#include <LiquidCrystal.h>

#include <SoftwareSerial.h>

SoftwareSerial mySerial(2, 13);

#define trigPin 7

#define echoPin 8

#define eyeblink 12

int GL = A0;

int OL = A1;

int Alcohol = A3;

int buzzPin = A2;

int motorPin = 9;

int P1 = A4;

int P2 = A5;

int t = 0;

const int rs = 10, en = 11, d4 = 3, d5 = 4, d6 = 5, d7 = 6;

LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

void setup() {

Serial.begin (9600);

mySerial.begin(9600);

delay(100);

pinMode(P1, OUTPUT);// define pin as OUTPUT for P1A

pinMode(P2, OUTPUT);// define pin as OUTPUT for P2A

pinMode(motorPin, OUTPUT);

lcd.begin(16, 2);

lcd.clear();

pinMode(trigPin, OUTPUT);

pinMode(echoPin, INPUT);

pinMode(buzzPin, OUTPUT);

pinMode(GL, OUTPUT);

pinMode(OL, OUTPUT);

pinMode(Alcohol, INPUT);

pinMode(eyeblink, INPUT);

digitalWrite (buzzPin, HIGH);

delay(2000);

digitalWrite (buzzPin, LOW);

digitalWrite (GL, HIGH);

lcd.setCursor(4, 0);

lcd.print("Accident");

lcd.setCursor(0, 1);

lcd.print("Avoidance System");

delay(5000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Gsm Initialising");

delay(3000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Searching For");

lcd.setCursor(4, 1);

lcd.print("Network");

delay(5000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Gsm Ready !!");

delay(3000);

lcd.clear();

lcd.setCursor(4, 0);

lcd.print("All Ok !!");

digitalWrite (P1, LOW);

digitalWrite (P2, LOW);

delay(1000);

}

void loop ()

{

///////////////////////ULTRASONIC INTERFACE/////////////////////////

int duration, distance;

digitalWrite (trigPin, HIGH);

delayMicroseconds (1000);

digitalWrite (trigPin, LOW);

duration = pulseIn (echoPin, HIGH);

distance = (duration / 2) / 29.1;

Serial.print("distance: ");

Serial.println(distance);

delay(1000);

if (distance >= 30) {

digitalWrite(motorPin, HIGH);

digitalWrite (P1, HIGH);

analogWrite (P2, 0);

}

if (distance <= 25) {

analogWrite(motorPin, 200);

}

if (distance <= 20) {

analogWrite(motorPin, 150);

}

if (distance <= 15) {

analogWrite(motorPin, 100);

}

if (distance <= 10) {

analogWrite(motorPin, 50);

}

if (distance <= 5) {

analogWrite(motorPin, 0);

analogWrite (P1, 0);

analogWrite (P2, 0);

digitalWrite (GL, LOW);

digitalWrite (OL, HIGH);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("TOO CLOSE !!");

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(1000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(1000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(4000);

digitalWrite (OL, LOW);

digitalWrite (GL, HIGH);

lcd.clear();

lcd.setCursor(4, 0);

lcd.print("All Ok !!");

}

////////////////Alcohol INTERFACE/////////////////

int AlcoholValue = analogRead(Alcohol);

Serial.print("ALCOHOL: ");

Serial.println(AlcoholValue);

delay(1000);

if (AlcoholValue > 500)

{

digitalWrite (GL, LOW);

digitalWrite (OL, HIGH);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(1000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(1000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(3000);

analogWrite(motorPin, 200);

analogWrite (P1, 255);

analogWrite (P2, 0);

delay(400);

analogWrite(motorPin, 180);

delay(400);

analogWrite(motorPin, 160);

delay(400);

analogWrite(motorPin, 140);

delay(400);

analogWrite(motorPin, 120);

delay(400);

analogWrite(motorPin, 100);

delay(400);

analogWrite(motorPin, 80);

delay(400);

analogWrite(motorPin, 60);

delay(400);

analogWrite(motorPin, 40);

delay(400);

analogWrite(motorPin, 20);

delay(400);

analogWrite(motorPin, 0);

analogWrite (P1, 0);

analogWrite (P2, 0);

delay(400);

lcd.clear();

lcd.setCursor(1, 0);

lcd.print("DRINKING ALERT !");

delay(5000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("VEHICAL STOPED !");

delay(3000);

DrinkSMS();

delay(5000);

digitalWrite (OL, LOW);

digitalWrite (GL, HIGH);

lcd.clear();

lcd.setCursor(4, 0);

lcd.print("All Ok !!");

}

/////////////////////////////EYEBLINK INTERFACE///////////////////////////////

while (digitalRead(eyeblink) == 0)

{

t = 2;

while (t > 0)

{

if (digitalRead(eyeblink) == 0)

{

t--;

}

else

{

break;

}

delay(1000);

}

if (t == 0)

{

digitalWrite (GL, LOW);

digitalWrite (OL, HIGH);

digitalWrite (buzzPin, HIGH);

delay(5000);

digitalWrite (buzzPin, LOW);

delay(2000);

analogWrite(motorPin, 200);

analogWrite (P1, 255);

analogWrite (P2, 0);

delay(400);

analogWrite(motorPin, 180);

delay(400);

analogWrite(motorPin, 160);

delay(400);

analogWrite(motorPin, 140);

delay(400);

analogWrite(motorPin, 120);

delay(400);

analogWrite(motorPin, 100);

delay(400);

analogWrite(motorPin, 80);

delay(400);

analogWrite(motorPin, 60);

delay(400);

analogWrite(motorPin, 40);

delay(400);

analogWrite(motorPin, 20);

delay(400);

analogWrite(motorPin, 0);

analogWrite (P1, 0);

analogWrite (P2, 0);

delay(400);

lcd.clear();

lcd.setCursor(1, 0);

lcd.print("SLEEP ALERT !!");

delay(5000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("VEHICAL STOPED !");

delay(3000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(1000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(1000);

digitalWrite (buzzPin, HIGH);

delay(1000);

digitalWrite (buzzPin, LOW);

delay(3000);

SleepSMS();

delay(4000);

digitalWrite (OL, LOW);

digitalWrite (GL, HIGH);

lcd.clear();

lcd.setCursor(4, 0);

lcd.print("All Ok !!");

}

}

}

void SleepSMS ()

{

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Sending SMS !!");

mySerial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode

delay(1000); // Delay of 1 second

mySerial.println("AT+CMGS=\"+91\*\*\*\*\*\*\*\*\*\*\"\r"); // enter mobile number

delay(1000);

mySerial.println("CAB DRIVER = 001");// The SMS text you want to send

delay(100);

mySerial.println("SLEEPING ALERT !!");// The SMS text you want to send

delay(100);

mySerial.println("TAKE ACTION !!");// The SMS text you want to send

delay(100);

mySerial.println((char)26);// ASCII code of CTRL+Z for saying the end of sms to the module

delay(1000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("SMS Sent !!");

delay(3000);

}

void DrinkSMS ()

{

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Sending SMS !!");

mySerial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode

delay(1000); // Delay of 1 second

mySerial.println("AT+CMGS=\"+91\*\*\*\*\*\*\*\*\*\*\"\r"); // enter mobile number

delay(1000);

mySerial.println("CAB DRIVER = 001");// The SMS text you want to send

delay(100);

mySerial.println("DRINKING ALERT !!");// The SMS text you want to send

delay(100);

mySerial.println("TAKE ACTION !!");// The SMS text you want to send

delay(100);

mySerial.println((char)26);// ASCII code of CTRL+Z for saying the end of sms to the module

delay(1000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("SMS Sent !!");

delay(3000);

}