Assignment -1

Smart home appliances

Assignment Date	09 September 2022
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Maximum Marks	2 Marks

TASK:

SMART HOME APPLIANCES

PROJECT:

DOOR LOCK

CODE:

```
#include <Keypad.h>

#include <LiquidCrystal.h>

#include <Servo.h>

Servo myservo;

LiquidCrystal lcd(A0, A1,
A2, A3, A4, A5);

#define Password_Lenght 7
// Give enough room for six
chars + NULL char

int pos = 0; // variable to
store the servo position

char
Data[Password_Lenght]; //
6 is the number of chars it
can hold + the null char = 7

char
Master[Password_Lenght]
= "123456";

byte data_count = 0,
master_count = 0;
```

```
bool Pass_is_good;

char customKey;

const byte ROWS = 4;

const byte COLS = 3;

char keys[ROWS][COLS]
= {

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

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

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

{'*', '0', '#'}

};

bool door = true;

byte rowPins[ROWS] = {1,
2, 3, 4}; //connect to the
row pinouts of the keypad

byte colPins[COLS] = {5,
6, 7}; //connect to the
column pinouts of the
keypad

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

void setup()

{

myservo.attach(9);

ServoClose();

lcd.begin(16, 2);
```

```
lcd.print(" Arduino Door");

lcd.setCursor(0, 1);

lcd.print("—ENTER
PASSWORD--");

delay(3000);

lcd.clear();

}

void loop()

{

if (door == 0)

{

customKey =
customKeypad.getKey();

if (customKey == '#')

{

lcd.clear();

ServoClose();

lcd.print(" Door is close");

delay(3000);

door = 1;

}

}

else Open();

}

void clearData()
```

```
{

while (data_count != 0)

{ // This can be used for
any array size,

Data[data_count--] = 0;
//clear array for new data

}

return;

}

void ServoOpen()

{

for (pos = 180; pos >= 0;
pos -= 5) { // goes from 0
degrees to 180 degrees

// in steps of 1 degree

myservo.write(pos); // tell
servo to go to position in
variable 'pos'

delay(15); // waits 15ms for
the servo to reach the
position

}

}

void ServoClose()

{

for (pos = 0; pos <= 180;
pos += 5) { // goes from
180 degrees to 0 degrees

myservo.write(pos); // tell
servo to go to position in
```

```
variable 'pos'

delay(15); // waits 15ms for
the servo to reach the
position

}

}

void Open()

{

lcd.setCursor(0, 0);

lcd.print(" Enter
Password");

customKey =
customKeypad.getKey();

if (customKey) // makes
sure a key is actually
pressed, equal to
(customKey != NO_KEY)

{

Data[data_count] =
customKey; // store char
into data array

lcd.setCursor(data_count,
1); // move cursor to show
each new char

lcd.print(Data[data_count]);
// print char at said cursor

data_count++; // increment
data array by 1 to store new
char, also keep track of the
number of chars entered

}

if (data_count ==
```

```
Password_Lenght - 1) // if
the array index is equal to
the number of expected
chars, compare data to
master

{

if (!strcmp(Data, Master)) //
equal to (strcmp(Data,
Master) == 0)

{

lcd.clear();

ServoOpen();

lcd.print(" Door is Open");

door = 0;

}

lcd.clear();

lcd.print(" Wrong
Password");

delay(1000);

door = 1;

}

clearData();

}
```

CIRCUIT: