Chittagong University of Engineering and Technology

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Blind stick with display

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Component list:

1.Sonar device

2.Aurdino uno

3.16x2 LCD Display

4.3 Pieces battery

5.Potentiometer

6.2 bread boards

7.Buzzer

8.Connecting wire

10.Stick

Cost estimation:

1.Sonar device(200tk)

2.Aurdino uno(420 tk)

3.16x2 LCD Display(70 tk)

4.3 Pieces battery(45 tk)

5.Potentiometer(15 tk)

6.2 bread boards(160 tk)

7.Buzzer(5 tk)

8.Connecting wire(20 tk)

10.Stick(200 tk)

Objective:

Objective of this project is to help a blind man to detect obstacle in front of him by hearing sound. By hearing sound of different intensity, he can estimate the exact distance of obstacle. We use a LCD display to measure the exact distance of obstacle from a blind man.
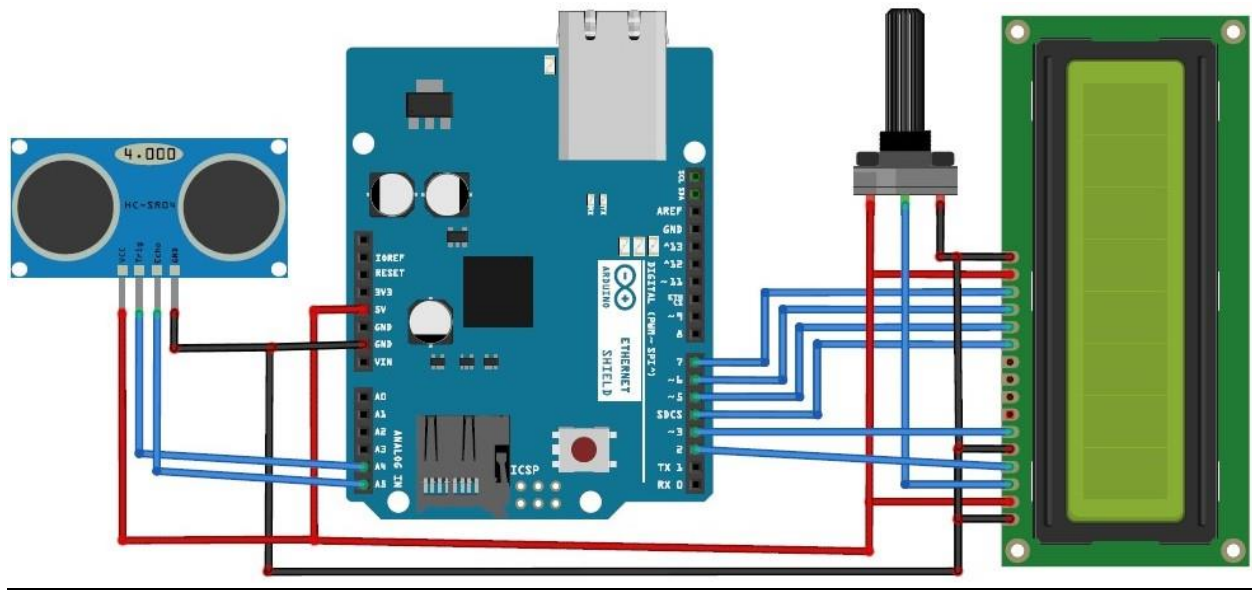
Circuit Diagram:

Fig. 1: Blind stick with display circuit diagram

Description:

Here we used an ultrasonic sensor to measure the distance and a display to show the distance and a buzzer which produce sound of different intensity depending on obstacle distance.

We divided total range of distance into 4 terms.

1.When distance is greater than 50 cm

The buzzer doesn't make sound**.** In display, it will show **"out of range".**

2. When distance is less than 50 cm but greater than 30

It will show range is **long** and the buzzer buzzed at low intensity.

3. **When distance is greater than 15 cm but less than 30**

It will show the buzzer buzzed at minimum intensity.

4. When distance is less than 15

The buzzer buzzed at maximum intensity. It will show the distance is closed.

Code:

```
#include <LiquidCrystal.h>


#define trigger 18

#define echo 19


LiquidCrystal lcd(2, 3, 4, 5, 6, 7);


float time = 0, distance = 0;

int buzz = 9;
```

```
void setup()
{
  lcd.begin(16, 2);
  pinMode(trigger, OUTPUT);
  pinMode(echo, INPUT);
  lcd.print("  project Name: ");
  lcd.setCursor(0, 1);
  lcd.print("blind Stick");
  delay(2000);
  lcd.clear();
  lcd.print(" blind stick");
  delay(2000);
}

void loop()
{
  lcd.clear();
  digitalWrite(trigger, LOW);
  delayMicroseconds(2);
  digitalWrite(trigger, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigger, LOW);
  delayMicroseconds(2);
  time = pulseIn(echo, HIGH);
  distance = time * 340 / 20000;
  lcd.clear();
  lcd.print("Distance:");
  lcd.print(distance / 100);
  lcd.print("m");
```

```
lcd.setCursor(0, 1);

lcd.print("object:");

if (distance < 50)

  lcd.print("ditected");

else

  lcd.print("undetected");

delay(2000);

lcd.setCursor(0, 1);

if (distance > 50)

{ lcd.print("out of range");

  analogWrite(buzz, 0);

}

else if (distance<50 & distance>30)

{ lcd.print("Distance: Long");

  analogWrite(buzz, 100);

}

else if (distance < 15)

{ lcd.print("distannce:close");

  analogWrite(buzz, 250);

}

else if (distance > 15 & distance < 30)

{ lcd.print("distance: medium");

  analogWrite(buzz, 175);

}

delay(2000);

}
```