Blind Stick

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The Cause-

This project "The Blind Stick" is made with the aim of helping the 235 million people of which 36 million people are blind and others are visually impaired…
95% of visually impaired people collide with obstacles while walking along a road....
Several accidents each year because of hitting cars or even some tiny little object which makes them trip over in the most unlikely and dangerous places leading to Serious Injuries or even death…

When we inspected further, we found it fascinating that this tiny problem which is causing a huge loss has a tiny innovative solution…to save millions of lives every year…

In the project we have used an ultrasonic sensor (HC_SR04), Buzzer, Arduino, some jumper wires and with some coding magic we had our stick ready!

The stick's ultrasonic sensor emits ultrasonic sounds to detect any object In the radius of 30 cm and then produce a shrill sound to inform the person using the stick…the closer the object is the shriller and louder and quicker the sound of the buzzer gets…

*The Project is not theoretical and we have already made the project hence its proved practical

Materials Required are-

| Arduino	One(1)
Buzzer	**one(1)**
Ultrasonic sensor	**one(1)**
12 volt Battery	**One (1)**
Jumper wires	**Five to ten (5-10)**
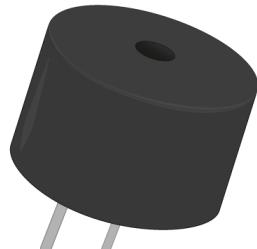
Blind Stick by Dhairya Tiwari an
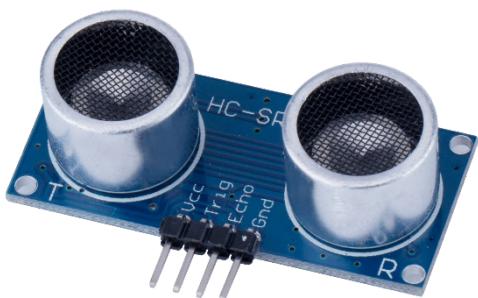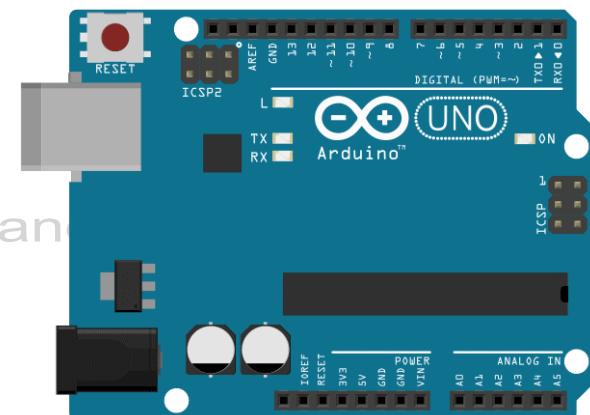
Circuit Diagram-
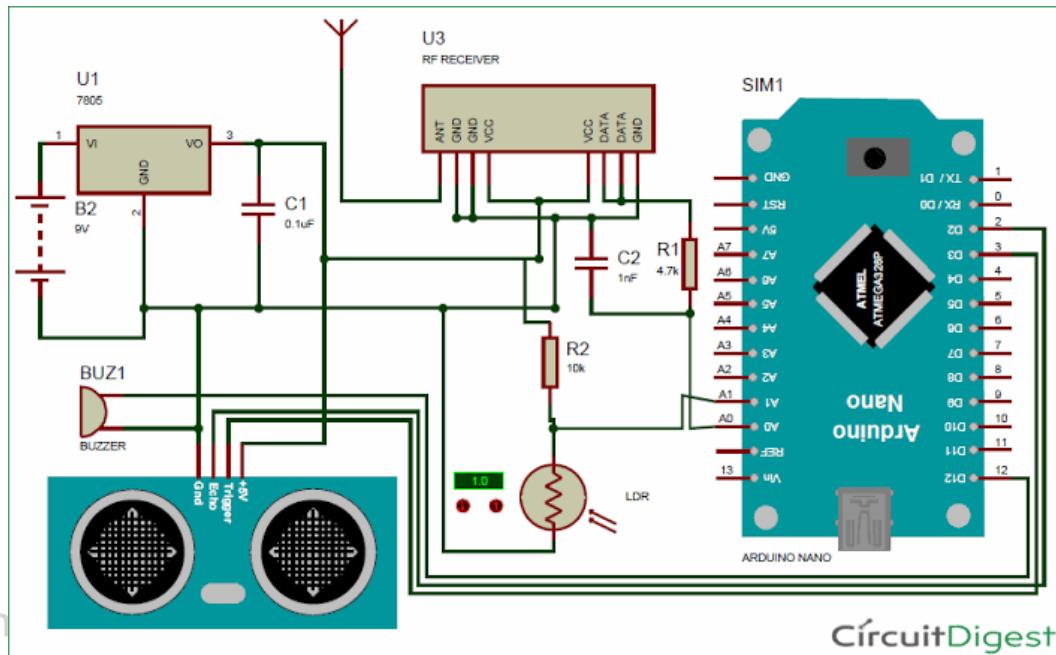
Coding Part of the Project
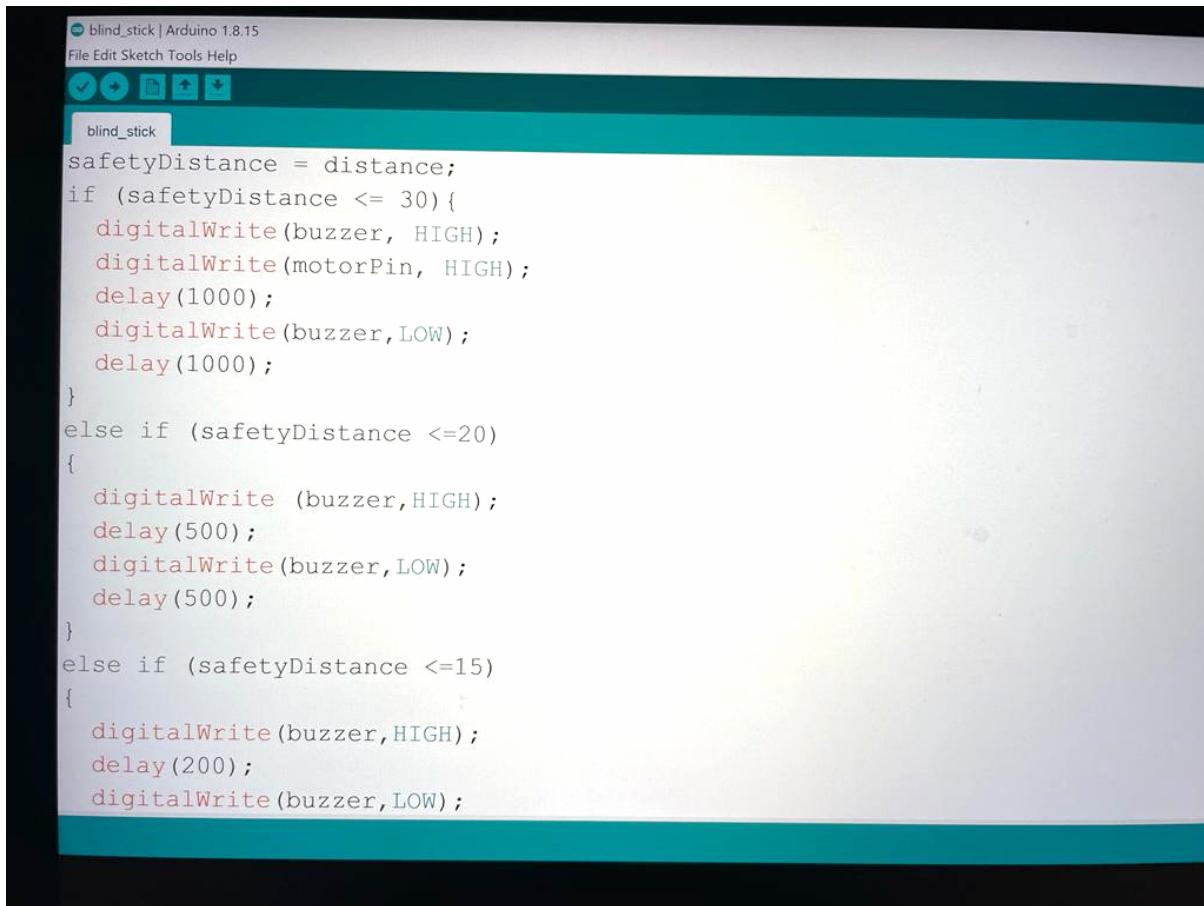
```
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File Edit Sketch Tools Help

blind_stick

safetyDistance = distance;
if (safetyDistance <= 30){
  digitalWrite(buzzer, HIGH);
  digitalWrite(motorPin, HIGH);
  delay(1000);
  digitalWrite(buzzer,LOW);
  delay(1000);
}
else if (safetyDistance <=20)
{
  digitalWrite (buzzer,HIGH);
  delay(500);
  digitalWrite(buzzer,LOW);
  delay(500);
}
else if (safetyDistance <=15)
{
  digitalWrite(buzzer,HIGH);
  delay(200);
  digitalWrite(buzzer,LOW);
```

