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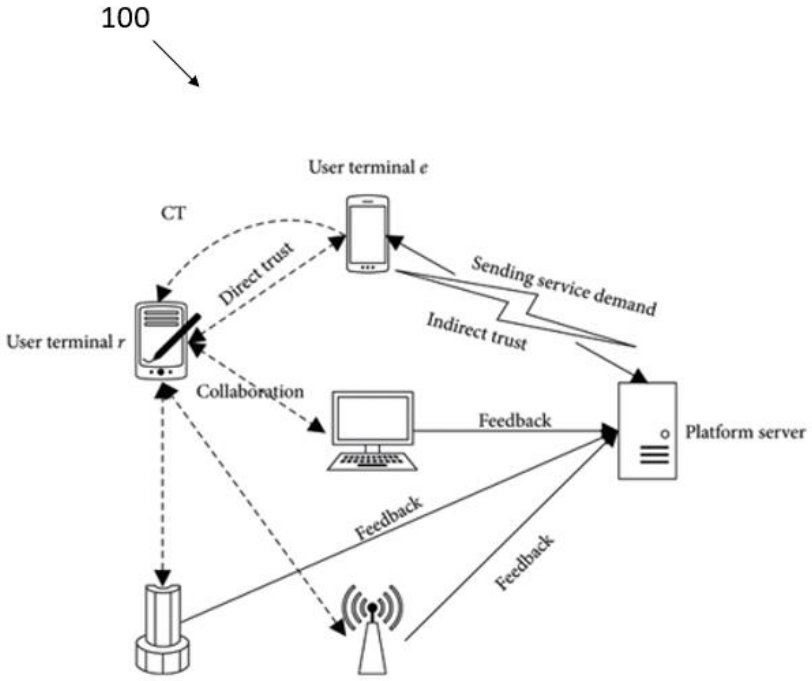


Figure 1

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FORM 2

THE PATENTS ACT 1970 (39 of 1970)

AND

The Patents Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule13)

TITLE OF THE INVENTION

ARTIFICIAL INTELLIGENCE BASED CONTACTLESS WELLNESS AND VITAL SIGN SHORT-TERM MONITORING SYSTEM FOR THE ELDERLY PATIENT

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The following specification particularly describes the invention and the manner in which it is to be performed.

FIELD OF INVENTION

The present invention relates to a field of healthcare system and particularly a system for monitoring the health of elderly patient using contactless technology.

BACKGROUND OF THE INVENTION

the pandemic has exposed India's healthcare infrastructure. Hospitals in different parts of the country ran out of beds during the second wave, forcing people to find ways to get treatment at home with whatever resources were available to them. Although the ratio of hospitalization during the third wave was low, the government took swift action by setting up makeshift hospitals to avert any second wave-like crisis. Conventional based system uses contact-based systems which are invasive and include electrodes and sensors, to monitor vitals of patient. Currently available wearable sensors make patients uncomfortable and lead to skin rashes. In order to address the concerns mentioned above and to monitor the patient's health, a contactless system is essential.

The following prior art is being reported:

US20220122732 - Disclosed is a contactless event monitoring and early detection method and system of real time monitoring of a person to predict an undesired event. The contactless event monitoring and early detection method collects data from a one or more data aggregation devices and filters the collected data in a signal processor. The contactless event monitoring and early detection method then analyzes the collected data in an event monitoring and detection processor. The event monitoring and detection processor implementing artificial intelligence algorithms to predict the probability of the occurrence of to the undesired event. Further, the event monitoring and detection processor receives a health data related to the person and selects an analytical model to be applied for prediction of the undesired event. In one embodiment, the probability of occurrence of the undesired event is associated on a threshold value. The threshold value is related to at least one early indicator associated with the person. The contactless event monitoring

and early detection method then preempts the person about the onset of the undesired event by sending an alert to the person and a caretaker for remedial action.

WO2022072838 - The present disclosure provides devices, systems, and methods for contactless monitoring. The contactless monitoring system comprise a contactless monitoring device. The contactless monitoring device may comprise multiple sensors to continuously and non-invasively monitor a human subject and may fuse the sensor data to predict subject health states, include health conditions. The contactless monitoring device may connect to a health monitoring station to share patient data securely with health care providers. The sensors may comprise imaging sensors, radar sensors, and audio sensors. The contactless monitoring device may perform signal processing and machine learning on data collected from these devices to predict health states and health conditions.

OBJECTS OF THE INVENTION

Some of the objects of the present disclosure, which at least one embodiment herein satisfies, are as follows.

It is an object of the present disclosure to ameliorate one or more problems of the prior art or to at least provide a useful alternative

An object of the present disclosure is to provide a system that is contactless, remotely operated, accurate, and fast.

