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A Self Care Band Our Health Buddy

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ABSTRACT: Smart devices has made advancement which gave rise to smart watches which has increased popularity in technology market. Evolution of smart watches from their first generation till now has evolved with improvement in features and specifications. This all led to gaining popularity and acceptability due to its feature, design and usability. First generation watches were with few functions as compared to the latest one. The current smart watches can be used for many activities such as tracking, calling, footsteps measurements, calory count and much more. Even health parameters can be measured and tracked. Due to the current pandemic situation a public health emergency is declared by the WHO. This situation has made us realized that health is wealth and we need to keep eye on our health and take actions accordingly. Considering this covid scenario we have proposed a watch with many requirements.

KEYWORDS: Smart Watch, Covid-19, maintaining social distance, date and time, monitoring temperature and heart rate sanitization, keychain, information to cloud.

I. INTRODUCTION

COVID-19 has affected everyone's life badly. This pandemic has shown us tragic milestone of one million deaths and still many more counting. Even the human family is baring lot of intolerable loss burden. Looking towards the situation we all must come together and find a solution for this problem and make a barrier to stop this problem. So, we proposed a watch with the help of which we will be able to track the health conditions such as body temperature and heart rate of the respective user along with ultrasonic sensor to maintain social distancing. We are also providing sanitizer sprinkler attached itself to the watch so as to keep the user's hands germ-free and hence there is no need to carry sanitizer separately. There will be small keychain also to avoid direct contact with other things while doing your work and every-time it will remind you of not touching the surfaces unnecessarily. Hence it will help us to take all the possible precautions against the corona virus.

Paper is organized as follows. Section II describes the related work and analysis of them and thus we selected set of selection or rejection criteria. The operation of each component used and their role in functioning the system is given in Section III. Section IV presents experimental results showing results of simulation of proposed system. Finally, Section V presents conclusion.

II. RELATED WORK

First digital watch was invented in the year 1972 and then later the improvements in the watch in its features and specification took place and it is going on. [1] This is wearable sensing framework for human activity monitoring in these activities were monitored but no record of it nor any actions lined up if critical situation arise. Thus, this device is used just for monitoring purpose. [2] This is a smart watch-based body temperature authentication. Here the temperature of the user is monitored. Thus, only temperature is monitored in this proposed smart watch. There's lack of other sensors and activity monitoring feature which are equally important in this current situation. [3] This IoT based smart health monitoring system is a health monitoring system. This device is not wearable since bulky devices are used which cannot be carried as a watch. This device is again limited to health monitoring other useful features such as distance maintain, sanitization, contact breaker which are important in this covid situation are missing. [4] Here we have Arduino based smart watch which has heart rate sensor. It consists of Bluetooth module for communication between



the devices.[5] This article is based on the covid 19 which describes its causes, and precautions to be taken against it. Thus, this article gives a brief idea about covid.

The work in this paper is divided in two stages. 1) Monitoring all parameters 2) Actions to take on them. Firstly, the sensors will sense all the parameters and display it on mobile phone and watch. Some usual tasks such as timer, specific alarms of sanitizing hands, maintaining distance will be alerted. Simultaneously the data is monitored if the value exceeds critical or threshold value then actions are taken such as alerting the user and alerting the near ones or hospital as well. In this fashion the system will work.

III. METHODOLOGY

The major advantage of this system is, by self-analyzing one can prevent himself from getting into the cure even having the record of some minor but important task such as sanitization and maintaining social distance. *Temperature monitoring* is one of the necessary parameters while considering the health. This parameter can be measured by using the temperature sensor which is connected with Arduino the temperature readings are being noted and observed. If in case there's any critical record observed it will be notified to the person.

Pulse rate monitoring is one of the important parameters while considering Covid. This parameter may drastically affect the persons health. Thus, using pulse monitoring system heart beats of the person is monitored and it also gives acknowledgement to person time to time.

Social distance maintaining is being consider as a safety parameter now a days thus if person is in busy environment, he/she will be notified to maintain distance from others. This is all being done by using ultrasonic sensor.

Sanitization is required to keep our hands germs free. Thus, instead of carrying separate bottle it's been included in the band itself so this sanitizer is always carried by the person without fail.

Keychain is also included in the design which will help us to prevent direct contact with the objects or things which we will be touching.

The data collected through all the sensors is given to Arduino and analysed and displayed via oled so that the user can know his/her real time health parameters and daily requirements like date and time. The data is also sent to the respective mobile phones which are connected over cloud. The user also gets reminded of sanitising the hand on time to time and avoid touching the things with the help of keychain.