blind_stick | Arduino 1.8.15
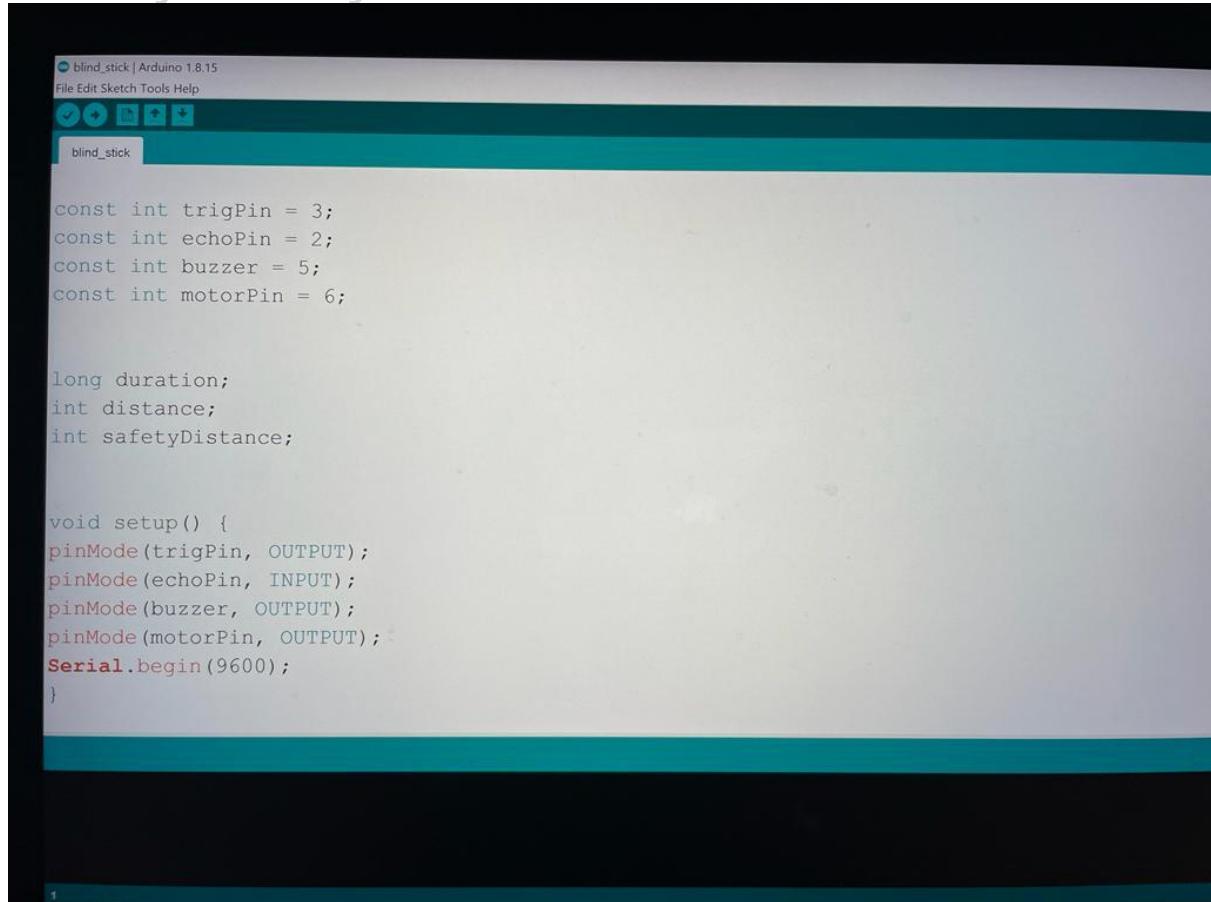
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blind_stick

```
const int trigPin = 3;
const int echoPin = 2;
const int buzzer = 5;
const int motorPin = 6;


long duration;
int distance;
int safetyDistance;


void setup() {
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
pinMode(buzzer, OUTPUT);
pinMode(motorPin, OUTPUT);
Serial.begin(9600);
}
```
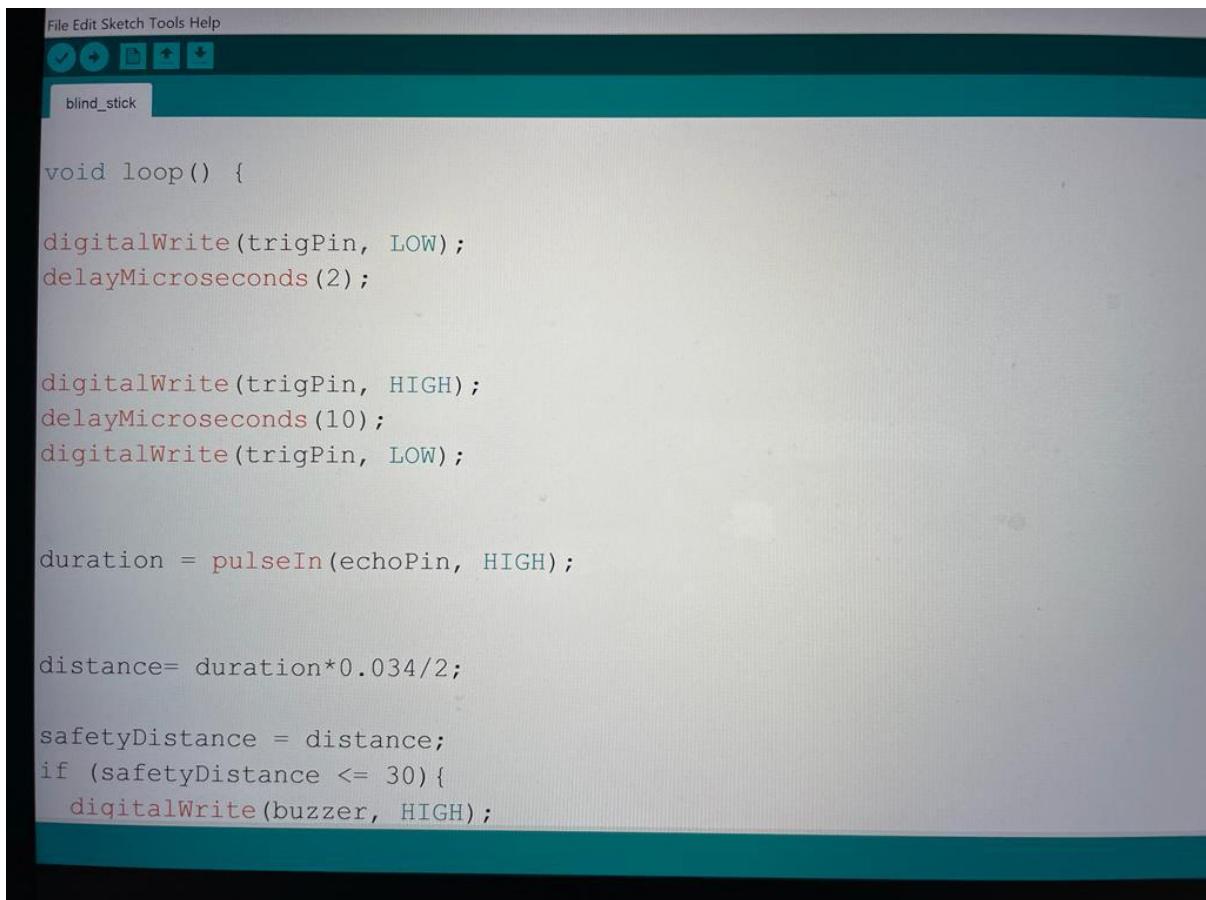
blind_stick

```
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 <= 30){
   digitalWrite(buzzer, HIGH);
```

