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**REG:21RP09373**

**STREAM:B**

***PROJECT NAME:STICK FOR BLIND PERSON***

**Materials Tools**

-Arduino UNO -Multimeter

-Led diode -Soldering Paste

-Ultrasonic sensor -DIY tool kit

-DC Buzzer -Hot glue gu

- Jumper wire

-Screw drive



**Circuit diagram:brind stick person**

***Arduino code***

int trigPin = 9;

int echoPin = 10;

int buzzer = 11;

int ledPin = 13;

void setup() {

pinMode(trigPin, OUTPUT);

pinMode(echoPin, INPUT);

pinMode(buzzer, OUTPUT);

pinMode(ledPin, OUTPUT);

Serial.begin(9600);

}

void loop() {

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);

distance = duration \* 0.034 / 2;

safetyDistance = distance;

if (safetyDistance <= 5) {

digitalWrite(buzzer, HIGH);

digitalWrite(ledPin, HIGH);

}

else {

digitalWrite(buzzer, LOW);

digitalWrite(ledPin, LOW);

}

Serial.print("Distance: ");

Serial.println(distance);

}

***Working***

The main objective of this project is to help blind people to walk with ease and to be warned whenever their walking path is obstructed by obstacles.

As a warning signal via buzzer, whose frequency of beep changes according to the distance of the object.

The closer the distance of obstruction, the more will be the buzzer beep frequency. The main component used for this device is the Ultrasonic Sensor .

The ultrasonic sensor transmits a high frequency sound pulse and then calculates the time to receive the signal of the sound echo to reflect back.

Ultrasonic sensor has a transmitter & receiver surface. One of them acts as the transmitter and transmits the ultrasonic waves.

The other one acts as a receiver aREnd receives the echoed sound signal.

The sensor is calibrated according to the speed of the sound in air.

The speed of sound is 341 meters per second in the air, and the distance between the sensor and object is equal to time multiplied by the speed of sound divided by two

Distance = (Time \* Speed Of Sound) ÷ 2

After the distance measurement, Arduino makes a beep format using a buzzer, when the distance is high, the frequency of beep is decreased and beep frequency is increased when the distance is low.