TOUCHLESS DOOR BELL FOR POST-COVID

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Abstract
Covid-19 has created a havoc in people. It is increasing day by day throughout the world. As it is been said "prevention is better than cure",we need to search for prevention methods. We can prevent corona by following some of the preventive methods such as social distancing, avoiding surface contact, washing hands frequently and wearing mask. But we can not avoid some emergency visits to some homes, in that case we have to ring the doorbell of the owner to intimate him about our visit. Doorbells are one of the surfaces which are touched by number of people, this can be a hotspot for spreading of virus.This can be avoide by using this touchless doorbell. By using this touchless doorbell, we can avoid surface contact. By using an ultrasonic sensor and Arduino uno we can make the normal doorbel as touchfree. As it is touchless we just have to put our hand in front of the sensor then the buzzer rings to intimate the owner of the house.

INTRODUCTION

At present corona virus is the biggest havoc for our lives. We have to be careful at every moment. Though there are vaccines and medicine we have to take our preventive measures. Avoiding surface contact is one such a preventive measure. Touchless doorbell can make a doorbell touch free so that we can avoid corona to some extent. By using ultrasonic sensor, Arduino uno and buzzer we can make a simple circuit which can detect the person and gives intimation to the owner of the house, without touching the doorbell.

RESEARCH METHODOLOGY

In proposed system we are implementing Arduino based touchless doorbell. In this system we are using ultrasonic sensor to detect a person or object by the distance. Ultrasonic sensors emit short, high frequency sound pulses at regular intervals. Whenever a person or object comes in front of the doorbell then they are reflected back as echo signals to the sensor, which itself computes the distance based on the time taken for emitting and receiving the echo. Then the buzzer will blow
BLOCK DIAGRAM:

ARDUINO UNO:

The Arduino Uno is an open source microcontroller card that is based on the Microchip ATmega328P microprocessor. The card is outfitted with advanced and simple info/yield (I/O) pin gatherings, which can be associated with different development cards (safeguard) and different circuits. It has 14 advanced I/O pins (six with PWM yield work), 6 simple I/O sticks, and can be modified with Arduino

IDE (Integrated Development Environment) through USB Type B cable. Despite the fact that it can accept voltages between 7 and 20 volts, it can be powered by a USB link or an external 9-volt battery. It's similar to the Arduino Nano and Leonardo. The equipment reference configuration has been authorized similarly as Creative Commons Attribution 2.5 permit. It very well may be found on the Arduino site. Plan and assembling documents are additionally accessible for some equipment adaptations.
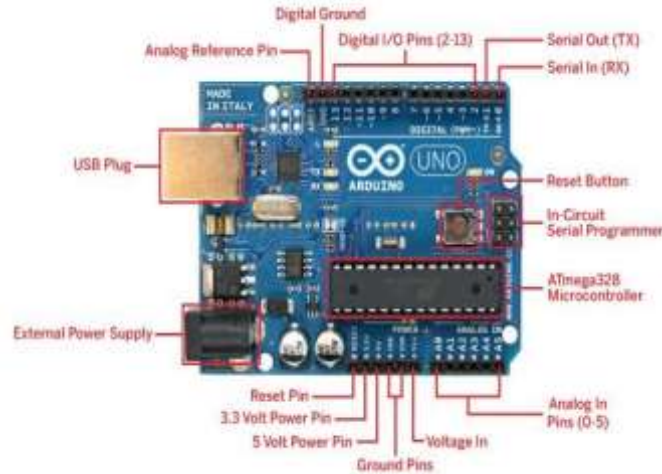
ULTRASONIC SENSOR:

Ultrasonic sensors are used primarily as proximity sensors. An ultrasonic sensor is an electronic device that uses ultrasonic sound waves to determine distance between a target item and convert the reflected sound into an electrical signal. Ultrasonic waves travel quicker than audible sound waves. The transmitter (which emits sound using piezoelectric crystals) and the receiver are the two primary components of ultrasonic sensors (which encounters the sound after it has travelled to and from the target).