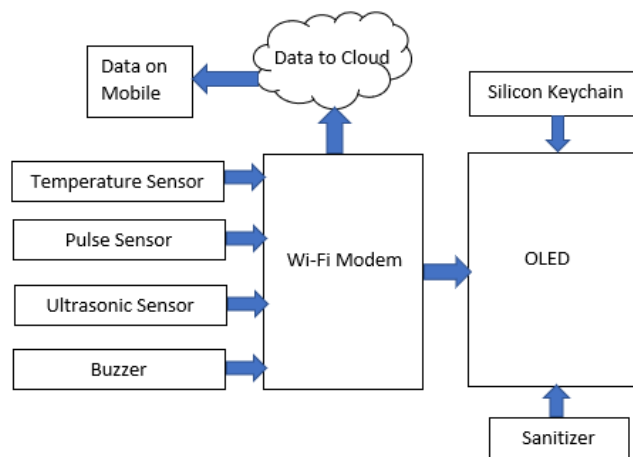


Fig. 1. Block diagram of the proposed system.

IV. EXPERIMENTAL RESULTS

The simulation includes the design of the whole system minutely. This simulation can be used as it is for the implementation. By implementing this system, we can design a self-care band which includes health parameter as well as some safety measures which will be monitored and notified to person time to time to have precaution in all, terms. Implementing the following system with customized size of component will result into a smart band which will fulfil all the objectives of health monitoring and additional parameters for precautions.

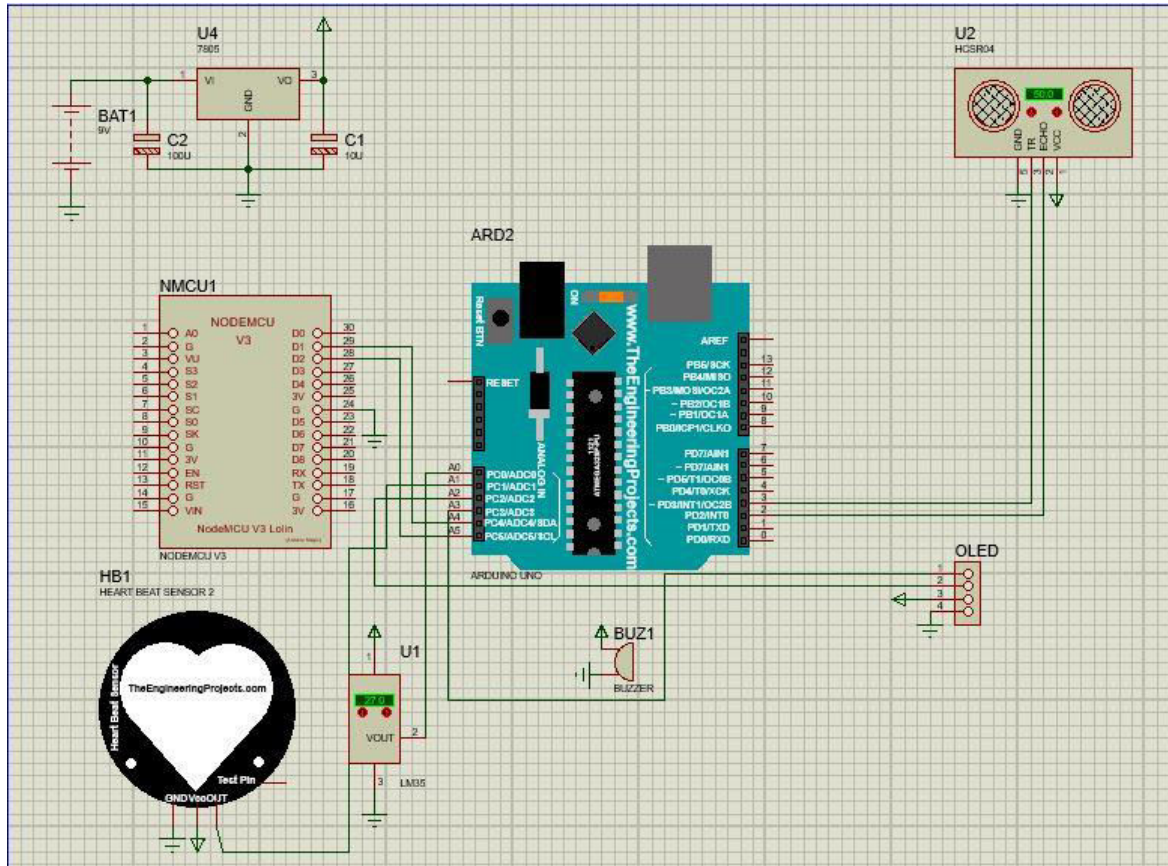


Fig. 2. Simulation of the proposed system.

V. CONCLUSION

This device will come out as a solution for personal care even for the covid patients and the normal person as well. It should notify the social distance alarm, spray sanitizer in specific duration, help people to avoid touching their face to avoid any bacteria attack. Along with this it should monitor the health of the patient. It should notify family members and hospital for quick service. This device should be wearable as a band or the watch. People should feel safe and confident while wearing this band. In all this watch should be smart enough and help taking care of the person and help in critical situation if at all.

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