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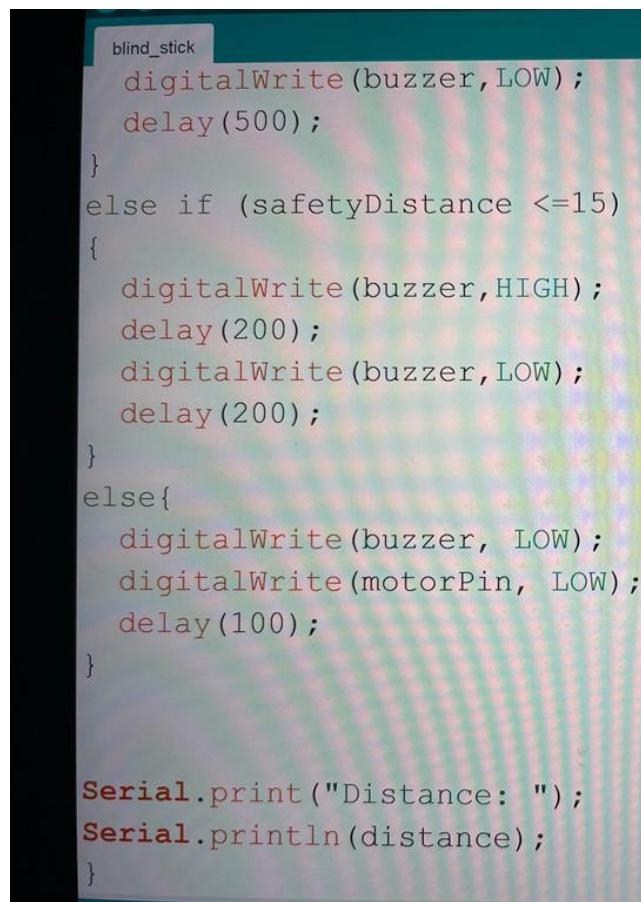
blind_stick

```
   digitalWrite(buzzer,LOW);
   delay(500);
}
else if (safetyDistance <=15)
{
   digitalWrite(buzzer,HIGH);
   delay(200);
   digitalWrite(buzzer,LOW);
   delay(200);
}
else{
   digitalWrite(buzzer, LOW);
   digitalWrite(motorPin, LOW);
   delay(100);
}


Serial.print("Distance: ");
Serial.println(distance);
}
```

