Multi-tasking device to track covid-19 symptoms and emergency caller

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Abstract: The world is suffering from pandemic diseases called covid-19 which is caused by corona virus. Until the virus become stable, no vaccine can entirely cure the disease. Till then we have to take care of your health. Our device will analyse the body parameter values like heart rate, oxygen level, respiration rate and temperature of the body. All sensors fetch values from the body and send it to IOT platform. Telegram app and BLYNK app are some of the IOT platforms. BLYNK app is used at patient end and telegram app is used as a doctor end. Since the device can be fitted inside the mask, there is a infrared sensor attached to mouth part of the mask. There is a emergency button fitted in the device used as a emergency caller. This device can be used by pregnant people and people aged above 60 as a useful device. Risk prevention and self-health monitoring is provided.

Keywords: covid-19, corona virus, heart rate, BLYNK, telegram, respiration rate, temperature, emergency button.

I. INTRODUCTION

Multi-tasking device to track covid-19 symptoms is a device used to analyze the body parameter values instantly and can check the health condition immediately. When a person or a patient feeling that he/she needs medical treatment and is not in a condition of caller emergency or ambulance, by simply pressing the button in the device the emergency location is shared to medical staff so that the medical will reach the user or patient location immediately. During this pandemic many methods for health protections are implemented, one of the methods in our device is any patient or user should not remove the mask by the mouth part of the mask and should remove the mask from the ear part. An infrared sensor is placed in the mouth part of the mask, when a user tries to open the mask by its mouth part, it will produce a beep sound indicating health precaution.

II. METHODOLOGY

The block diagram of multitasking device is as shown in below figure and it is also known as the schematic representation of the whole model. Block diagram mainly implies the outer look of the model and also defines the flow of operation in the model. The direction of operation required because every model needs a perfect planning and construction. By looking at the block diagram the model working should be predictable and analysed also understanding.
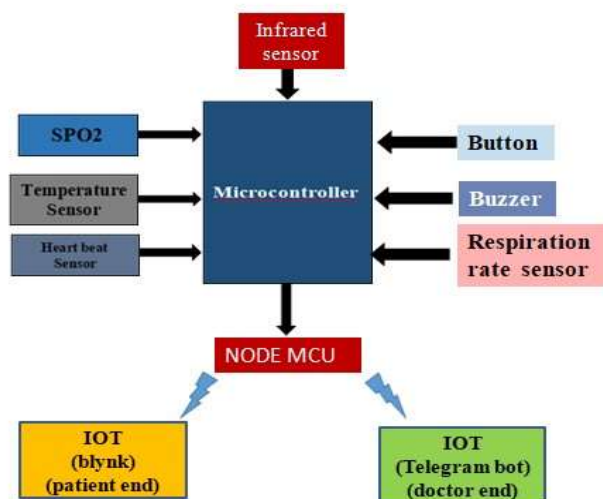

Figure 1: block diagram

III. COMPONENTS REQUIRED

Infrared sensor

This sensor will indicate if any object come near it, this sensor will be used in the mouth part of the mask in order to prevent the touching of hand with the mouth part of the mask. If hand touches it is connected with a buzzer which will give a beep sound.

Buzzer

Buzzer is a device used to produce a beep sound, if infrared sensor detects any obstacle buzzer will sound a beep.

Spo2 sensor

This sensor will detect the oxygen value when user finger placed in it.

Heart beat sensor

This sensor detects the heart rate when user finger placed on the sensor.

Respiration rate sensor

This sensor will detect the respiration rate from sound sensor, indicates the value in respective IOT platforms.

Temperature sensor

LM35 is a temperature sensor used to detects the temperature of the body when any part of the body came in contact with it.

Button

Button is a electronic switch which is used as an emergency caller. On pressing this button, an emergency location is sent to medical staff so that the ambulance can reach within time.

Arduino NANO

Arduino NANO is a microcontroller which have analog pins as inputs, since most of the used sensor are analog this microcontroller will be helpful to use.

Node MCU

Node MCU is a WIFI model used to connect sensor values with IOT platforms like BLYNK and telegram bot.

Blynk app

Blynk app is an IOT platform to analyze Arduino board values, node MCU will help to connect Arduino nano microcontroller with BLYNK IOT platform. Blynk app is used as patient end application in this model.

Telegram BOT

Telegram bot is a IOT platform which is created in telegram app, node MCU will help to connect Arduino nano board with telegram bot. telegram bot is used as doctors end or medical staff end.

Arduino IDE

Arduino IDE is a software used to write suitable programs to run Arduino nano and node MCU.

Embedded C

It is a programming language written in Arduino IDE software to control the actions of Arduino Nano microcontroller and node MCU WIFI model with IOT platforms like BLYNK and telegram bot.

IV. WORKING

All sensors are connected to the Arduino nano microcontroller and Arduino nano is connected to node MCU WIFI module. The sensed values from the sensor are shared with node MCU, the node MCU which acts as a channel between and Arduino nano and IOT platforms like BLYNK app and telegram bot. The sensor values like temperature sensor, heart rate sensor, respiration rate sensor and oxygen level sensor are analyzed in both BLYNK app and telegram bot. BLYNK app is used by user or patient to self-monitor the body parameter conditions. Telegram bot is used by medical staff end.

The main reason to use telegram bot at the medical staff end is to give the location when emergency button is triggered. Infrared sensor which is placed mouth part of the mask will trigger a buzzer when it senses an obstacle. In our model the BLYNK app is the user hand and telegram app are at the medical staff end.

V.   RESULT

Figure 2: Medical Staff end.

Figure 3: Patient end.

VI. CONCLUSION

Everyone no need to be doctor to take care of their health. The basic knowledge about health condition is enough to take care. Only in severe condition or emergency condition medical consultancy is needed. Our model will give provide the basic body parameters like temperature, oxygen level, heart rate etc. in case any user thinks or feels like he/she needs medical emergency then emergency button will be very helpful.

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