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Social Distancing Alarm Using Arduino

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ABSTRACT:As you know, in this pandemic situation we have to keep social distance to fight against COVID 19. So, we thought why not make such a gadget to track social distancing even more. In this article, we will make a social distancing alarm using Arduino. You can also call it a social distancing alarm. This project created aims to help reduce the potential spread of the disease by utilizing an ultrasonic distance sensor. The sensor measures the distance between itself and the object in front of it, whether it be an object or a person. If something comes within 1.5m of the sensor, a buzzer sounds, and an LED lights up, therefore signaling that someone or something is within the range of social distancing.

KEYWORDS: Arduino UNO, Motion, Ultrasonic sensor, LCD.

I. INTRODUCTION

Today in this pandemic situation social distance has been one of the major issues. So, avoid these issues we have to introduce the concept of social distancing alarm by using Arduino Uno, Ultrasonic sensor, BUZZER, and LED lights up.

1.1 OBJECTIVES:

The main objective of the study is to solve the social distance problem in cities. The other objective given below.

- Reduce the spread of the deadly disease.
- To keep distance 1.5m from other person.

1.2 CONCEPT:

If something comes within 1.5m of the sensor, a buzzer sounds, and an LED lights up, therefore signaling that someone or something is within the range of social distancing.

1.3 DISTANCE MEASUREMENT:

An ultrasonic sensor is a device that is used to detect if something comes within range it will be notified and a buzzer will be sound and LED will light up.

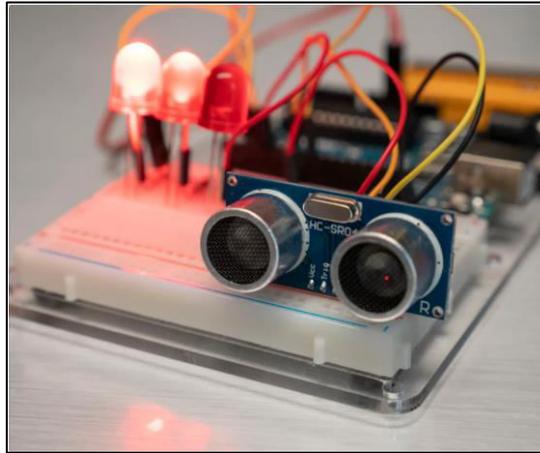


Fig-1: Ultrasonic Sensor mechanism

II. LITERATURE REVIEW

a) **Aichun, Tian, and Qiao**: proposed a deep hierarchical model for multiple human upper body detection. Face detection, pedestrian, detection, activity recognition, medical imaging, etc. This paper has extended the role of object detection to reduce the vivid spread of COVID-19.

III. METHODOLOGY

Since, our concept is based on the social distance system we use the basic of distance measurement and its principles.

Principle of social distance: It is based on maintaining a **distance** from another spread of infectious diseases of COVID-19.

How to Maintain Distance: since a rise of coronavirus cases has been reported in the India and in countries across the world.



Fig-2 How to maintain distance

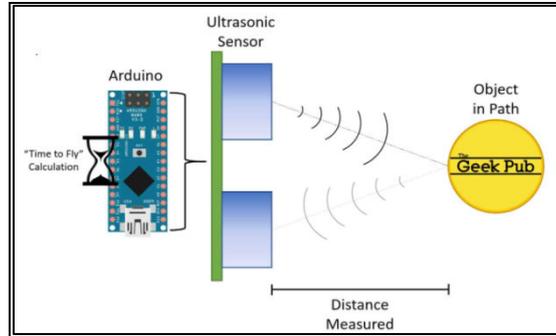


Fig-3 Principle of social distance

Working of Social Distance: Consider fig-3

- The sensor works by emitting an ultrasound at 40,000 Hz from the transmitter cone.
- This sound is outside that of human hearing which is why you don't hear anything.
- When the sound makes contact with an object it will bounce back towards the sensor and is captured by the receiver cone.
- Since we know the speed of sound, it's an easy calculation to determine the distance between the sensor and the object in its path.
- The speed of sound is 767 miles per hour (or 343 meters per second). We need to account for the travel time twice, due to the sound traveling from the sensor to the object, and then back again.
- **Mathematically calculation:**
(In centimetres): $Distance = Duration \text{ in Microseconds} \times (0.034/2)$. This is what we call the "Time to Fly calculation".

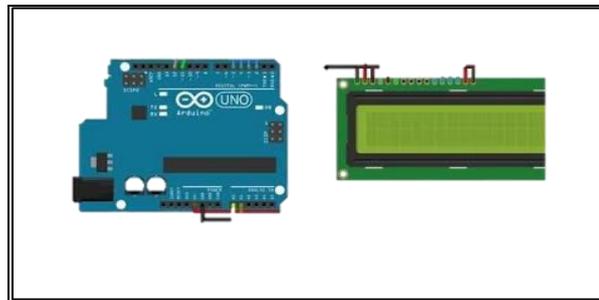


Fig-4 Conceptual design of distance measurement

Demonstration of social distance actual in environment:



Fig-5 Demonstration of social distance actual in environment

- If someone in your household is infected, people in the household should take precautions including wearing masks to avoid spreads to others.



- Avoid close contact with people who are sick.
- Stay 6 feet away from others.

IV. FUTURE SCOPES

There are many future scopes of our project like we can modify it with AI Technology or we can add covid19 detector in it which can detect the corona positive people.

Offices and factories are being required to create an environment in which social distancing between workers and safe work practices are ensured

V. CONCLUSIONS

The ongoing COVID 19 pandemics have literally put our world to a standstill. However, in order to prevent the community, spread, the need for social distancing is absolutely necessary and important.

ACKNOWLEDGEMENT

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4. **Aichun, Tian, and Qiao:** This paper has extended the role of object detection to reduce the vivid spread of COVID-19.

BIOGRAPHY



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