IOT BASED SOCIAL DISTANCE MONITORING SYSTEM FOR COVID -19 SAFETY

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ABSTRACT:

With the growth of COVID-19 confirmed cases ,the u . s . maintains to place into impact tighter precautionary measures mainly with the re-beginning of company and government establishments in areas beneathneath General Community Quarantine. This paper proposes an automatic social distancing and body temperature detection sensor that uses ultrasonic, and infrared thermometer sensors to maximize overall performance and restriction cost. The ultrasonic sensor and coronary coronary heart beat sensor are coupled with a buzzer to show and maintain the social Keep your distance from the individual coming into the door. An automated non-touch frame temperature measurement system is installed at the end of the entrance to check people's body temperature before they finally enter the area. When the sensed body temperature is higher than the normal value, the buzzer will sound to notify the guard that the immediate action of the Arduino Uno will trigger the sensor and buzzer.

I.INTRODUCTION

As the world battles with the effect of COVID-19, organizations and governments are looking for approaches to securely restart worldwide trade and nearby economies to relieve the monetary effect of the infection. This will affect many individuals getting back to their work environments. Be that as it may, with progressing COVID-19 flare-ups and the danger of a subsequent wave actually present, the need to keep noticing social separating and contact following will be a significant component in any arrangement for the safe resuming of organizations and functional offices.

In numerous workplaces, industrial facilities, and different working environments, where individuals should be versatile to complete their work exercises, keeping a safe actual separation turns into a unique issue in light of the fact that the vicinity between laborers is continually evolving. A few laborers will move quicker than others, and regular traffic bottlenecks will happen inside work environments that lead to nearer levels of actual vicinity than others. Indeed, even the hour of day will turn out to be more applicable with regards to keeping suggested separations between collaborators and guests and following those contacts that do occur.

For most business pioneers, these contemplations are essentially new. While structures are intended to help a consistent progression of individuals, not many draftsmen might have imagined the requirement for a low thickness of traffic in common regions, doorways and ways out, halls, or other open spaces. The structure, despite how shrewd it could be, is probably not going to give the fundamental innovation to help social removing. It tumbles to new answers for give the appropriate response.

Today, the term "new normal" is used to describe the preventive measures that society must take to limit or prevent the threat of infectious diseases such as COVID19. Many scientists believe that at some point in the future, another virus is about to break out; no one can say with certainty how severe or widespread it may be Therefore, is to have precautionary measures geared up for deployment. For viruses that assault the breathing system, inclusive of COVID-19, preserving a bodily distance is an powerful manner of stopping its unfold, and make contact

with tracing is an powerful manner of containing the unfold after figuring out an outbreak.

Social distancing is a generally non-obtrusive measure that looks to forestall transmission of the airborne infection by keeping a set separation between and among individuals. While utilizing mystery to keep up with social distancing is conceivable in casual circumstances, utilizing innovation to execute severe social distancing is the favored technique in a bustling work environment. It gives a robotized "consistently on" framework that ensures all specialists while staying as subtle as conceivable to the client.

II.EXISTING SYSTEM

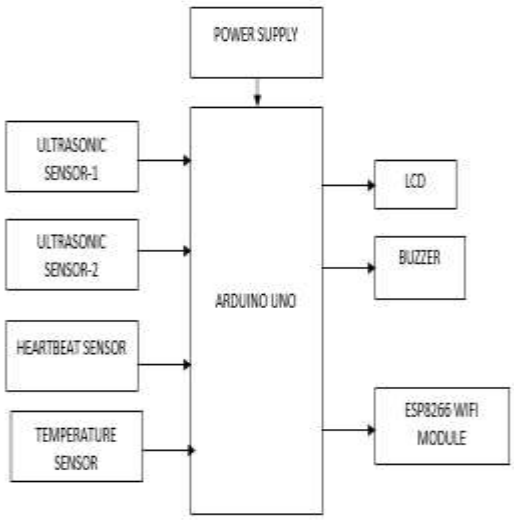
In present machine touch primarily based totally frame temperature sensor with NodeMCU and their facts have been saved withinside the Cloud thereafter. While using LM35 is costeffective, its direct touch sensing function makes it a probable medium for virus contagion while used for mass frame temperature monitoring.

Moreover, social distancing devices are to be had withinside the marketplace to assist save you the unfold of the COVID19 virus. However, regardless of the effectiveness of those social distancing devices, the price of buying such devices in step with character might be a burden.

III.PROPOSED SYSTEM:

In this system, we're imposing Arduino Based social distance keeping project. Here we're the usage of Arduino UNO, coronary heart beat sensor, Ultrasonic sensor, Temperature sensor and Buzzer. Ultrasonic Sensor is used to hold social distance and Temperature sensor is used to locate temperature of the person. All those sensors are coordinated with Arduino UNO and any of the sensors detects abnormality buzzer will make sound and the facts might be up to date withinside the net web page through the usage of WIFI module.

