**PROGRAM CODE FOR STRESS DETECTION AND REDUCTION AND DISPLAYING THE STRESS DETECTED AND REDUCED VALUES IN ANDROID APPLICATION**

#include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h>

#include <Wire.h>

#define OLED\_RESET 4

Adafruit\_SSD1306 display(OLED\_RESET);

int lastx=0;

int lasty=0;

int x=0,y=0;

int in =8;

int ecg=0;

float gsr;

int lastrate=0;

int count=0,l=0,rate=0;

unsigned long time2,time1;

void setup()

{

Serial.begin(9600);

pinMode(in, INPUT);

pinMode(13, OUTPUT);

digitalWrite(13,1);

display.begin(SSD1306\_SWITCHCAPVCC, 0x3C);

//welcome display

display.clearDisplay();

display.drawFastHLine(0,1,127,WHITE);

display.drawFastHLine(0,31,127,WHITE);

display.drawFastVLine(0,1,31,WHITE);

display.drawFastVLine(127,1,31,WHITE);

display.setCursor(15,5);

display.setTextSize(1);

display.setTextColor(WHITE);

display.print("STRESS MANAGEMENT");

display.setCursor(60,19);

display.setTextSize(1);

display.setTextColor(WHITE);

display.print("KIT");

display.display();

delay(3000);

display.clearDisplay();

}

void loop()

{

if(x>127)

{

display.clearDisplay();

x=0;

lastx=x;

}

gsr =analogRead(A0);

gsr =(5.0\*gsr)/1023.0;

int value=analogRead(A1);

ecg=map(value,0,1023,0,500);

display.setTextColor(WHITE);

y=map(value,1023,0,20,29);

display.drawFastHLine(0,1,127,WHITE);

display.drawFastHLine(0,31,127,WHITE);

display.drawFastVLine(0,1,30,WHITE);

display.drawFastVLine(127,1,30,WHITE);

display.writeLine(lastx,lasty,x,y,WHITE);

display.setCursor(70,5);

display.setTextSize(1);

display.setTextColor(WHITE);

display.print("GSR:");

display.setCursor(95,5);

display.setTextSize(1);

display.setTextColor(WHITE,BLACK);

display.print(gsr);

if(lastrate > 100 && rate < 100)

{

display.writeFillRect(35,5,30,7,BLACK);

}

else

{

display.setCursor(10,5);

display.setTextSize(1);

display.setTextColor(WHITE);

display.print("BPM:");

display.setCursor(35,5);

display.setTextSize(1);

display.setTextColor(WHITE,BLACK);

display.print(rate);

}

display.display();

lastrate=rate;

lasty=y;

lastx=x;

x++;

l=0;

while(l<5)

{

if(digitalRead(in))

{

if(l==0)

time1=millis();

l++;

while(digitalRead(in));

}

}

time2=millis();

rate=time2-time1;

rate=rate/5;

rate=60000/rate;

if(rate > 200)

{

rate=0;

}

if(rate > 100 && gsr > 1 && gsr < 3)

digitalWrite(13,0);

else

digitalWrite(13,1);

String data ="hb="+String(rate)+ "&gsr=" + String(gsr)+ "&ecg=" + String(ecg);

Serial.println(data);

}

**PROGRAM CODE FOR SENDING THE STRESS DETECTED AND REDUCED STRESS VALUES TO IOT SERVER THROUGH WIFI MODULE**

#include <ESP8266WiFi.h>

const char\* ssid = "smk";

const char\* password = "12345678";

WiFiServer server(80);

String data;

void setup() {

Serial.begin(9600);

// Connect to WiFi network

Serial.print("Connecting to ");

Serial.println(ssid);

WiFi.begin(ssid, password);

while (WiFi.status() != WL\_CONNECTED) {

delay(500);

Serial.print(".");

}

Serial.println("");

Serial.println("WiFi connected");

// Start the server

server.begin();

Serial.println("Server started");

// Print the IP address

Serial.println(WiFi.localIP());

}

void loop() {

if(Serial.available() > 0)

{

//data=Serial.readStringUntil('\n');

data=Serial.readString();

//delay(2000);

//data ="hb="+String(80)+"&gsr="+String(1)+"&ecg="+String(100);

WiFiClient client = server.available();

if (client.connect("www.stressdr.live",80))

{

// REPLACE WITH YOUR SERVER ADDRESS

client.println("POST /add.php HTTP/1.1");

client.println("Host:www.stressdr.live"); // SERVER ADDRESS HERE TOO

client.println("Content-Type: application/x-www-form-urlencoded");

client.print("Content-Length: ");

client.println(data.length());

client.println();

client.print(data);

Serial.println(data);

data="";

}

if (client.connected())

{

client.stop(); // DISCONNECT FROM THE SERVER

}

}

delay(30000); // WAIT 10 seconds BEFORE SENDING AGAIN

}

**PROGRAM CODE FOR DISPLAYING THE STRESS DETECTED AND REDUCED VALUE IN WEB APPLICATION**

**CLIENT SIDE CODING**

<html xmlns="http://www.w3.org/1999/xhtml">

<head><meta http-equiv="Content-Type" content="text/html; charset=windows-1252">

<title>Stress Detection and Reduction</title>

</head>

<body>

<form name="loginform" action="add.php" method="post">

hb<input name="hb" type="text" /><br />

gsr<input name="gsr" type="text" /><br />

ecg<input name="ecg" type="text" /><br />

<input name="update" type="submit" value="update" />

<input name="" type="reset" value="Clear" />

</form>

<br />

<br />

<form name="deleteform" action="delete.php" method="post">

<input name="delete" type="submit" value="Delete all rows" />

</form>

</body>

</html>

**SERVER SIDE CODING**

<?php

include("connect.php");

$link=Connection();

$result=mysqli\_query($link,"SELECT \* FROM stressdr order by sno desc limit 10");

?>

<html>

<head>

<title>IOT based Stress Detection and Reduction</title>

<meta http-equiv="refresh" content="10">

</head>

<body>

<h1>IOT based Stress Detection and Reduction</h1>

<table border="1" cellspacing="1" cellpadding="1">

<tr>

<td>&nbsp;Last Update&nbsp;</td>

<td>&nbsp;sno&nbsp;</td>

<td>&nbsp;Heart Beat (BPM)&nbsp;</td>

<td>&nbsp;Galvanic Skin Resistance &nbsp;</td>

<td>&nbsp;ECG &nbsp;</td>

</tr>

<?php

$dataPoints = array();

if($result!==FALSE){

while($row = mysqli\_fetch\_array($result)) {

$lastupdate=$row["lastupdate"];

$sno=$row["sno"];

$hb=$row["hb"];

$gsr=$row["gsr"];

$ecg=$row["ecg"];

array\_push($dataPoints, array("x" => $hb, "y" => $ecg));

?><tr>

<td>&nbsp;<?php echo $lastupdate ?>&nbsp;</td>

<td>&nbsp;<?php echo $sno ?>&nbsp;</td>

<td>&nbsp;<?php echo $hb ?>&nbsp;</td>

<td>&nbsp;<?php echo $gsr ?>&nbsp;</td>

<td>&nbsp;<?php echo $ecg ?>&nbsp;</td>

</tr>

<?php

}

mysqli\_free\_result($result);

mysqli\_close($link);

}

?>

</table>