

Internet of Things

Lab - 2

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5th Sem

Batch - 1

1) Demonstrate to show ON/OFF of LED using pushbutton.

```
const int BUTTON = 2;
```

```
const int LED = 13;
```

```
int BUTTONstate = 0;
```

```
void setup ()
```

```
{  
  pinMode (BUTTON, INPUT);
```

```
  pinMode (LED, OUTPUT);
```

```
}
```

```
void loop ()
```

```
{  
  BUTTONstate = digitalRead (BUTTON);
```

```
  if (BUTTONstate == HIGH)
```

```
{  
    digitalWrite (LED, HIGH);
```

```
}  
  else
```

```
{  
    digitalWrite (LED, LOW);
```

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```

}
digitalWrite (LED, LOW);
}

```

Hardware Required:

- 1) Arduino Uno board.
- 2) LED
- 3) Pushbutton
- 4) Resistor of resistance $1k\Omega = 1000\Omega$.

Circuit Diagram:

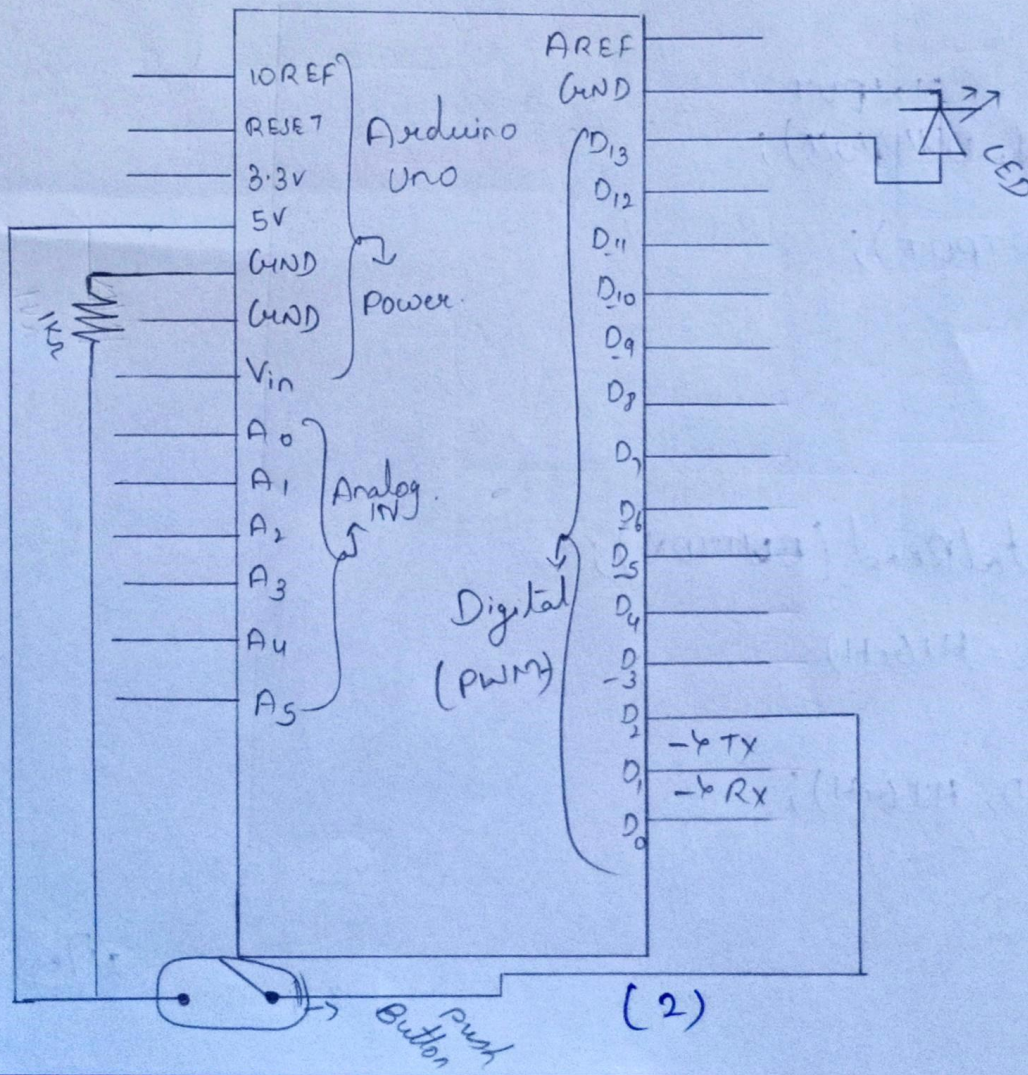


Fig. 1

2) Demonstrate to show LED Fading without using potentiometer.

Code:-

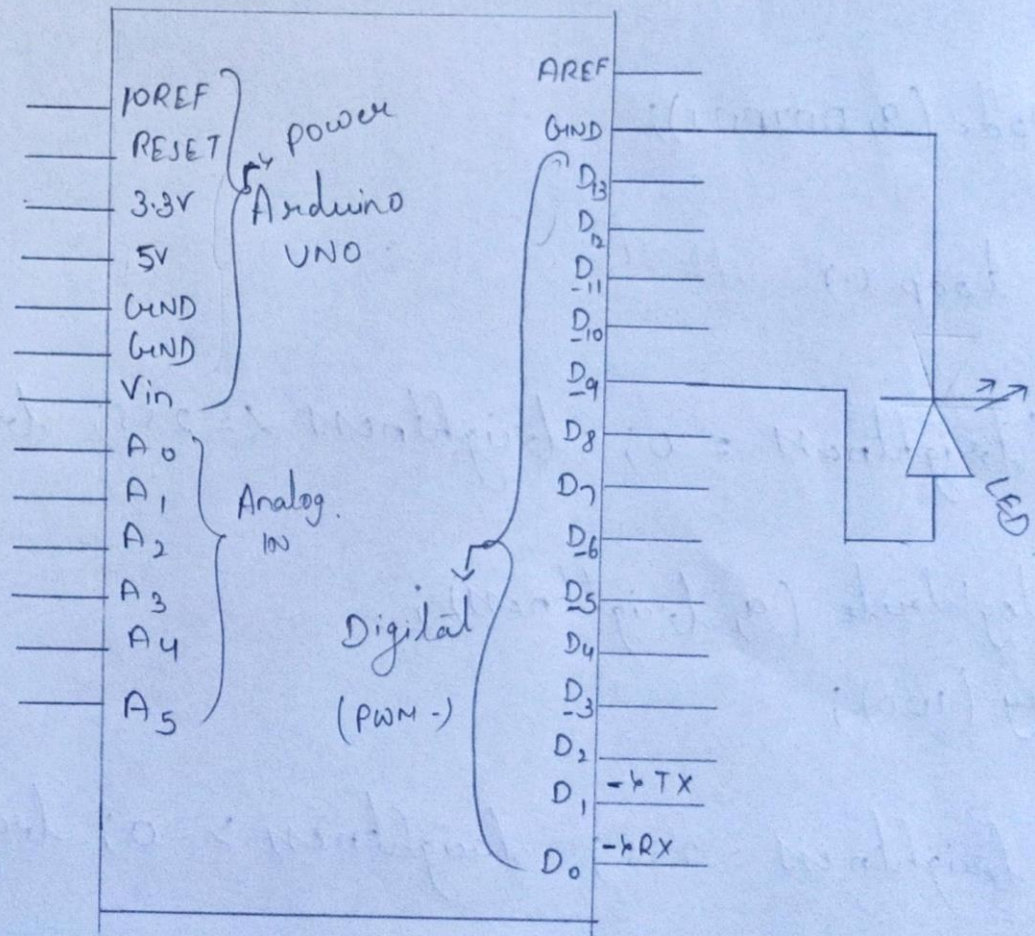
```
int brightness = 0;
void setup ()
{
  pinMode (9, OUTPUT);
}
void loop ()
{
  for (brightness = 0; brightness <= 255; brightness += 5)
  {
    analogWrite (9, brightness);
    delay (100);
  }
  for (brightness = 255; brightness >= 0; brightness -= 5)
  {
    analogWrite (9, brightness);
    delay (100);
  }
}
```

req.

Hardware Required :-

- 1) Arduino Uno board.
- 2) LED.

Circuit Diagram:-



3) Demonstrate to show LED Fading using potentiometer.

Code:-

```
int ledpin = 9;
```

```
Void Setup ()
```

```
{
```

```
  Serial.begin(9600);
```

```
  pinMode (ledpin, OUTPUT);
```

```
}
```

```
Void loop ()
```

```
{
```

```
int analogValue = analogRead(A0);
```

```
int brightness = map(analogValue, 0, 1023, 0, 255);
```

```
analogWrite (ledpin, brightness);
```

```
Serial.print ("Analog: ");
```

```
Serial.print (analogValue);
```

```
Serial.print (" , \t brightness: ");
```

```
Serial.println (brightness);
```

```
delay(100);
```

```
}
```


Hardware Required:-

- 1) Arduino Uno board.
- 2) LED
- 3) Potentiometer

Circuit Diagram:-