BLOCK DIAGRAM:



IV.HARDWARE DESCRIPTION:

A.ARDUINO UNO:

Arduino Uno is an open supply microcontroller card problem to the Microchip ATmega328P microcontroller made via way of means of the association. The card is provided with reducing facet and primary information/yield (I/O) pin social events, which may be associated with numerous development cards (defend) and numerous circuits. It has 14 stepped forward I/O pins (six with PWM yield work), 6 primary I/O sticks, and may be modified with Arduino IDE (Integrated Development Environment) thru USB Type B cable.It may be fueled via way of means of a USB interface or an outside 9-volt battery, regardless of the manner that it could understand voltages a few location withinside the scope of seven and 20 volts. It resembles Arduino Nano and Leonardo. The tools reference setup has been accredited additionally as Creative Commons Attribution 2.five license. It is probably discovered at the Arduino site. Plan and assembling files are moreover reachable for

a few system adaptations.

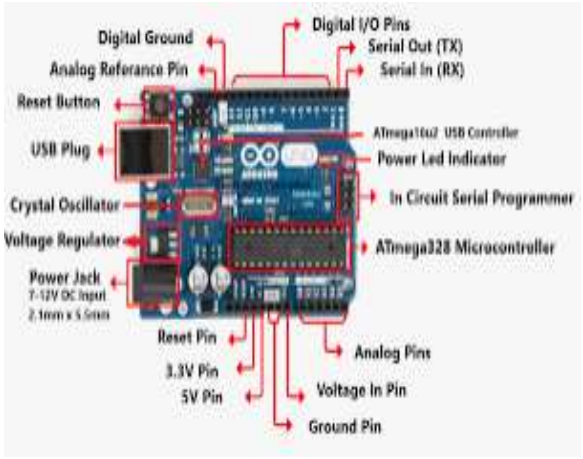


Fig 1: Hardware component Aurdinouno

B.NODE MCU

The NodeMCU ESP8266 improvement board comes with the ESP-12E module containing ESP8266 chip having TensilicaXtensa 32-bit LX106 RISC microprocessor. This microprocessor helps RTOS and operates at 80MHz to one hundred sixty MHz adjustable clock frequency. NodeMCU has 128 KB RAM and 4MB of Flash reminiscence to shop information and programs. Its excessive processing electricity with in-constructed Wi-Fi / Bluetooth and Deep Sleep Operating functions make it perfect for IoT projects.

Fig 2:Node MCU

C.Ultrasonic sensor

An ultrasonic sensor is an digital tool that measures the gap of a goal item with the aid of using emitting ultrasonic sound waves, and converts the contemplated sound into an electrical signal. Ultrasonic waves journey quicker than the rate of audible sound (i.e. the sound that people can hear). Ultrasonic sensors have important components: the transmitter (which emits the sound the use of piezoelectric crystals) and the receiver (which encounters the sound after it has travelled to and from the goal).

Fig 3: Ultrasonic sensor

V.RESULTS:

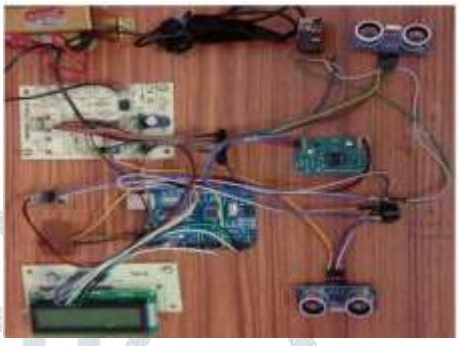


Figure 4. - Experimenting set up for Social Distance monitoring system

Figure 5. To measure the social distance between two Persons

Figure 6 : Body Temperature of a person measured in Degree Celsius

Figure 7 : Pulse Rate of a person in BPM

VI.CONCLUSION:

Hence, it is able to be concluded that social distance tracking machine the use of ARDUINO UNO Board become implemented. The outcomes of the 3 parametersof social distance tracking machine are demonstrated that the machine carried out the reliability and feasibility of the use of for the real tracking purposes. The

temperature of someone might also additionally range from 37 to forty eight diploma Celsius relying on the velocity of the ambient temperature cycles. The time c language of tracking may be modified relying at the need, The proposed machine will defensive The fitness of someone with the aid of using measuring the social distance among persons. An powerful method to make sure COVID-19 protection compliance is provided on this work. The device is based on open supply software program and extensively to be had sensors to make a low price and clean to configure and personalize set up.

Future Scope :

The machine is presently confined to test distance violation handiest withinside the targeted area.Future efforts can be targeted to extend the detection for the whole ground area, touch tracing.The machine may be prolonged without problems with minimum time and is fast adaptable to exclusive situation

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