#include <LiquidCrystal.h>

LiquidCrystal lcd(6,7,5,4,3,2);

#include <Wire.h>

#include <SoftwareSerial.h>

SoftwareSerial mySerial(8,9);

int ADXL345 = 0x53;

float X\_out, Y\_out, Z\_out;

int memsx=0,memsy=0;

int voice1 = 10;

int voice2 = 11;

int voice3 = 12;

int voice4 = 13;

int buzzer = A3;

char rcv,pastnumber[11];

char res[130];

void adxl\_345\_init()

{

Wire.begin(); // Initiate the Wire library

// Set ADXL345 in measuring mode

Wire.beginTransmission(ADXL345); // Start communicating with the device

Wire.write(0x2D); // Access/ talk to POWER\_CTL Register - 0x2D

// Enable measurement

Wire.write(8); // (8dec -> 0000 1000 binary) Bit D3 High for measuring enable

Wire.endTransmission();

delay(10);

}

void adxl\_345\_read()

{

// === Read acceleromter data === //

Wire.beginTransmission(ADXL345);

Wire.write(0x32); // Start with register 0x32 (ACCEL\_XOUT\_H)

Wire.endTransmission(false);

Wire.requestFrom(ADXL345, 6, true); // Read 6 registers total, each axis value is stored in 2 registers

X\_out = ( Wire.read()| Wire.read() << 8); // X-axis value

//X\_out = X\_out/256; //For a range of +-2g, we need to divide the raw values by 256, according to the datasheet

Y\_out = ( Wire.read()| Wire.read() << 8); // Y-axis value

//Y\_out = Y\_out/256;

Z\_out = ( Wire.read()| Wire.read() << 8); // Z-axis value

//Z\_out = Z\_out/256;

/\*

Serial.print("Xa= ");

Serial.print(X\_out);

Serial.print(" Ya= ");

Serial.print(Y\_out);

Serial.print(" Za= ");

Serial.println(Z\_out);

\*/

}

void serialFlush()

{

while(Serial.available() > 0)

{

char t = Serial.read();

}

}

void myserialFlush()

{

while(mySerial.available() > 0)

{

char t = mySerial.read();

}

}

char check(char\* ex,int timeout)

{

int i=0;

int j = 0,k=0;

while (1)

{

sl:

if(mySerial.available() > 0)

{

res[i] = mySerial.read();

if(res[i] == 0x0a || res[i]=='>' || i == 100)

{

i++;

res[i] = 0;break;

}

i++;

}

j++;

if(j == 30000)

{

k++;

// Serial.println("kk");

j = 0;

}

if(k > timeout)

{

//Serial.println("timeout");

return 1;

}

}//while 1

if(!strncmp(ex,res,strlen(ex)))

{

// Serial.println("ok..");

return 0;

}

else

{

// Serial.print("Wrong ");

// Serial.println(res);

i=0;

goto sl;

}

}

char buff[200],k=0;

void upload(unsigned int s1,unsigned int s2,unsigned int s3);

char readserver(void);

void clearserver(void);

const char\* ssid = "iotserver";

const char\* password = "iotserver123";

int sti=0;

String inputString = ""; // a string to hold incoming data

boolean stringComplete = false; // whether the string is complete

void okcheck()

{

unsigned char rcr;

do{

rcr = Serial.read();

}while(rcr != 'K');

}

void setup()

{

char ret;

pinMode(voice1, OUTPUT);

pinMode(voice2, OUTPUT);

pinMode(voice3, OUTPUT);

pinMode(voice4, OUTPUT);

pinMode(buzzer, OUTPUT);

digitalWrite(buzzer, HIGH);

digitalWrite(voice1, HIGH);

digitalWrite(voice2, HIGH);

digitalWrite(voice3, HIGH);

digitalWrite(voice4, HIGH);

Serial.begin(9600);

mySerial.begin(9600);

// adxl\_345\_init();

