University of Asia Pacific

Department of Computer Science and Engineering

Course Title: **Peripheral and Interfacing Lab**

Course Code: CSE 316

Task Name: **Geometrical Shapes Design by LED**

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```
byte b;
void setup() {
  // put your setup code here, to run once:
  pinMode(12, OUTPUT);
  pinMode(13, OUTPUT);
  pinMode(8, INPUT);
  Serial.begin(9600);

}
void loop() {
  // put your main code here, to run repeatedly:
  b = digitalRead(8);

  if(b==HIGH){
  digitalWrite(13, b);
  delay(400);
  digitalWrite(13, LOW);
  delay(400);
  digitalWrite(12, LOW);
  delay(400);
  Serial.println("Triangle");
  }


  else if(b==LOW){
  digitalWrite(13, LOW);
  delay(400);
  digitalWrite(12, HIGH);
  delay(400);
  digitalWrite(12, LOW);
  delay(400);
  Serial.println("Rectangle");
    }
}
```

Figure: Arduino Code for Geometrical Shapes

Code Explanations:

In the code at first, I took the variable **'b'**.

In the **void setup()** function I have declared the pinMode and set the **Serial.begin(9600)** function to start the virtual terminal. In the pinMode I set the **pin 12, 13** as **OUTPUT** pin and **pin 8** as **INPUT** pin.

In the **void loop()** function, first I take the input from the switch in **pin 8** by using **digitalRead()** function and store the value in the variable **'b'**.

After that in If function I check b==HIGH [This part is for Triangle circuit]

- set pin 13 to b(HIGH)
- set delay of 400 millisecond
- set pin 13 to LOW
- set delay of 400 millisecond
- set pin 12 to LOW this will turn off the Rectangle circuit)
- set delay of 400 millisecond
- Write Triangle in the virtual terminal by using Serial.println() function.

Checking b==LOW in the else if function: [This part is for Rectangle circuit]

- set pin 13 to LOW
- set delay of 400 millisecond
- set pin 12 to HIGH
- set delay of 400 millisecond
- set pin 12 to LOW this will turn off the Rectangle circuit)
- set delay of 400 millisecond
- Write Rectangle in the virtual terminal by using Serial.println() function.

Used **digitalWrite()** function to set the value along with the pin numbers. And used **delay()** function to set the duration among those commands so that the Triangle circuit lights can blink.

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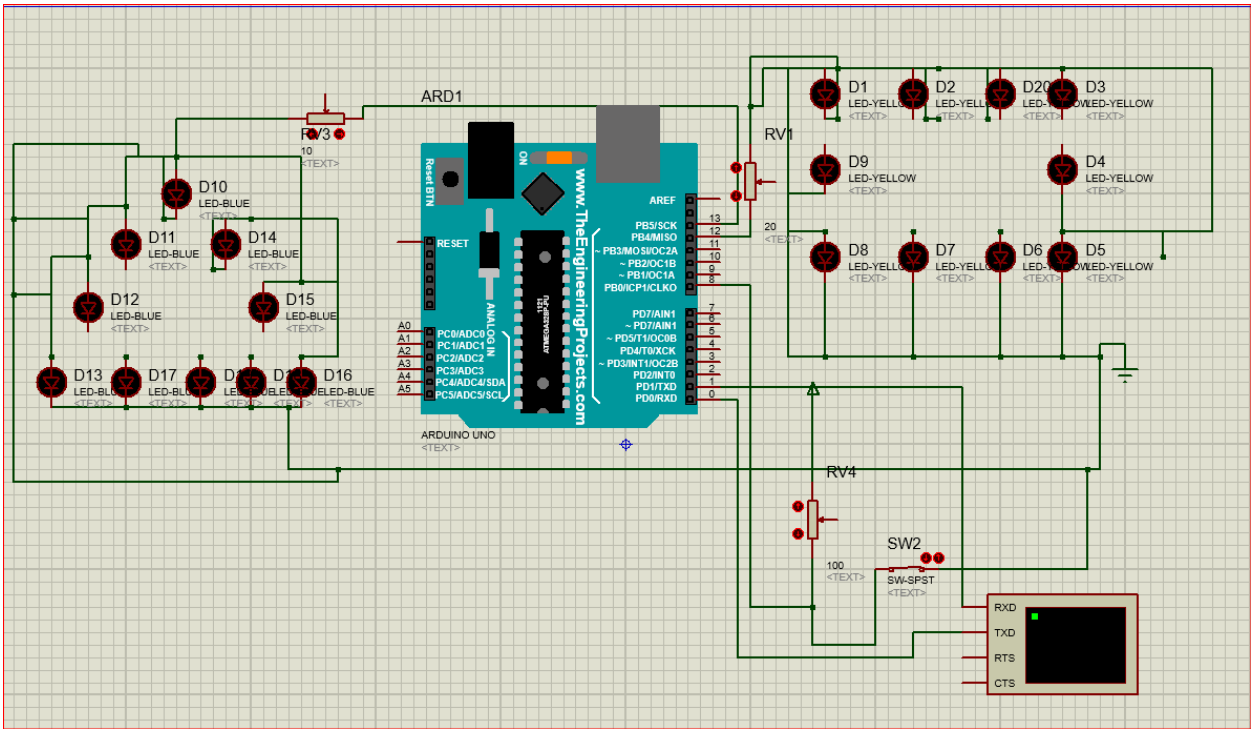

Figure 2: Geometrical Shapes Circuit in Proteus.

Components:

- LED (20)
- Resistors or Pot (3)
- Arduino UNO (1)
- Virtual Terminal (1)
- Switch (1)
- Ground (1)

Circuit Explanations:

I used **pin 12**, **13** as an OUTPUT pin so I connected those pins with two different resistors. Then from the other side of the resistors I connect all the bulb's positive points with the wire and the negative side with the **GND** in Series connection.

In the **pin 8** I give the connection of the **Switch** and also connect that Switch to the **Power** via resistor. And connect the other side of the Switch with the GND.

Connect the **Virtual Terminal** in the UNO's pin 1 with the terminal's pin **RXD**, UNO's pin 2 with the terminal's pin **TXD**.