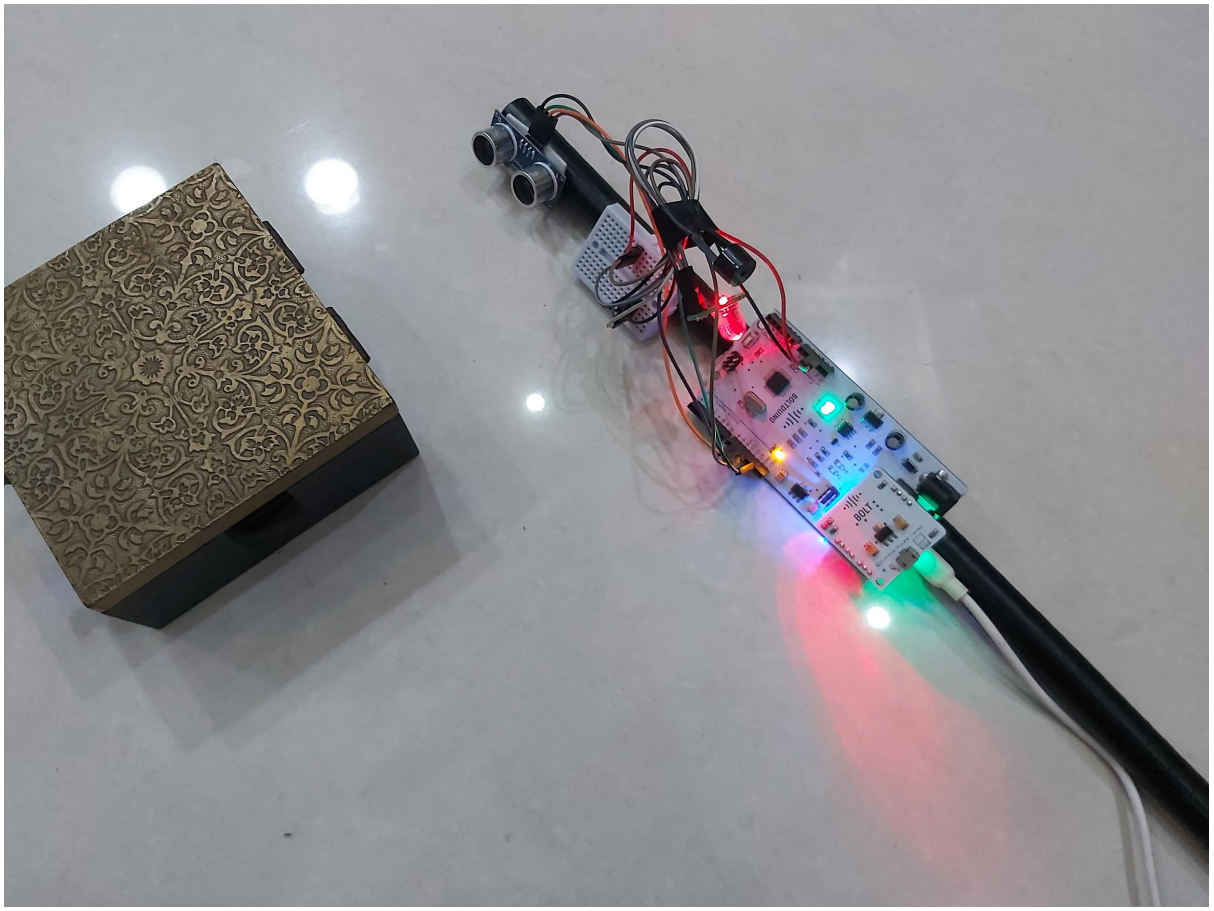
Assistive Stick



Embedded assistive stick for visually impaired people, made up of HC-SR04 ultrasonic sensor and buzzer for its sound signal. Using this smart blind stick, a visually impaired person can walk without anyone's help. The smart blind stick automatically detects the obstacle in front of the person and gives him a response to the person by warning sound.