An object of the present disclosure is to provide a system that reduces hospitalizations with early detection for long term care facilities.

Another object of the present disclosure is to provide a system that makes health data more accessible for better care at lower costs.

Still another object of the present disclosure is to provide a system that is compact and environment friendly.

Still another object of the present disclosure is to provide a system that enables

anyone to measure a wide range of biomarkers using a smartphone, tablet, or laptop.

Still another object of the present disclosure is to provide a system that can be easily integrated into any app or workflow.

Still another object of the present disclosure is to provide a system that offers timely medication & treatment to avoid escalation and hospitalization, manage chronic cardiac, hypertension & respiratory disorder better, keep a track of their health and lifestyle, early flagging of onset of potential disorder

Other objects and advantages of the present disclosure will be more apparent from the following description, which is not intended to limit the scope of the present disclosure.

SUMMARY OF THE INVENTION

The following presents a simplified summary of the invention in order to provide a basic understanding of some aspects of the invention. This summary is not an extensive overview of the present invention. It is not intended to identify the key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some concept of the invention in a simplified form as a prelude to a more detailed description of the invention presented later.

The present invention is generally directed to an artificial intelligence based contactless wellness and vital sign short-term monitoring system for the elderly patient. The system includes AI-driven advanced health intelligence (AHI), which precisely tracks respiratory & cardiac health and sends notifications flagging early health deterioration for prompt medical action. The mobile app enables users to access their health tracker data and share it with loved ones and healthcare providers for remote health monitoring. Interaction with health experts is available to have a deeper understanding of health data and recommended care delivery.

Another embodiment of the invention is to provide system that allows the user to share the vitals data to the caretakers, family members and doctors for telemedicine services.

Still another embodiment of the invention is to provide a system that enables the caretakers and family members to take timely action in case of health deterioration.

Yet another embodiment of the invention is to provide a system that gives peace of mind to the user and the family members and improves user's health safety.

Yet another embodiment of the invention is to provide a system that allows doctors to provide telemedicine to patients based on vital data.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig 1: illustrates the flow of trusted computing of user terminals for artificial intelligence based contactless wellness and vital sign short-term monitoring system for the elderly patient, in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The following description is of exemplary embodiments only and is not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention.

Fig 1: illustrates the flow of trusted computing of user terminals for artificial intelligence based contactless wellness and vital sign short-term monitoring system for the elderly patient, in accordance with an embodiment of the present invention. The system (100) comprises a contactless sensor sheet, a data pod, and a smartphone application. The contactless sensor sheet to monitor wellness and vitals of an elderly patient accurately. The contactless sensor sheet further comprises camera, image processing, pretrained model and health parameters measurement unit. The camera to capture video for image processing. The image processing utilizes artificial intelligence for extracting the useful information from data. The pre-trained model is used for image classification. The health parameters

measurement unit provide plurality of parameters of an elderly person. The data pod is used to store patient information and restrict access to it. The smartphone application for tracking the patient health status.

The current invention artificial intelligence based contactless wellness and vital sign short- monitoring solution for the elderly patient.

Is a ground breaking wellness and vital sign monitoring solution

The perfect integration to your existing digital health platforms helpful for Contactless, remote, accurate, and fast. All it takes is a video camera and 30 seconds to measure: recognition and patents, vital signs, health risks, heart rate, blood pressure, respiratory rate, cardiovascular disease risk stroke risk, heart attack risk, hba1c, blood glucose, red blood cell/hemoglobin.

It reduces hospitalizations with early detection FDA cleared contactless remote monitoring for long term care facilities. The current invention artificial intelligence based contactless wellness and vital sign short-term monitoring solution for the elderly patient is a groundbreaking wellness and vital sign monitoring solution.

Artificial intelligence based contactless wellness and vital sign short-term monitoring solution for the elderly patient is a groundbreaking wellness and vital sign monitoring solution. The new way to measure health data is software-based, making health data more accessible for better care at lower costs is an ai-powered, video-based, 100% software solution that enables anyone to measure a wide range of biomarkers using a smartphone, tablet, or laptop and the software can be easily integrated into any app or workflow.it includes include blood pressure, heart rate, heart rate variability (multiple parameters and RRI raw data), oxygen saturation, breathing rate, sympathetic stress, parasympathetic activity, pulse-respiration quotient (PRQ).Artificial Intelligence based contactless wellness and vital sign short-term monitoring solution for the elderly patient is a groundbreaking wellness and vital sign monitoring solution. The new way to measure health data is software-based, making health data more accessible for better care at lower costs.

Smart Parent Care

Proactive health monitoring of your parents @home keeps you updated with their health trends and flag health deterioration early so they get timely medication & treatment to avoid escalation and hospitalization.

