 1, wherein said pre-determined values of voltage include positive and negative voltage values.
- 15 13. The device (100) as claimed in claim 7, wherein said second signal generator unit is connectable to red, near-infrared, and infrared Light Emitting Diodes (LEDs) to enable generation of red, near-infrared, and infrared light beams for facilitating treatment of medical conditions.
- 20 14. The device (100) as claimed in claim 7, wherein said second signal generator unit is connectable to a current control unit to provide electrical stimulation therapies including at least one of facial stimulation, pelvic stimulation, Transcutaneous Electrical Nerve Stimulation (TENS), Interferential Therapy (IFT), Defibrillation, and electro-acupuncture for facilitating treatment of medical conditions.
- 25 15. The device (100) as claimed in claim 1, wherein said device (100) is embedded with a wireless communication module selected from a group consisting of 2G (GSM), 3G (GPRS), 4G (LTE), narrowband IoT (NB-IoT/5G), Zigbee modules for facilitating wireless communication with a remote cloud server (302).
16. The device (100) as claimed in claim 1, wherein said device (100) includes a power source (114) selected from a group consisting of a battery, a solar panel, and a DC-DC converter unit connectable to an AC power source.

17. The device (100) as claimed in claim 1, wherein said device (100) includes at least one of an HDMI interface and a USB interface for storing a plurality of music notes to facilitate healing of the patient with the help of music therapy.
18. The device (100) as claimed in claim 1, wherein said device (100) is connectable to a thermal pad for facilitating healing of the patient by using thermotherapy.
19. The device (100) as claimed in claim 1, wherein said monitored parameters include heart rate, pulse rate, ECG, PPG, Blood Pressure (BP), oxygen saturation (SpO₂), level of carbon dioxide released at the end of expiration, respiration rate, neuromuscular blockade, blood glucose level, skin temperature, calories burnt, stress level, cumulative distance walked, and duration of sleep.
20. The device (100) as claimed in claim 15, wherein said device (100) facilitates real-time monitoring of said parameters remotely via a monitoring device (300) communicatively coupled to said remote cloud server (302).
21. The device (100) as claimed in claim 20, wherein said device (100) includes a health evaluation unit (116) comprising:
- a. a signal conditioning unit (118) configured to cooperate with said sensors (104a-n) to receive said detection signals, and further configured to generate detection values based on said detection signals; and
 - b. a comparator (120) configured to cooperate with said signal conditioning unit (118) to receive said detection values, and further configured to compare each of said received detection values with at least one pre-determined threshold value to evaluate the health condition of the patient, said comparator (120) configured to generate an alert signal when said detection values become equal to said pre-determined threshold values.
22. The device (100) as claimed in claim 21, wherein said health evaluation unit (116) is configured to send said generated alert signal to said monitoring device (300) via said remote cloud server (302).
23. The device (100) as claimed in claim 15, wherein said device (100) facilitates provision of said inputs remotely through said monitoring device (300) via said remote cloud server (302).

24. The device as claimed in claim 15, wherein said device (100) is integrated with a hospital's health record system via said remote cloud server (302).
25. The device (100) as claimed in claim 15, which allows manual or automatic upgradation of said programs remotely via said remote cloud server (302), wherein
5 said automatic upgradation is performed using machine learning techniques.
26. The device (100) as claimed in claim 1, wherein said device (100) is a portable and wearable device.
27. The device (100) as claimed in claim 1, wherein said coupling means is made of a conducting material.
- 10 28. The device (100) as claimed in claim 1, where said coupling means is selected from a group consisting of a belt, a contact surface, a set of probes, cables, and a set of electrodes.