Corona smart watch – the reminder friend

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Abstract. The present world is attacked by covid-19 which has become a pandemic situation to all the people. The spread is increasing and have been attacked up to 50-60% of the individuals, due to not protecting themselves from affected persons and not practicing social distancing. In this paper it notifies the people to protect themselves by keeping social distancing using a sensor called ultrasonic. Using thermal camera which is fixed in the watch can detect the body temperature of the neighbour person which will be able to find the infected person. The person will be notified to sanitize their hands whenever they reach their home (specific destination) using geo fencing service. This wearable device alerts the individuals to protect them from the current covid-19 which has become a global pandemic.

Keywords: Covid-19, Virus detection, Social distance, Geofence

INTRODUCTION

In these hectic days, it is difficult to accept that it is unsafe to leave home. Hence most of our daily work gets affected. The reason behind all this controversy is nothing but a micron level virus called COVID 19. Corona virus is newly discovered virus, affects mostly the persons lungs. The people with problems like diabetes, respiratory disease and aged people are more likely to be affected with serious causes. The best way to prevent the seriousness of the disease is to avoid spreading. While spreading decreases, the rate of affected people also gradually decreases. In this pandemic situation it is required to leave home sometimes in need of household things. When we go out to satisfy our needs, we can’t always check whether we are maintaining social distance in crowded places like market, departmental store.

There are some activities to be followed when we leave home,

- Maintaining social distance.
- Aware of people with high temperature we face, when we go out.
- To get alerted with the updated corona virus cases in the places we go.
- To sanitize our self when we return home.

So, what we can do? There is a solution, whether someone should regularly monitor us and intimate the above things. Or else there should be some gadgets that do their role. Here, in our project we satisfy the 4 activity by introducing the smart watch system. Those always monitor us and give alert when we didn’t obey even any one of above-mentioned activity.
LITERATURE SURVEY

In the present 2020 the total world has been get gripped by a virus called corona virus called covid-19. Around 436,000 deaths occurred and 8 million people get affected by this dangerous virus. As the virus is spreading rapidly, several countries took several measures like public health measures to save ourselves or to prevent the spread of virus through practising social distancing. In the recent technologies smart watches play many applications which gather several features to promote health in the way of tracking heart rate, calorie-tracker and other physical activities. By researching many journal papers based on smart watch for covid-19 it only traces the heart rate, oxygen saturation level, and temperature to alert the person that he has corona positive. Besides, similar to traditional contact thermometers, they can only provide a snapshot of temperature change. The great solution to help tackles the covid-19 is the wearable technologies to sense and to monitor the health activities either at home or at any other places. It can be able to monitor several parameters such as heart rate, blood pressure, blood oxygen saturation etc that helps us to detect the state of our health [1]. Respiratory disease is one of the main symptoms for the covid-19.

So, using wearable technologies it measures oxygen saturation, which indicates the function of the respiratory system and lung sounds [2]. Monitoring respiratory rate is a vital measure for the progression of covid-19, the wearable technology monitors respiratory rate in three ways: 1) by measuring temperature, humidity, carbon-di-oxide parameters, it detects the respiratory airflow. 2) it detects the abdominal or chest movements, respiratory sound [3]. A wearable device which includes pressure, humidity, thermal, acoustic, acceleration sensors, and the respiratory rate can be detected [4]. Body temperature is also a vital sign for the virus. The wearable technology that continuously monitors and detects the temperature compared with the standard monitoring [5]. During this pandemic social distancing is vital role to be played by every citizen. So, to detect the person with fever at any public places, by using a camera based unobtrusive technology called infrared thermal camera will be a non-contact monitoring system that safeguards us from the infected person [6].

A wearable temperature monitor with its ability to perform continuous monitoring can potentially detect increases in body Temperature earlier than standard monitoring [8]. Without an effective vaccine or treatment available for COVID-19, contact tracing, quarantine and social distancing will continue to be the main measures to contain the pandemic [9] Mobile Health is a public health platform supported by mobiles devices, such as mobile phones, health monitoring devices like wearable, flexible and unobtrusive devices, personal digital assistants e.g., a tablet computer, and other wireless devices [10].

In our paper there is a slight difference that which doesn’t identify the symptoms in us but it keeps alerting us to prevent virus attack by using sensors and several features.

1. METHODOLOGY

The present world is attacked by covid-19 which has become a pandemic situation to all the people. Smart watches and other wearable devices are already used by tons of millions of users worldwide and measure many physiological parameters such as heart rate, skin temperature and sleep. The existing system is by using the smart watch they can find the symptoms related to corona virus.

