ANNEXUREII

#include<Wire.h>

#include<SoftwareSerial.h>

#include<LiquidCrystal.h>

SoftwareSerial eeg(2,3);//RX,TX

LiquidCrystal lcd(13,12,11,10,9,8);

#defineBAUDRATE57600

#define LED13

#define ALC A0

#define m15

#define m26

#define buz7

#define gsm\_gps Serial

Stringlatout="13.033165",lonout="80.178231";//13.033165,80.178231

String smsmsg,gpsval,text;

Stringusernum1="9600425934";

Byte payloadData[32]={0};

Byte checksum=0,generatedchecksum=0,Poorquality,Attention;

Int Att\_Avg=0,Plength,Temp;

Int k=0,j=0;

unsigned charAvg=0;

int a;

const int MPU\_addr=0x68;//I2CaddressoftheMPU-6050

unsigned int AcX,AcY,AcZ;

int alc,pus,fStatuS,alcStatuS,pusStatus,brStatuS;

byte ReadOneByte() //OneByteReadFunction

{

Int ByteRead;

while(!eeg.available());

Byte Read=eeg.read();

Return ByteRead;

}

Void setup()

{

gsm\_gps.begin(9600); //pc to arduino

eeg.begin(57600); //your esp's baud rate might be different//baud rate – no of bits per second

lcd.begin(16,2);

Wire.begin();

Wire.beginTransmission(0x68);

Wire.write(0x6B); //PWR\_MGMT\_1register

Wire.write(0); //set to zero(wakesuptheMPU-6050)

Wire.endTransmission(true);

lcd.setCursor(0,0);

pinMode(m1,OUTPUT);

pinMode(m2,OUTPUT);

pinMode(ALC,INPUT);

digitalWrite(m1,LOW);

digitalWrite(m2,LOW);

lcd.print(" EEGHELMET ");

lcd.setCursor(0,1);

lcd.print(" ");

delay(800);

lcd.clear();

}

Void loop()

{

If (ReadOneByte()==170) //AA1stSyncdata

{

If (ReadOneByte()==170) //AA2stSyncdata

{

Plength=ReadOneByte();

if(Plength==32) //BigPacket

{

Generatedchecksum=0;

for(inti=0;i<Plength;i++)

{

payloadData[i] =ReadOneByte(); //Read pay load into memory

generatedchecksum+=payloadData[i];

}

generatedchecksum=255-generatedchecksum;

checksum=ReadOneByte();

if(checksum==generatedchecksum) //VarifyChecksum

{

a=1;

Poorquality=payloadData[1];

Attention=payloadData[29];

//Serial.print("\*");

// Serial.print(Attention);

// Serial.print("\n");

// Serial.print("AttentionLevel=");

// Serial.println(Attention);

// delay(200);

lcd.setCursor(0,0);

lcd.print("BRAINSIGNAL:");

lcd.setCursor(14,0);

lcd.print(Attention);

Attention\_Fun(Attention);

}

}

}

}

}

Void Attention\_Fun(bytedata1)

{

getacc();

if (Poorquality==0)

{

If (data1>=30andfStatuS==0andalcStatuS==0)

{

// Serial.println("HIGHSTRESS");

digitalWrite(m1,HIGH);

digitalWrite(m2,LOW);

digitalWrite(buz,LOW);

lcd.setCursor(0,1);

lcd.print("EngineStarted ");

delay(200);

}

elseif(fStatuS==1)

{

digitalWrite(m1,LOW);

digitalWrite(m2,LOW);

digitalWrite(buz,HIGH);

lcd.setCursor(0,1);

lcd.print("FallDetected ");

delay(200);

gpsval="https://maps.google.com/maps?q=";

gpsval+=latout;

gpsval+=",";

gpsval+=lonout;

smsmsg="FallDetectedat";

SendSmS(usernum1,smsmsg,gpsval,"SendingMsG ");

}

Elseif (alcStatuS==1)

{

digitalWrite(m1,LOW);

digitalWrite(m2,LOW);

digitalWrite(buz,LOW);

lcd.setCursor(0,1);

lcd.print("AlcoholDetected");

delay(200);

}

else

{

digitalWrite(m1,LOW);

digitalWrite(m2,LOW);

digitalWrite(buz,LOW);

}

}

else

{

digitalWrite(m1,LOW);

digitalWrite(m2,LOW);

digitalWrite(buz,LOW);

lcd.setCursor(0,1);

lcd.print("MindDiverted");

}

}

Void getacc()

{

Alc = analogRead(ALC);

if(alc>500)

{

alcStatuS=1;

}

else

{

alcStatuS=0;

}

Wire.beginTransmission(MPU\_addr);

Wire.write(0x3B);//startingwithregister0x3B(ACCEL\_XOUT\_H)

Wire.endTransmission(false);

Wire.requestFrom(MPU\_addr,14,true); //requestatotalof14registers

AcX=Wire.read()<<8|Wire.read(); //0x3B(ACCEL\_XOUT\_H)&0x3C

(ACCEL\_XOUT\_L)

AcY=Wire.read()<<8|Wire.read(); //0x3D(ACCEL\_YOUT\_H)&0x3E

(ACCEL\_YOUT\_L)

AcZ=Wire.read()<<8|Wire.read(); //0x3F(ACCEL\_ZOUT\_H)&0x40

(ACCEL\_ZOUT\_L)

if(AcX>49000&&AcX<58000)

{

//Serial.println("-----Fall--Detected ");

fStatuS=1;

delay(20);

}

Elseif (AcX>7000&&AcX<15000)

{

//Serial.println("-----Fall--Detected ");

fStatuS=1;

delay(20);

}

Elseif (AcY>2000&&AcY<14000)

{

//Serial.println("-----Fall--Detected ");

fStatuS=1;

delay(20);

}

Elseif (AcY>49000&&AcY<57000)

{

//Serial.println("-----Fall--Detected ");

fStatuS = 1;

delay(20);

}

Else

{

//Serial.println("-----Stable ");

delay(20);

fStatuS=0;

}

//Serial.print("X=");Serial.print(AcX);

//Serial.print("|Y=");Serial.println(AcY);

delay(333);

}

voidSendSmS (StringNuM,StringMsG,Stringgps,StringLcD)

{

lcd.setCursor(0,0);

lcd.print(LcD);

lcd.setCursor(0,1);

lcd.print(".");

gsm\_gps.println("AT");

lcd.print(".");

delay(1000);

lcd.print(".");

gsm\_gps.println("AT+CMGF=1"); //Sets the gsm\_gps Module in TextMode

lcd.print(".");

delay(1000);

lcd.print("."); //Delay of 1000 milliseconds or 1

secondgsm\_gps.println("AT+CMGS=\""+NuM+"\"\r");

//lcd.print(".");

delay(1000);

lcd.print(".");

//gsm\_gps.print("Hello");

gsm\_gps.print(MsG);

gsm\_gps.print(gps);

delay(1000);

lcd.print(".");

gsm\_gps.print ln((char)26);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

delay(1000);

lcd.print(".");

lcd.clear();

}