Manage chronic cardiac, hypertension & respiratory disorder better

Keep a track of their health and lifestyle

Early flagging of onset of potential disorder

How it works

1.Contactless Sensor Sheet

Simply place the ultra-thin sensor sheet underneath your mattress before you sleep.

2.Data Pod

Plug-in the compact, radiation-free monitoring device and keep it on your bedside table.

3.Smartphone Application

Link your device with your app and start tracking your health proactively

Data Sharing with caretakers, doctors & family

Its mobile app comes with a caretaker feature which allows the user to share the vitals data to the caretakers, family members and doctors for telemedicine services. Data sharing enables the caretakers and family members to take timely action in case of health deterioration.

Doctors can use the vitals data for medical advice using telemedicine.

Regular visibility of data gives peace of mind to the user and the family members and improves user's health safety.

Specification of components

Product details

Product Dimensions: 20 x 18 x 8 cm; 400 Grams.

Item Weight: 400 g

Item Dimensions LxWxH: 20 x 18 x 8 Centimeters

Generic Name: - Contactless, AI-powered health and sleep monitoring with alert System (100) for heart failure and sleep disorders

Compatible Devices: Smartphones

Item Dimensions LxWxH: 20 x 18 x 8 Centimeters

Item Weight: 0.4 Kilograms

Sensor Type: Heart Rate

About this innovation

This innovation is India’s only contactless, 96.4% accurate against clinical grade and remote health tracker which enable us to track the health of our loved ones remotely on continuous basis. It tracks the vital health parameters like Heart rate, respiration rate, Sleep quality, Stress and recovery levels, Sleep Apnea index using it non-intrusive contactless easy to use technology. It comes with AI driven advanced health intelligence (AHI) which accurately tracks Respiratory & Cardiac health & gives alerts flagging early health deterioration for timely medical action health tracker data can be checked using the mobile app and can be shared with family members and health care providers for remote health tracking. Interaction with health experts is available for further understanding of health data and recommended care provision.

While considerable emphasis has been placed herein on the specific features of the preferred embodiment, it will be appreciated that many additional features can be added and that many changes can be made in the preferred embodiment without departing from the principles of the disclosure. These and other changes in the preferred embodiment of the disclosure will be apparent to those skilled in the art from the disclosure herein, whereby it is to be distinctly understood that the foregoing descriptive matter is to be interpreted merely as illustrative of the disclosure and not as a limitation.

We Claim,

1. An artificial intelligence based contactless wellness and vital sign short-term monitoring system (100) for the elderly patient comprising:

   a contactless sensor sheet used to monitor wellness and vitals of an elderly patient accurately, comprises :

   a camera to capture video for image processing;

   a image processing utilizes artificial intelligence for extracting the useful information from data;

   a pre-trained model is used for image classification;

   a health parameters measurement unit measure plurality of parameters of an elderly person;

   a data pod is used to store patient information and restrict access to it;

   a smartphone application for tracking the patient health status.
2. The system (100) as claimed in claim 1, wherein the health parameters measurement unit includes vital signs, health risks, heart rate, blood pressure, respiratory rate, cardiovascular disease risk stroke risk, heart attack risk, hba1c, blood glucose, red blood cell/hemoglobin.
3. The system (100) as claimed in claim 1, wherein the contactless sensor sheet contactless sensor sheet is an ultra-thin sensor sheet that is placed underneath the mattress of the patient.
4. The system (100) as claimed in claim 1, wherein the data pod comprises plugged-in, bedside, radiation-free monitoring apparatus.
5. The system (100) as claimed in claim 1, wherein the smartphone application is compatible with smartphone, tablet, or laptop.

Dated this 14 March 2023



Dr. Amrish Chandra

Agent of the Application

IN/PA-2959

TITLE: ARTIFICIAL INTELLIGENCE BASED CONTACTLESS WELLNESS AND VITAL SIGN SHORT-TERM MONITORING SYSTEM FOR THE ELDERLY PATIENT

ABSTRACT

The present invention relates to an artificial intelligence based contactless wellness and vital sign short-term monitoring system (100) for the elderly patient. The system (100) comprises a contactless sensor sheet, a data pod, and a smartphone application. The contactless sensor sheet to monitor wellness and vitals of an elderly patient accurately. The contactless sensor sheet further comprises camera, image processing, pre-trained model and health parameters measurement unit. The camera to capture video for image processing. The image processing utilizes artificial intelligence for extracting the useful information from data. The pre-trained model is used for image classification. The health parameters measurement unit provide plurality of parameters of an elderly person. The data pod is used to store patient information and restrict access to it. The smartphone application for tracking the patient health status.