FORM 2

THE PATENTS ACT, 1970
(39 of 1970)
&
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PROVISIONAL SPECIFICATION

(See section 10; rule 13)

1. TITLE OF THE INVENTION

"AN AUTOMATED HEALTH SCREENING AND PROTECTION SYSTEM AND METHOD THEREOF"

2. APPLICANT (S)

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3. PREAMBLE TO THE DESCRIPTION

The following specification describes the invention.

AN AUTOMATED HEALTH SCREENING AND PROTECTION SYSTEM AND METHOD THEREOF

FIELD OF THE INVENTION

The present invention relates to the field of healthcare systems. More particularly the present invention relates to a health screening system useful for the identification of persons affected with diseases such as covid. More particularly, the present invention relates to an automated health screening system comprising a screening station provided with means for recognition of mask wearing and simultaneous measurement of the body temperature, and blood oxygen saturation level (SpO2) to screen the person with diseases such as covid and other unhealthy infected person for restriction from entering the premise. Further the present invention relates to a method of working of the automated health screening system.

BACKGROUND ART

The effect of covid-19 has been detrimental to all faces of life; in particular, the commercial industry is profoundly affected. The main problem is that these places can be a hotspot for virus transmission. Normally, existing precautionary measures uses manual screening stations to filter only healthy people and allow them to enter an area.

Existing screening systems depend on human assistance to point the IR thermometer on the customer/visitors forehead to check temperatures of each individual entering into the premises, unfortunately due to human errors, the accuracy decreases gradually after sometime and screening of customers may not be effective. Likewise, while using IR thermometer on the forehead to check the temperature, eyes of the customers/visitors can be easily affected in this process due to the harmful effect of IR pointing near to customers/visitors eyes.

Even more challenging is the maintenance of the user data logs in a specific area for future verification since an infinite number of customers/visitors will enter the premises. In some cases, thermal imaging cameras are used to measure and screen people from crowds. Since the cost of thermal imaging cameras is very high and their accuracy is less compared to people who are using IR thermal sensors. Another challenging factor is using safety precautions such as masks and sanitizers, as most of the people are reluctant to follow these safety precautions. To a certain extent by relying only on human assistance, presently no known systems are used to track these mistaken activities.

Drawbacks:

- Adoption level is very low and accuracy is less.
- Cost of the product is very high and it increases more with less increase in accuracy.

- Devices require human workforce and process delays due to human errors and the person who does this job can get infected easily and it is one of the most tedious jobs.
- The vitals mentioned by the existing systems have a lesser number of healthcare functions.
- They are not easily movable or transportable.

The above mentioned system overcomes these drawbacks in the existing solution and helps people to do the screening process easily and effectively. The problem that arises when a person touches the surface of the sensor is mitigated automatically by spraying the surface with sanitizer and appropriately cleansing it.

During these pandemic, these screening systems are really necessary to break the transmission of virus. A cost effective and easily usable system for screening unhealthy persons and tracking their health is a much needed one to fight more against all the pandemic/epidemic/endemic diseases.

There exists a need for an automated health screening system for identification of diseases affected persons. Further there exists a need for a method of working of the automated health screening system.

SUMMARY OF THE INVENTION

One or more of the problems of the conventional prior art may be overcome by various embodiments of the present invention.

Accordingly, it is the main object of the invention to provide an automatic real time health screening system for the identification and restriction of persons with diseases such as covid and other unhealthy infected persons from entering the premises.

It is another object of the invention to provide a system for simultaneous measurement of body temperature, blood oxygen saturation level (SpO2), and the like for screening a person with diseases such as covid and other unhealthy infected person to reduce time taken to screen the people.

It is another object of the invention, wherein the developed system is a seamlessly integrated system of various medical and technological functions that will collectively help reduce transmission of viruses and diseases between people.

It is another object of the present invention to provide an automated health screening system, comprising:

one or more units with artificial intelligence algorithms;

one or more cameras;

a database;

a cloud server;

three or more sensors;

one or more booths; and

Radio-frequency identification (RFID) unit.

It is another object of the invention, wherein multiple units can be networked together in a single database.

It is another object of the invention to provide a screening system, wherein the booth/screening station will be convenient for the entry/exit of employees/customers/visitors.

It is another object of the invention is to provide an artificial intelligence model to check whether the customers/visitors or worker/employee is wearing the mask properly.

It is another object of the invention is to provide alert to the management if mask is not properly worn by customers/visitors or worker/employee.

It is another object of the invention, to provide a system to monitor the sanitization/sterilization process followed by the customers/visitors or employee before entering the station.

It is another object of the invention, wherein the employee identity information is collected through the RFID system.

It is another object of the invention, wherein the customers/visitors identity information is collected manually and updated through the user interface to the cloud database.

It is another object of the invention, wherein the customers/visitors identity is stored for contact tracing.

It is another object of the invention, wherein the booth/screening station is configured for interface to a cloud based architecture system.

It is another object of the invention, wherein the captured data is processed and the persons not affected by covid/affected by covid are indicated respectively by a green and a red LED light.

It is another object of the invention, wherein the system provides periodic health notifications to employees.

It is another object of the invention, wherein the screening system can be integrated to the existing security systems.

It is another object of the present invention, wherein the screening system is used at the entrances and exits of commercial and public venues like schools, colleges, offices, parks, beaches, and the like for monitoring the safety of employees and civilians.

It is another object of the present invention to provide a method of working of the automated health screening system, comprising:

entry of the person to the booth after being well sanitized and sterilized;

identification of the person using an identity card;

wherein the entry of each person data are monitored and stored in the database,

checking whether the person is wearing a mask or not using the camera;

wherein the officials are alerted, if the person is a regular employee in the establishment, his identity and attendance is collected using a Radio-frequency identification (RFID) RFID, and

wherein if the person is a customer or a person with no identity card, the identification (if necessary) is collected manually and updated to the cloud server via a simple user interface,

collection and detection of the health vitals of the person using the sensors;

wherein the vitals are body temperature, and blood oxygen saturation level (SpO2) and the like and these vitals are proven to be very helpful in determining one's effective health,

processing the vital data and determining if the person is safe to enter through or not; and

wherein the vital data is stored and can be used for that respective person's further analysis, and

wherein depending on the health determined, the person is either let through or held back for proper medical assistance and advice,

indicating the person whether to enter into building or not through LED lights,

wherein if they are permitted to enter, the light will shine green in color and if not, they will shine red, and

wherein the data is available for contact tracing and can be sent to the employees for their convenience.

BRIEF DESCRIPTION OF THE DRAWINGS

So that the manner in which the features, advantages and objects of the invention, as well as others which will become apparent, may be understood in more detail, more particular description of the invention briefly summarized above may be had by reference to the embodiment thereof which is illustrated in the appended drawings, which form a part of this specification. It is to be noted, however, that the drawings illustrate only a preferred embodiment of the invention and is therefore not to be

considered a limitation of the invention's scope as it may admit to other equally effective embodiments.

Figure 1: Schematically illustrates the flowchart of automatic screening system according to the present invention.

Benefits:

- Screening the person in a few seconds.
- More robust and efficient for all public or private places.
- IoT cloud database and regular health feedback system for workers.
- Easy tracking of customers/visitors whenever it is needed.
- Mask Detecting Artificial Intelligence model to check whether the person is wearing the mask properly or not and alerts the officials (security officer/In charge) if they aren't wearing the mask properly.
- Blood Oxygen Saturation Level added with body temperature easily screens people with COVID-19 or other abnormal symptoms.
- Can be easily integrated into existing security systems.
- Completely cloud based architecture.

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