Observation-
We observe that if anything in front of the stick in the radius of 30cm and less the ultrasonic sensor detects it and sends signal to Arduino and the Arduino according to the code makes the buzzer buzz… we also observe that the buzzer's sound depends upon the distance of the object from the stick if it's closer then the buzzer buzzes louder and vica versa.

Results

This results in the formation of an efficient and cost friendly solution to the issue discussed earlier… This project can result in reducing the accidents of the blind people and also result in providing the blinds a better and convenient lifestyle. It can also help the blind to feel included in society…

FAQ's

Will other sound frequencies in day-to-day life affect the working of the stick?
Ans- NO! it won't affect the overall working of the project as the ultrasonic sensor produces sounds of more than 2000 Hz and those sounds have way higher frequency than normal day-to-day life sounds…ye sit may cause a few variations but overall, the project will work fine…

External noise is distinguished from the desired target echoes and generally does not cause malfunctions. If the source of disturbance has the same frequency as the ultrasonic sensor, the level of the external noise must not exceed the level of the target echoes. Only ultrasonic noise can possibly interfere and those noises are not very common in our day-to-day life….

What can be a factor that can affect the working of the model?
Ans- One possible condition can be the air currents which might cause some inaccuracy but the people using the stick will still hear the buzzer….

Conclusion-

The Project is not about the stick it's about the idea behind the stick the mechanism that we have built can be easily used in different places in different ways…yes like every other project our project has its own flaws too but what makes our project special is the simplicity and practicality what makes it special is how the idea is not rigid but completely flexible.

The model can be easily changed and made better shortly…if needed

Thanking you for your time-

Students-

Dhairya Tiwari (9E)

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THE MESSAGE FOR AGE CONFIRMATION

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