int sensorValue;

int sensorLow = 1023;

int sensorHigh = 0;

int switchstate = 0;

const int LED\_PIN = 4;

void setup() {

pinMode(LED\_PIN, OUTPUT);

pinMode(5, OUTPUT);

pinMode(6, OUTPUT);

pinMode(7, OUTPUT);

digitalWrite(LED\_PIN, HIGH);

// calibrate for the first five seconds after program runs

while (millis() < 5000) {

sensorValue = analogRead(A0);

if (sensorValue > sensorHigh) {

sensorHigh = sensorValue;

}

if (sensorValue < sensorLow) {

sensorLow = sensorValue;

}

}

// turn the LED off, signaling the end of the calibration period

digitalWrite(LED\_PIN, LOW);

}

void loop() {

Serial.begin(9600);

sensorValue = analogRead(A0);

float voltage = (sensorValue/1023.0) \* (5.0);

float resistence = (4700)\*(voltage) / (5-voltage);

Serial.print("Resistence: ");

Serial.println(resistence);

switchstate = digitalRead(3);

if (switchstate == LOW)

digitalWrite(LED\_PIN, LOW);

else {

digitalWrite(LED\_PIN , HIGH);

}

// map the sensor values to a wide range of pitches

int pitch = map(sensorValue, sensorLow, sensorHigh, 50, 4000);

// play the tone for 20 ms on pin 8

tone(8, pitch, 20);

// wait for 10 ms to give sound time to play

Serial.println(pitch);

if (pitch < 50){

digitalWrite(5, LOW);

digitalWrite(6, LOW);

digitalWrite(7, LOW);

}

else if ((pitch > 50) && (pitch < 1000)){

digitalWrite(5, LOW);

digitalWrite(6, LOW);

digitalWrite(7, LOW);

}

else if ((pitch > 1000) && (pitch < 20000)){

digitalWrite(5, HIGH);

digitalWrite(6, LOW);

digitalWrite(7, LOW);

}

if ((pitch > 2000) && (pitch < 3000)){

digitalWrite(5, HIGH);

digitalWrite(6, HIGH);

digitalWrite(7, LOW);

}

if ((pitch > 3000) && (pitch < 4000)){

digitalWrite(5, HIGH);

digitalWrite(6, HIGH);

digitalWrite(7, HIGH);

}

delay(100);

}