THINGS USED IN THE PROJECT
HARDWARE

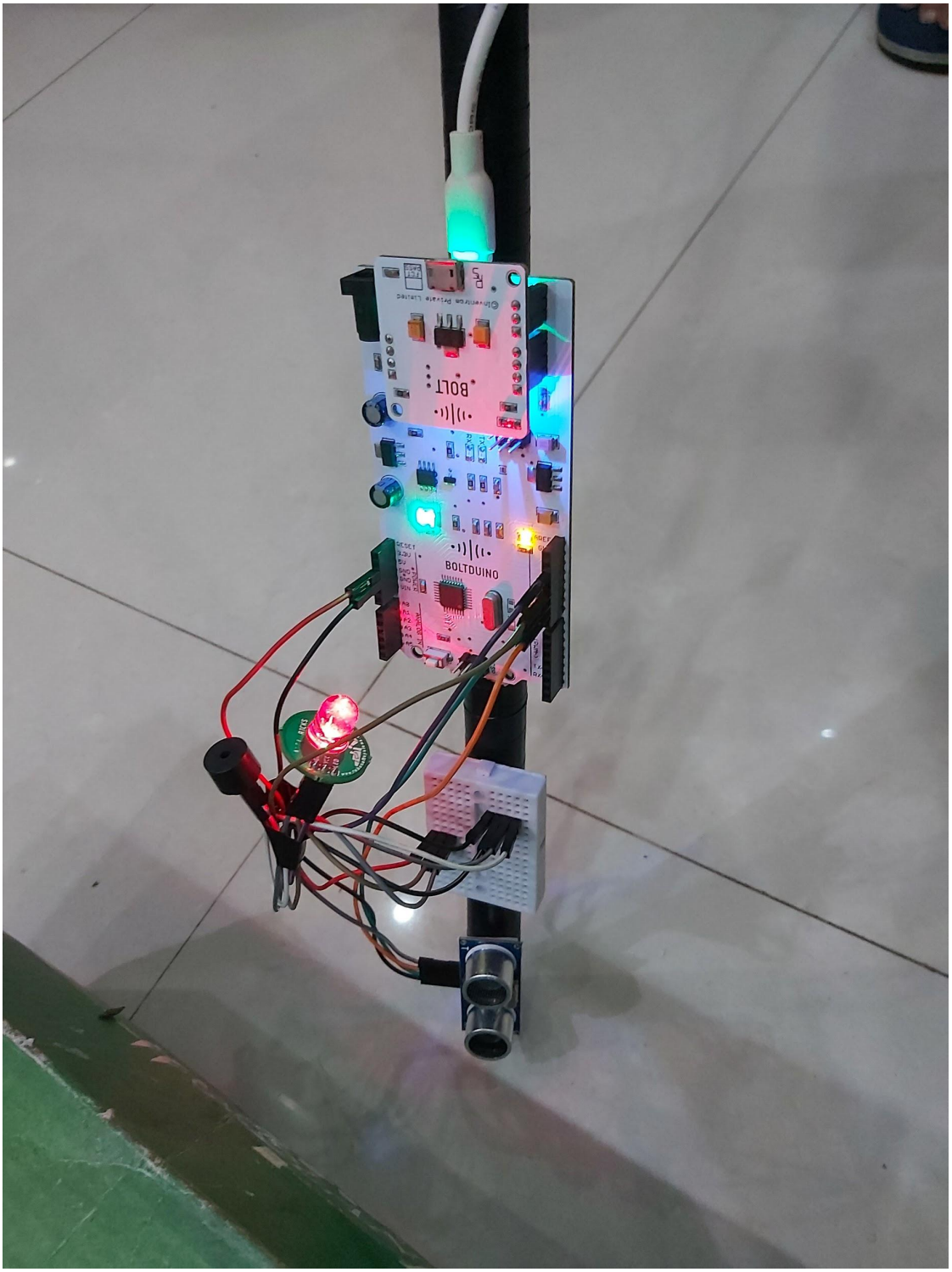
- Boltduino (Arduino)
- ESP8266 Bolt Wifi Module
- HC-SR04 Ultrasonic Sensor x1
- BreadBoard
- Buzzer
- LED module
- Some wires M2M, M2F
- USB cable
- Double sided tape

SOFTWARE/ APP / ONLINE SERVICES

- Arduino IDE

HARDWARE SETUP

1) Connect the HC-SR04 Ultrasonic Sensor to the Boltduino(Arduino) via BreadBoard, VCC pin to 5V, Trig to digital pin 9, Echo to digital pin 10, GND to ground pin of Boltduino.
2) Connect the LED module to Boltduino, LED pin to pin no. 13, and VCC & GND to 5v and ground pin of Arduino respectively.
3) Connect the Buzzer, to pin no. 11. and other to GND pin of Boltduino.
4) Stick the sensor, breadboard, arduino to a long stick
5) Our assistive stick is ready to code.