//Vehicle tracking using IOT

lcd.begin(16,2);

lcd.clear();

lcd.setCursor(0, 0);lcd.print(" Automatic Fall");

lcd.setCursor(0, 1);lcd.print(" Detection");

delay(2500);

wifiinit();

delay(2500);

lcd.clear();

lcd.print("MEMS:");

}

char bf3[50];

int g=0,f=0,count=0,lc=0;

int cntlmk=0;

void loop()

{

memsx = analogRead(A0);

// lcd.setCursor(0,0);

// convertl(memsx);

delay(100);

memsy = analogRead(A1);

// lcd.setCursor(0,1);

// convertl(memsy);

delay(100);

// adxl\_345\_read();

if((memsx > 300 && memsx < 370) && (memsy > 300 && memsy < 370))

//if((X\_out > -200 && X\_out < 200) && (Y\_out > -200 && Y\_out < 200))

{

lcd.setCursor(5,0);

lcd.print("Stable ");

digitalWrite(voice1, HIGH);digitalWrite(voice2, HIGH);digitalWrite(voice3, HIGH);digitalWrite(voice4, HIGH);

}

if((memsx < 300) && (memsy > 300 && memsy < 370))

//if((X\_out < -200) && (Y\_out > -200 && Y\_out < 200))

{

lcd.setCursor(5,0);

lcd.print("Front-Fall ");

digitalWrite(voice1, LOW);delay(3000);digitalWrite(voice1, HIGH);delay(500);

upload("Front-Fall");

}

if((memsx > 370) && (memsy > 300 && memsy < 370))

//if((X\_out > 200) && (Y\_out > -200 && Y\_out < 200))

{

lcd.setCursor(5,0);

lcd.print("Back-Fall ");

digitalWrite(voice2, LOW);delay(3000);digitalWrite(voice2, HIGH);delay(500);

upload("Back-Fall");

}

if((memsy < 300) && (memsx > 300 && memsx < 370))

//if((X\_out > -200 && X\_out < 200) && (Y\_out < -200))

{

lcd.setCursor(5,0);

lcd.print("Left-Fall ");

digitalWrite(voice3, LOW);delay(3000);digitalWrite(voice3, HIGH);delay(500);

upload("Left-Fall");

}

if((memsy > 370) && (memsx > 300 && memsx < 370))

//if((X\_out > -200 && X\_out < 200) && (Y\_out > 200))

{

lcd.setCursor(5,0);

lcd.print("Right-Fall ");

digitalWrite(voice4, LOW);delay(3000);digitalWrite(voice4, HIGH);delay(500);

upload("Right-Fall");

}

}

void serialEvent()

{

while (Serial.available())

{

char inChar = (char)Serial.read();

if(inChar == '@')

{sti=1;

}

if(sti == 1)

{

inputString += inChar;

}

if(inChar == '#')

{sti=0;

stringComplete = true;

}

}

}

char bf2[50];

void upload(const char \*s1)

{

delay(2000);

lcd.setCursor(15, 1);lcd.print("U");

myserialFlush();

mySerial.println("AT+CIPSTART=4,\"TCP\",\"projectsfactoryserver.in\",80");

//http://projectsfactoryserver.in/storedata.php?name=pf5&s1=25&s2=35

//sprintf(buff,"GET http://embeddedspot.top/iot/storedata.php?name=iot139&s1=%u&s2=%u&s3=%u\r\n\r\n",s1,s2);

delay(8000);

//https://projectsfactoryserver.in/storedata.php?name=iotgps&lat=17.167898&lan=79.785643

memset(buff,0,strlen(buff));

sprintf(buff,"GET http://projectsfactoryserver.in/storedata.php?name=iot81&s1=%s\r\n\r\n",s1);

// memset(buff,0,strlen(buff));

// sprintf(buff,"GET http://projectsfactoryserver.in/storedata.php?name=iot4&s1=%s\r\n\r\n",s1);

myserialFlush();

sprintf(bf2,"AT+CIPSEND=4,%u",strlen(buff));

mySerial.println(bf2);

delay(5000);

myserialFlush();

mySerial.print(buff);

delay(2000);

mySerial.println("AT+CIPCLOSE");

lcd.setCursor(15, 1);lcd.print(" ");