The proposed system i.e., in our project the watch helps to prevent us from the disease by alerting. It is difficult to maintain social distance all the time. So, this gadget makes an initiative to alert us. By using ultrasonic sensor, we can maintain the social distance. When the person wears the watch it automatically starts sensing the other persons distance from him/her. If the distance is less
than the mentioned distance (e.g. 6 feet) it vibrates or sounds beep to alerts us, that we are not in safest distance from other people.

Then by using the temperature screening thermal camera, the radiation from the body of the opposite person can be detected. Usually, it detects the heat from the forehead and then estimates core body temperature. When it exceeds the normal body temperature it alerts us by a beep sound. By this we can identify whether the person is affected by fever.

When we enter the house, we are responsible to protect our family from such disease. So, there is a reminder based on time and location, which is offered by the well-known GOOGLE KEEP, which has an ability to make a reminder that plays a vital lifesaver for the present generation people. As smart watch is connected via Bluetooth to our smart phone, it becomes easy to get a reminder, based on our specified location. The target of our project is to limit or reduce the spreading of disease. This smart watch will act as a “REMINDER FRIEND” at all the times.

![Figure 1. World against corona](image1)

### 1.1 Ultrasonic sensor

In ultrasonic sensor, Transmitter transmits a sound wave, when the object is placed before the sensor (in front of T &R) The sound wave gets reflected from the object and receiver receives the sound wave. Here, in our project the sensor is placed in the watch as shown in the above figure2, minimum distance to get reflected is mentioned in the coding part. When the person wears the watch, it automatically starts sensing the other persons distance from him/her. If the distance is less than the
mentioned distance (e.g. 6 feet) it vibrates or sounds beep to alerts us, that we are not in safest distance from other people. Hence this setup helps us to maintain social distance

1.2 Thermal camera

A viral and bacterial infection such as corona virus spreads through the human contacts and airborne transmission. In our project the temperature screen infrared thermal imaging camera is fixed in the watch as shown in figure 3, which detects the body temperature which may indicate the presence of fever. By this we can identify the infected person we face in the places we go. It detects the corona virus related disease easily. The evaluation period takes less than a second. When it exceeds the normal body temperature it alerts us by a beep sound and thereby, we can limit the spreading of corona virus.

1.2.1 Benefits of thermal infrared fever screening

- Screening large number of people at a time.
- Display and detect the temperature elevation in real time
- Easy to set up and use
- Are able to store evidence
- Protect public health.

![Figure 3. Smart watch sensing temperature using thermal camera](image)

1.3 Google keep

It is hard to remember every little thing in this chaotic life. Most of the people forgets to sanitize their hands whenever they enter their house, so regarding such people, there is a reminder based on time and location as shown in figure 5, which is offered by the well-known GOOGLE KEEP, which has an ability to make a reminder that plays a vital lifesaver for the present generation people. As smartwatch is connected via Bluetooth to our smart phone, it becomes easy to get a reminder, based on our specified location. One of the great ways to keep track on our important notes and the location-based reminder, make use of the GOOGLE KEEP which will be a reminder friend all the time.
1.4 Block diagram

Figure 4. Symbol of google keeps

Figure 5. Setting time and place to be notified

Figure 6. Block diagram
2. **SCOPE OF THE PROJECT**

An electronic device that resembles but smarter than the wrist watch is called as smart watch that has specific functions and computed capabilities. They play several scopes in many fields like medical science, education, entertainment, business etc. But in this recent world of pandemic, the main scope of the smart watch is to keep themselves safe from the virus (covid-19). In this report the scope of the smart watch is to store the user’s data in cloud, tracking the user’s health and daily activities, and other features also can be added. We hope this report broadens you contemplate by the technical information that is provided and engrossment in wearable technologies.

2.1 **Advantage**

- The smart watch can easily find the infected person by using thermal camera technology that finds the body temperature of the nearby person and intimates the user to be alert.
- One of the main activities to be practiced by us in this pandemic is to keep social distancing with the neighboring person and this can be done by using ultrasonic sensor that tells us to practice social distance all the time whenever we are the place of crowd.
- The other advantage is that this watch reminds the user to sanitize their hands whenever they reach their house, which is also one of the vital activities to be practiced in this pandemic, by using Google keep service that acts as a reminder friend.

3. **CONCLUSION**

Most of the people in the world are affected by a virus called corona which has totally changed the world into a pandemic situation. The present necessity of the people is to predict the virus infected person and to pamper themselves from that infected person. The proposed schema detects the infected person and alerts us to maintain social distance by using thermal camera and ultrasonic sensor. Also, it alerts the people to sanitize their hands before entering into their house by using geo fence service to prevent from virus attacks.

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