#include <Keypad.h>

#include <LiquidCrystal.h>

#include <Servo.h>

Servo myservo;

LiquidCrystal lcd(13, A1, A2, A3, A4, 12);

const byte ROWS = 4;

const byte COLS = 4;

char keys[ROWS][COLS] = {

{'1', '2', '3','A'},

{'4', '5', '6','B'},

{'7', '8', '9','C'},

{'\*', '0', '#','D'}

};

byte rowPins[ROWS] = {10,2,3,4}; // {R1,R2,R3,R4}

byte colPins[COLS] = {5,6,7,8}; // {C1,C2,C3,C4}

Keypad customKeypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS); //initialize an instance of class NewKeypad

int pos = 0,f=0, d=0;

char Data[6];

char Master[6] = "12345";

int data\_count = 0, master\_count = 0;

char customKey;

int door=1;

int buzzer=11;

float gassens=0, tempsens=0,v,v1;

void setup()

{

myservo.attach(9);

ServoClose();

lcd.begin(16, 2);

lcd.setCursor(3,0);

lcd.print("Arduino Door");

lcd.setCursor(2, 1);

lcd.print("HELLO STRANGER");

delay(4000);

lcd.clear();

pinMode(A0,INPUT);

pinMode(A5,INPUT);

pinMode(buzzer,OUTPUT);

pinMode(0,OUTPUT);

pinMode(1,OUTPUT);

}

void loop()

{

customKey = customKeypad.getKey(); delay(100);

if (door==0)

{

if(customKey == '#')

{

if(d==0)

{

lcd.clear();

ServoClose();

lcd.print(" Door is close");

lcd.setCursor(2,2); lcd.print("WELCOME HOME!");

delay(500);

f=1; door=3;

}

}

}

else if(door==1) { Open();}

else if(f=1) { firedetect();}

}

void clearData()

{

while (data\_count != 0)

{

Data[data\_count--] = 0;

}

return;

}

void ServoOpen()

{

for (pos = 180; pos >= 0; pos -= 5)

{

myservo.write(pos);

delay(15);

}

}

void ServoClose()

{

for (pos = 0; pos <= 180; pos += 5) {

myservo.write(pos);

delay(15);

}

}

void Open()

{

lcd.setCursor(0, 0);

lcd.print(" Enter Password:");

customKey = customKeypad.getKey();

if (customKey) // makes sure a key is actually pressed

{

Data[data\_count] = customKey;

lcd.setCursor(data\_count, 1);

lcd.print(Data[data\_count]);

data\_count= data\_count+1;

}

if (data\_count == 5)

{

if (strcmp(Data, Master) ==0)

{

lcd.clear();

ServoOpen();

digitalWrite(0,HIGH); delay(1000);

lcd.print(" Door is Open");

lcd.setCursor(2,2); lcd.print("WELCOME HOME!");delay(300);

digitalWrite(0,LOW);

door = 0;

}

else {

lcd.clear();

digitalWrite(1,HIGH); delay(1000);

lcd.print(" Wrong Password");

delay(300);

tone(buzzer,500,1000);

delay(1000);

digitalWrite(1,LOW);

door = 1; } //else ends

clearData();

}

}

void firedetect() {

gassens=analogRead(A0);

v=analogRead(A5);

v1=v\*4.28;

v1/=1024;

tempsens=(v1-0.5)\*100;

if(gassens>=200) {

digitalWrite(1,HIGH); delay(1000);

tone(buzzer,500,1000);

delay(100);

lcd.clear();

lcd.print(" EVACUATE - GAS "); delay(1000);

lcd.setCursor(2,2); lcd.print("Door opens");

digitalWrite(1,LOW);

ServoOpen();}

else if (tempsens>=50) {

digitalWrite(1,HIGH); delay(1000);

tone(buzzer,500,1000);

delay(100);

lcd.clear();

lcd.print("EVACUATE - FIRE"); delay(1000);

lcd.setCursor(2,2); lcd.print("Door opens");

digitalWrite(1,LOW);

ServoOpen();}

else

{ lcd.clear(); lcd.print("Enter # to leave"); delay(300);

lcd.setCursor(2,2); lcd.print("NO DANGER"); delay(500);

customKey = customKeypad.getKey(); delay(10);

if(customKey=='#')

{

lcd.clear(); lcd.print(" BYE !");

lcd.setCursor(2,2); lcd.print("Door opens");

ServoOpen();

delay(20000);

}

else if(customKey=='A' or customKey=='B' or customKey=='C' or

customKey=='D' or customKey=='\*' or customKey=='1' or

customKey=='2' or customKey=='3' or customKey=='4' or

customKey=='5' or customKey=='6' or customKey=='7' or

customKey=='8' or customKey=='9' or customKey=='0')

{

digitalWrite(0,HIGH); delay(100);

lcd.clear(); lcd.print(" SAFE"); delay(1000);

lcd.setCursor(2,2); lcd.print("Door is closed"); delay(5000);

}

digitalWrite(0,LOW);}

}