

A Practical activity Report submitted  
for Engineering Design Project-II (UTA-024) by

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**Submitted to:**

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## **Experiment: 1**

### **Objective:**

To Blink an LED using Arduino.

### **Software Used:**

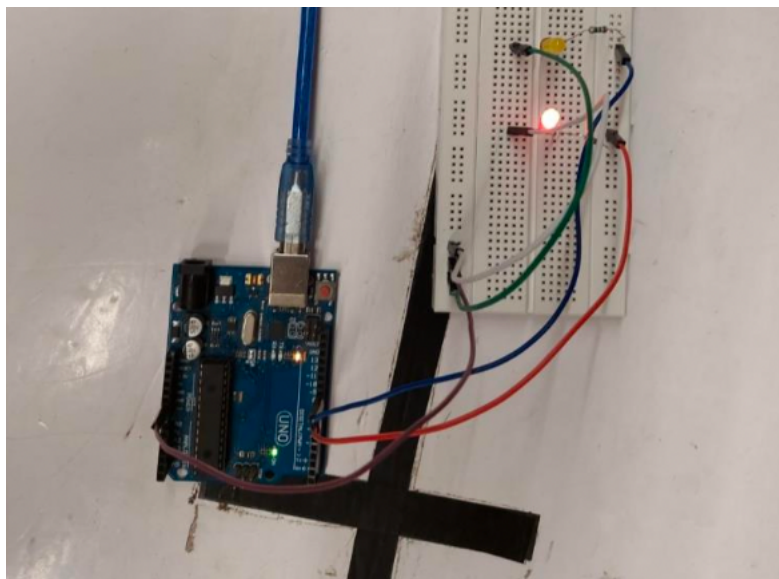
Arduino IDE

### **Components Used:**

- Arduino UNO
- LED
- Resistor
- Breadboard
- Wire- Jumper, Arduino connector

### **Code:**

```
void setup() {  
    pinMode(2, OUTPUT);  
}  
void loop() {  
    digitalWrite(2, HIGH);  
    delay(1000);  
    digitalWrite(2, LOW);  
    delay(1000);  
}
```



## **Experiment: 2**

### **Objective:**

To increase and decrease the intensity of an LED gradually using an Arduino.

### **Software Used:**

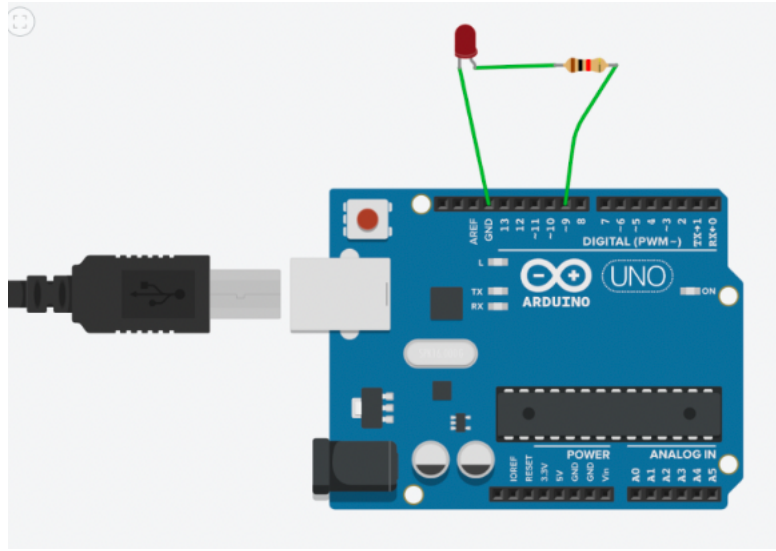
Arduino IDE

### **Components Used:**

- Arduino UNO
- LED
- Resistor
- Breadboard
- Wire- Jumper, Arduino connector

### **Code:**

```
void setup (){  
  
    pinMode(13,OUTPUT);  
  
    Serial.begin(19200);  
}  
  
void loop(){  
for(int i=0;i<=255;i++) {  
analogWrite(13,i); delay(50);  
}  
For(int i=255;i>=0;i--) {  
analogWrite(13,i); delay(50);  
}  
}
```



### **Experiment: 3**

#### **Objective:**

To design a 6 LED Traffic Light system using Arduino.

#### **Software Used:**

Arduino IDE

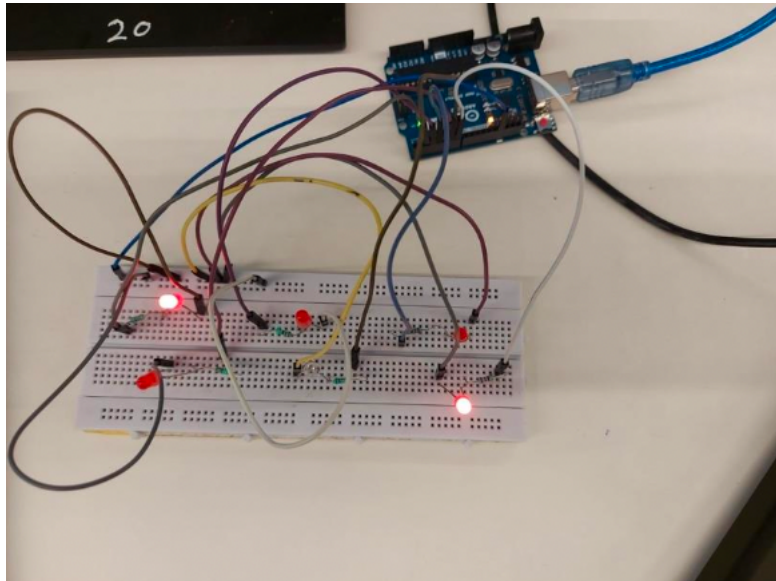
#### **Components Used:**

- Arduino UNO
- LED
- Resistor
- Breadboard
- Wire- Jumper, Arduino connector

#### **Code:**

```
void setup () {  
  pinMode (8, OUTPUT);  
  pinMode (9, OUTPUT);  
  pinMode (10, OUTPUT);  
  pinMode (11, OUTPUT);  
  pinMode (12, OUTPUT);  
  pinMode (13, OUTPUT);  
}  
void loop () {  
  digitalWrite (8, HIGH);  
  digitalWrite (13, HIGH);  
  delay (3000);  
  digitalWrite (8, LOW);  
  digitalWrite (13, LOW);  
  digitalWrite (10, HIGH);  
  digitalWrite (12, HIGH);  
  delay (3000);  
  digitalWrite (10, LOW);  
  digitalWrite (12, LOW);  
  digitalWrite (9, HIGH);  
  digitalWrite (11, HIGH);  
  delay (3000);  
  digitalWrite (9, LOW);  
  digitalWrite (11, LOW);  
  digitalWrite (8, HIGH);  
  digitalWrite (13, HIGH);  
  delay (3000);  
}
```

```
digitalWrite (8, LOW);  
digitalWrite (13, LOW);
```



## **Experiment: 4**

### **Objective:**

Blinking an LED based upon the user input using Arduino.

### **Software Used:**

Arduino IDE

### **Components Used:**

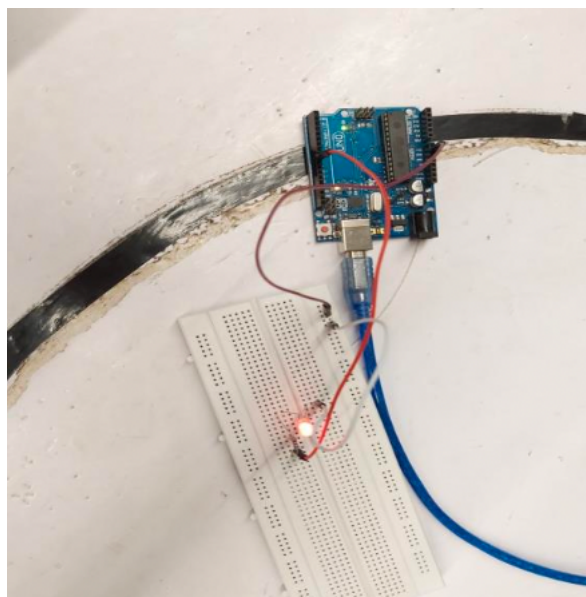
- Arduino UNO
- LED
- Resistor
- Breadboard
- Wire- Jumper, Arduino connector

