

SMART DOOR LOCK

SUBMITTED BY,

AJAY KRISHNAN J

961819106004

B12-6A2E

DESCRIPTION :

Smart door lock using Arduino board with tinkercad.

COMPONENTS :

- 1.Bread Board
- 2.Arduino UNO R3
- 3.Potentiometer
- 4.LCD Display
- 5.Micro Servo Motor
- 6.Keypad

PROGRAM :

```
#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("SMART LOCK");

    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;
```

```
}
```

```
else
```

```
{
```

```
    lcd.clear();
```

```
    lcd.print(" Wrong Password");
```

```
    delay(1000);
```

```
    door = 1;
```

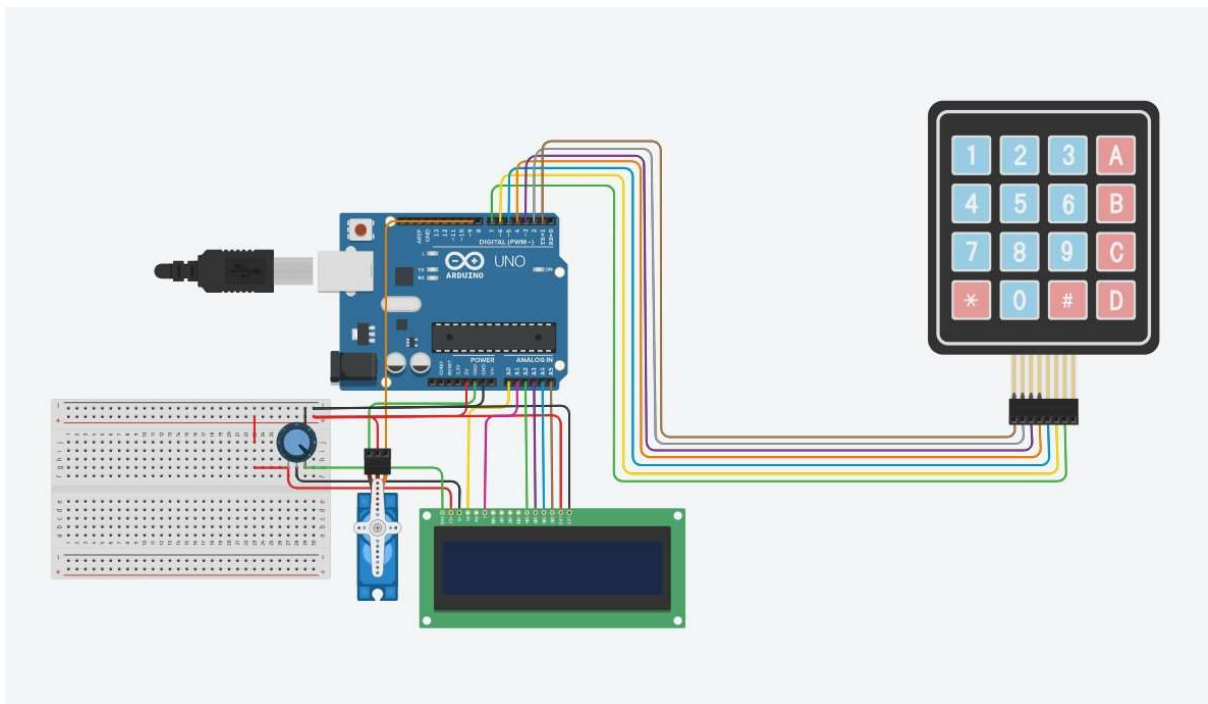
```
}
```

```
clearData();
```

```
}
```

}

CIRCUIT DIAGRAM :



THANK YOU