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BUSINESS AND TECHNOLOGY**

Lab Report on
Single 7-Segment Display

Course Code: CSE 426

Course Title: IoT Lab

Submitted to:

Md. Hasibur Rahman

Lecturer

Dept. of CSE

at Bangladesh University of Business and Technology.

Submitted by:

Syeda Nowshin Ibnat, 17183103020

Nusrat Jahan Anka, 17183103008

Mahmuda Begum, 17183103030

Nawrin Zaman Prova, 17183103044

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Lab report no: 2**Introduction:**

In this lab task, we worked on seven segment display. Segment displays are the output display device that provides a way to display information in the form of an image or text or decimal numbers. It consists of seven segments of light-emitting diodes (LEDs) which are assembled like numerical 8. The number 8 is displayed when the power is given to all the segments and if we disconnect the power for 'g', then it displays number 0. In a seven-segment display, power (or voltage) at different pins can be applied at the same time, so we can form combinations of display numerical from 0 to 9.

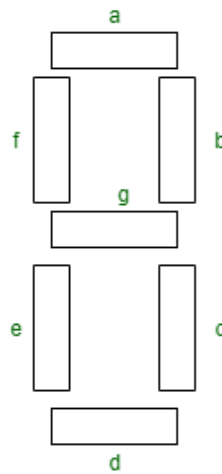


Figure1: Seven segment display

Tools:

Potentiometer - 1

Single 7-segment display - 1

Red LED - 1

Resistors - 8

Circuit diagram:

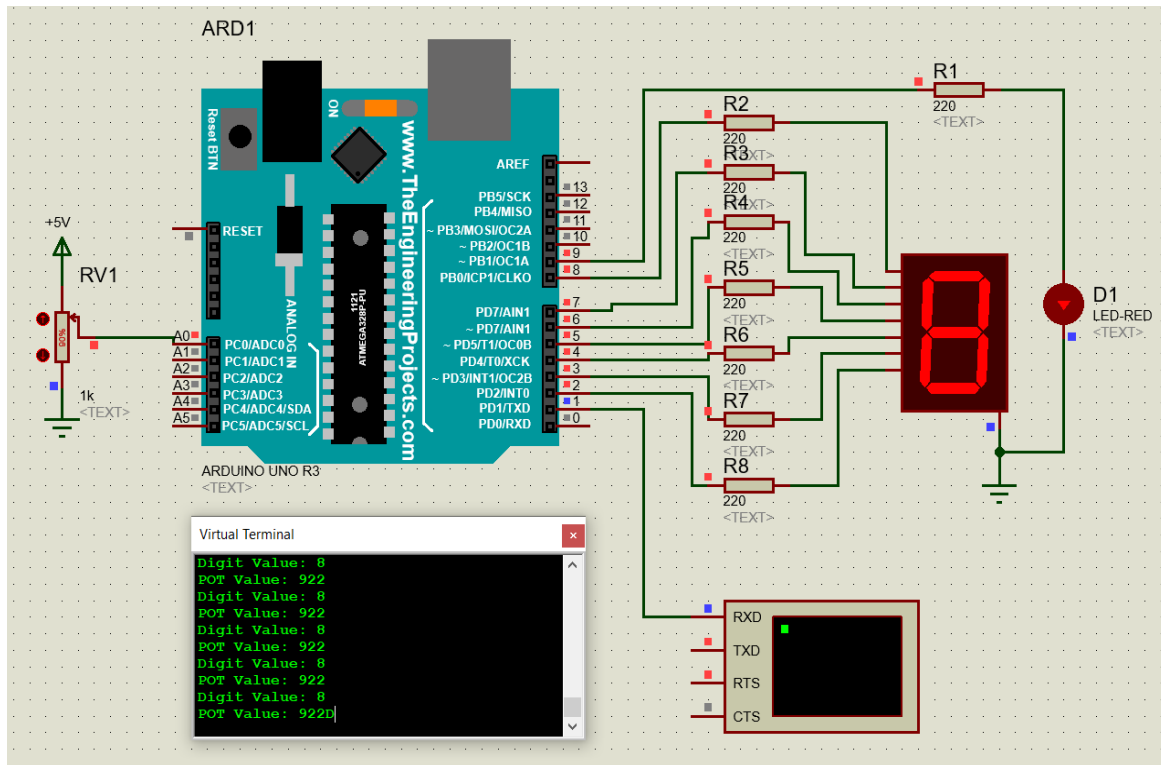


Figure2: Schematic view of seven-segment display

Code:

```
#define led 9
int potVal = 0;
int digit = 0;

void setup() {

  pinMode (2, OUTPUT);
  pinMode (3, OUTPUT);
  pinMode (4, OUTPUT);
  pinMode (5, OUTPUT);
  pinMode (6, OUTPUT);
  pinMode (7, OUTPUT);
  pinMode (8, OUTPUT);
  pinMode (led, OUTPUT);
```

```

Serial.begin (9600); }

void loop() {
    potVal = analogRead (0);
    digit = potVal/105; //make 0-1024 to 0-9
    displayDigit (digit);

    if (potVal<100 || potVal>800){
        digitalWrite (led, HIGH); }
    else {
        digitalWrite (led, LOW); }

    Serial.print ("POT Value: ");
    Serial.println (potVal);
    Serial.print ("Digit Value: ");
    Serial.println (digit); }
void setSevenSegment (bool g, bool f, bool e, bool d, bool c, bool b, bool a) {
    digitalWrite(2,g);
    digitalWrite(3,f);
    digitalWrite(4,e);
    digitalWrite(5,d);
    digitalWrite(6,c);
    digitalWrite(7,b);
    digitalWrite(8,a); }
void displayDigit (int digit) {
    switch (digit) {
        case 0:
            setSevenSegment (0,1,1,1,1,1,1);
            break;

        case 1:
            setSevenSegment (0,0,0,0,1,1,0);
            break;

        case 2:
            setSevenSegment (1,0,1,1,0,1,1);
            break;

        case 3:
            setSevenSegment (1,0,0,1,1,1,1);

```

```
break;
```

```
case 4:
```

```
setSevenSegment (1,1,0,0,1,1,0);
```

```
break;
```

```
case 5:
```

```
setSevenSegment (1,1,0,1,1,0,1);
```

```
break;
```

```
case 6:
```

```
setSevenSegment (1,1,1,1,1,0,1);
```

```
break;
```

```
case 7:
```

```
setSevenSegment (0,0,0,0,1,1,1);
```

```
break;
```

```
case 8:
```

```
setSevenSegment (1,1,1,1,1,1,1);
```

```
break;
```

```
case 9:
```

```
setSevenSegment (1,1,0,1,1,1,1);
```

```
break;
```

```
default:
```

```
setSevenSegment (1,1,1,1,1,1,1);
```

```
break; } }
```

Conclusion:

In lab class five we got to know about the seven-segment display. And that knowledge helped us to do this lab task. This lab task helped us to understand and gain more knowledge on the use of seven-segment displays. Hence, it is teamwork so we worked as a team to solve this lab task. We didn't face any problem and we have successfully found the output as we wanted.