SOFTWARE SETUP

1) Open Arduino IDE and select Board as Arduino UNO and Port as per your hardware configuration.

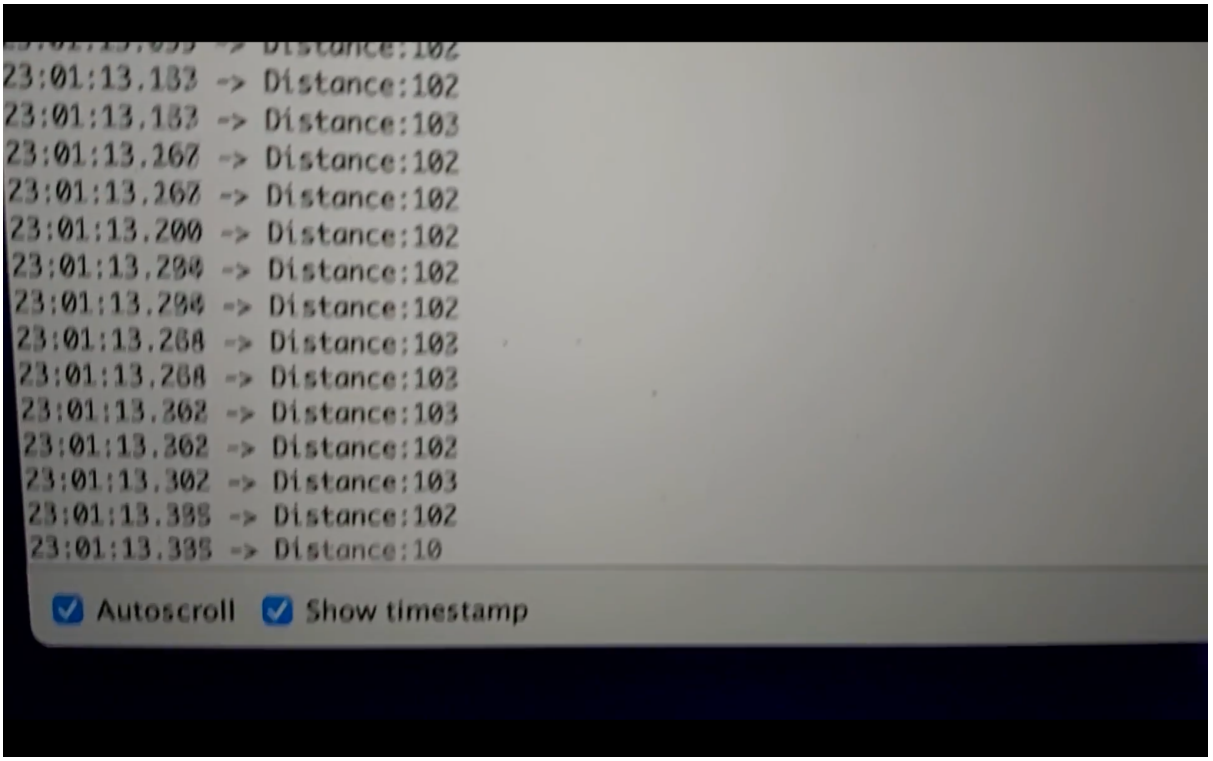
SOFTWARE PROGRAMMING / CODE

1) Open a new sketch, name it as **Smart_Blind_Stick** and Code as shown below.

```
const int trigpin=9;
const int echopin=10;
const int buzzer=11;
const int ledpin=13;
long duration;
int distance;
int safetydistance;

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<=15){
    digitalWrite(buzzer,HIGH);
    digitalWrite(ledpin,HIGH);
  }
  else{
    digitalWrite(buzzer,LOW);
    digitalWrite(ledpin,LOW);
  }
  Serial.print("Distance:");
  Serial.println(distance);

}
```

OUTPUT/ VIDEO

On the serial monitor it will print the distance between the stick and obstacle in front of it.



YT Video Link:

https://youtu.be/8McUl01o8BQ