At regular intervals, ultrasonic sensors emit high-frequency sound pulses. If they collide with an object, they are reflected back to the sensor as echo signals, which the sensor uses to calculate the distance between the target and the sensor based on the time it takes to emit and receive the echo.
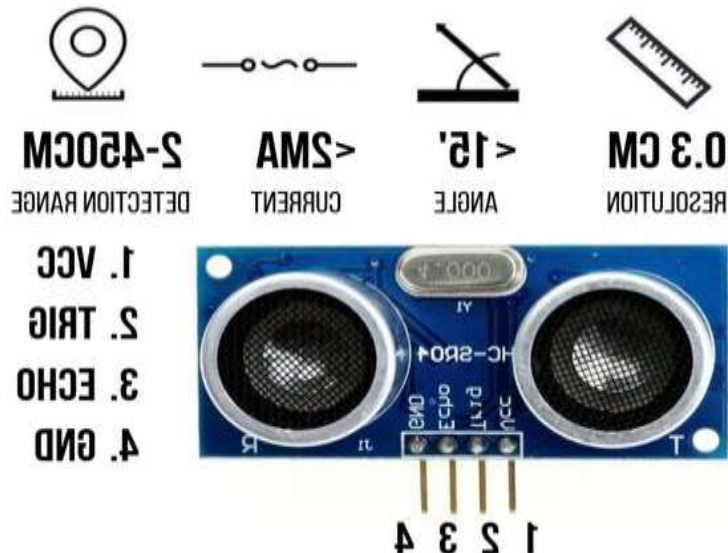
FINDING AND DISCUSSION

This touchless doorbell is very effective and reliable. This is very helpful especially in this corona time. It helps in avoiding surface contact which in turn reduces outbreak of corona. It is not only useful only in corona time but also useful when our both hands are in used and also for some physically handicapped persons.
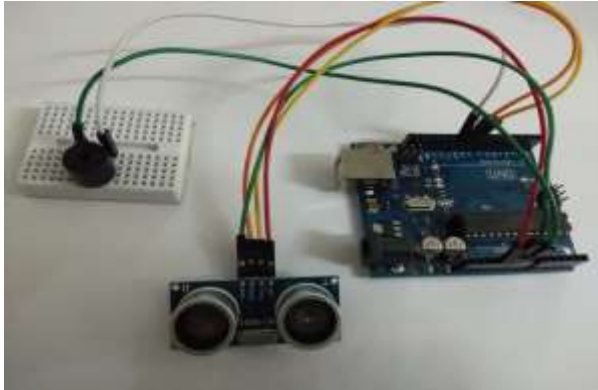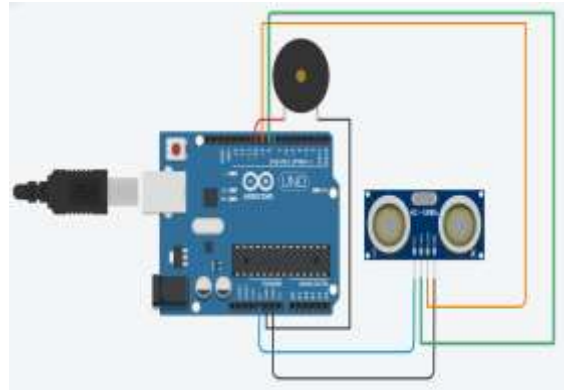
Fig3 : Connection Diagram   Fig-4:Hardware implementation

CONCLUSION AND FURTHER RESEARCH

This will prevent surface contact and also help persons without hands. This can be further extended to detect the temperature. This will help in reducing the manpower to check the temperature. This can be further improved to detect the faces of the persons standing at the door, so that the owner can identify the person who is standing at the door without opening the door. This can increase safety measures.

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