}

char readserver(void)

{

char t;

delay(2000);

lcd.setCursor(15, 1);lcd.print("R");

myserialFlush();

mySerial.println("AT+CIPSTART=4,\"TCP\",\"projectsfactoryserver.in\",80");

//http://projectsfactoryserver.in/last.php?name=amvi001L

delay(8000);

memset(buff,0,strlen(buff));

sprintf(buff,"GET http://projectsfactoryserver.in/last.php?name=iot4L\r\n\r\n");

myserialFlush();

sprintf(bf2,"AT+CIPSEND=4,%u",strlen(buff));

mySerial.println(bf2);

delay(5000);

myserialFlush();

mySerial.print(buff);

//read status

while(1)

{

while(!mySerial.available());

t = mySerial.read();

// Serial.print(t);

if(t == '\*' || t == '#')

{

if(t == '#')return 0;

while(!mySerial.available());

t = mySerial.read();

// Serial.print(t);

delay(1000);

myserialFlush();

return t;

}

}

delay(2000);

mySerial.println("AT+CIPCLOSE");

lcd.setCursor(15, 1);lcd.print(" ");

delay(2000);

return t;

}

void clearserver(void)

{

delay(2000);

lcd.setCursor(15, 1);lcd.print("C");

myserialFlush();

mySerial.println("AT+CIPSTART=4,\"TCP\",\"projectsfactoryserver.in\",80");

//sprintf(buff,"GET http://projectsfactoryserver.in/storedata.php?name=iot1&s10=0\r\n\r\n");

delay(8000);

memset(buff,0,strlen(buff));

sprintf(buff,"GET http://projectsfactoryserver.in/storedata.php?name=iot4&s10=0\r\n\r\n");

myserialFlush();

sprintf(bf2,"AT+CIPSEND=4,%u",strlen(buff));

mySerial.println(bf2);

delay(5000);

myserialFlush();

mySerial.print(buff);

delay(2000);

myserialFlush();

mySerial.println("AT+CIPCLOSE");

lcd.setCursor(15, 1);lcd.print(" ");

delay(2000);

}

void wifiinit()

{

char ret;

st:

mySerial.println("ATE0");

ret = check((char\*)"OK",50);

mySerial.println("AT");

ret = check((char\*)"OK",50);

if(ret != 0)

{

delay(1000);

goto st;

}

lcd.clear();lcd.setCursor(0, 0);lcd.print("CONNECTING");

mySerial.println("AT+CWMODE=1");

ret = check((char\*)"OK",50);

cagain:

myserialFlush();

mySerial.print("AT+CWJAP=\"");

mySerial.print(ssid);

mySerial.print("\",\"");

mySerial.print(password);

mySerial.println("\"");

if(check((char\*)"OK",300))goto cagain;

mySerial.println("AT+CIPMUX=1");

delay(1000);

lcd.clear();lcd.setCursor(0, 0);lcd.print("WIFI READY");

}

void convertl(unsigned int value)

{

unsigned int a,b,c,d,e,f,g,h;

a=value/10000;

b=value%10000;

c=b/1000;

d=b%1000;

e=d/100;

f=d%100;

g=f/10;

h=f%10;

a=a|0x30;

c=c|0x30;

e=e|0x30;

g=g|0x30;

h=h|0x30;

// lcd.write(a);

// lcd.write(c);

lcd.write(e);

lcd.write(g);

lcd.write(h);

}

void convertk(unsigned int value)

{

unsigned int a,b,c,d,e,f,g,h;

a=value/10000;

b=value%10000;

c=b/1000;

d=b%1000;

e=d/100;

f=d%100;

g=f/10;

h=f%10;

a=a|0x30;

c=c|0x30;

e=e|0x30;

g=g|0x30;

h=h|0x30;

// lcd.write(a);

// lcd.write(c);

// lcd.write(e);

lcd.write(g);

lcd.write(h);

}