*PROJECT REPORT ON*

*LIE DETECTOR*

*SUBMITTED BY:*

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INTRODUCTION

How can an Evil Genius be sure that their prisoners are telling the truth? By using a lie detector, of course. This lie detector uses an effect known as galvanic skin response. As a person becomes nervous—for example, when telling a lie—their skin resistance decreases. We can measure this resistance using an analog input and use an LED and buzzer to indicate an untruth. We use a multicolour LED that will display red to indicate a lie, green to indicate a truth, and blue to show that the lie detector should be adjusted by twiddling the variable resistor.

COMPONENTS AND EQUIPMENT USED

* Arduino Diecimila or Duemilanove board or clone 1
* R1-3 100 K 0.5W metal film resistor
* R4 470 K 0.5W metal film resistor
* R5 100 K variable resistor
* D1 RGB LED (common anode)
* S1 Piezotransducer
* LiquidCrystalDisplay (LCD)

**PRINCIPLE**

The sweating in our finger tips is involuntary action. As we answer the “UNTOLD” question asked, our finger tips sweat. This increases the conductance of our screen to the “TOUCHPADS” and since conductance is inversely proportional to resistance we measure this variable resistance and then we let the machine decide whether it is lie or not.

**CIRCUIT DIAGRAM**

A description...

WORKING

The subject’s skin resistance is measured by using the subject as one resistor in a potential divider and a fixed resistor as the other. The lower their resistance, the more analog input 0 will be pulled towards 5V. The higher the resistance, the closer to GND it will become. The piezobuzzer , despite the level of noise these things generate, is actually quite low in current consumption and can be driven directly from an Arduino digital pin. This project uses the same multicolour LED as Project 14. In this case, however, we are not going to blend different colours but just turn one of the LEDs on at a time to display red, green, or blue. There are two types of piezobuzzers . Some are just a piezoelectric transducer, while some also include the electronic oscillator to drive them. In this project we want the former type without the electronics, as we are going to generate the necessary frequency from the Arduino board itself. The script for this project just has to compare the voltage at A0 and A1. If they are about the same, the LED will be set to green. If the voltage from the finger sensor (A0) is significantly higher than A1, the variable resistor will indicate a fall in skin resistance, the LED will change to red, and the buzzer will sound. On the other hand, if A0 is significantly lower than A1, the LED will turn blue, indicating a rise in skin resistance. The buzzer requires a frequency of about 5 KHz or 5000 cycles per second to drive it. We accomplish this with a simple for loop with commands to turn the appropriate pin on and off with delays in between.

***CODE***

#include <LiquidCrystal.h>

int redPin = 9;

int greenPin = 10;

int bluePin = 13;

int buzzerPin = 7;

int potPin = 1;

int sensorPin = 0;

long red = 0xFF0000;

long green = 0x00FF00;

long blue = 0x000080;

int band = 100;

LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

// adjust for sensitivity

void setup()

{

lcd.begin(16, 2);

pinMode(potPin, INPUT); //This is to set the input resistance that comes from potentiometer A1

pinMode(sensorPin, INPUT); //This is to set the input resistance from the skin

pinMode(redPin, OUTPUT); //This is to set the output for RED Led

pinMode(greenPin, OUTPUT); //This is to set the output for green Led

pinMode(bluePin, OUTPUT); //This is to set the output for blue(or transparent) Led

pinMode(buzzerPin, OUTPUT); //This is to set the output for buzzer

}

void loop() //This loops highlights the basic working of the detector

{

int gsr = analogRead(sensorPin);

int pot = analogRead(potPin);

if (gsr > pot + band) //This condition if true indicates the lie

{

setColor(red);

beep();

lcd.print("LIE!");

}

else if (gsr < pot - band) //This condition if true indicates the need of adjusting the resistance

{

setColor(blue);

lcd.print("RESET!");

}

else //This condition becomes true for other condition becomes false and is at normal resistance

{

setColor(green);

lcd.print("true!");

}

}

void setColor(long rgb) //This functions sets the colour

{

int red = rgb >> 16;

int green = (rgb >> 8) & 0xFF;

int blue = rgb & 0xFF;

analogWrite(redPin, 255 - red);

analogWrite(greenPin, 255 - green);

analogWrite(bluePin, 255 - blue);

}

void beep() //This function is to beep the buzzer

{

// 5 Khz for 1/5th second

for (int i = 0; i < 1000; i++)

{

digitalWrite(buzzerPin, HIGH);

delayMicroseconds(100);

digitalWrite(buzzerPin, LOW);

delayMicroseconds(100);

}

}

Thank You

&

Don’t Lie