### **Code:**

```
int a ;
int b ;
void setup () {
pinMode (8, OUTPUT);
pinMode (9, OUTPUT);
pinMode (10, OUTPUT);
pinMode (11, OUTPUT);
pinMode (12, OUTPUT);
pinMode (13, OUTPUT); Serial.begin(9600);
}
void loop () {
while(Serial.available()==1){
Serial.println("enter delay time");
a = Serial.parseInt();
Serial.println("enter delay for yellow");
b=Serial.parseInt();
digitalWrite (8, HIGH);
digitalWrite (13, HIGH);
delay (3000);
digitalWrite (8, LOW);
digitalWrite (13, LOW);
digitalWrite (10, HIGH);
digitalWrite (12, HIGH);
delay (3000);
digitalWrite (10, LOW);
digitalWrite (12, LOW);
digitalWrite (9, HIGH);
```



```
digitalWrite (11, HIGH);  
delay (3000);  
digitalWrite (9, LOW);  
digitalWrite (11, LOW);  
digitalWrite (8, HIGH);  
digitalWrite (13, HIGH);  
delay (3000);  
digitalWrite (8, LOW);  
digitalWrite (13, LOW);  
}  
}
```



## **Experiment: 5(a)**

### **Objective:**

Blinking LEDs in patterns using different methods (a. Using an Array and a For Loop) using Arduino.

### **Software Used:**

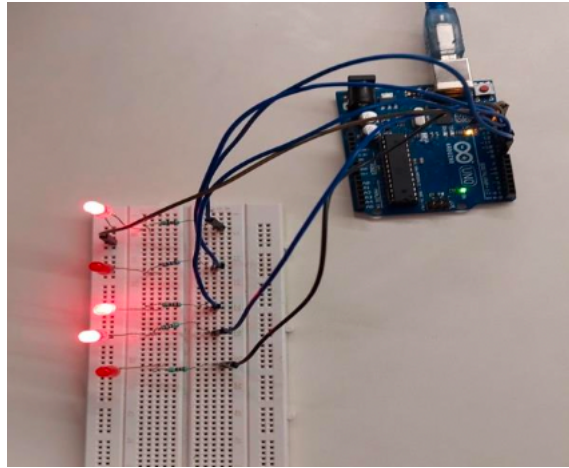
Arduino IDE

### **Components Used:**

- Arduino UNO
- LED
- Resistor
- Breadboard
- Wire- Jumper, Arduino connector

### **Code:**

```
int a[5] = {1,2,3,4,5};
int b[5] = {5,4,3,2,1};
void setup() {
  pinMode(1,OUTPUT);
  pinMode(2,OUTPUT);
  pinMode(3,OUTPUT);
  pinMode(4,OUTPUT);
  pinMode(5,OUTPUT);
}
void loop(){
  for(int i=0;i<5;i++)
  {
    digitalWrite(a[i],HIGH); delay(500);
  }
  for(int i=0;i<5;i++)
  {
    digitalWrite(b[i],LOW); delay(500);
  }
}
```



## **Experiment: 5(b)**

### **Objective:**

Blinking LEDs in patterns using different methods (b. Using a switch case statements) using Arduino.

### **Software Used:**

Arduino IDE

### **Components Used:**

- Arduino UNO
- LED
- Resistor
- Breadboard
- Wire- Jumper, Arduino connector

### **Code:**

```
int a[5];
int l1=3;
int l2=4;
int l3=5;
int l4=6;
int l5=7;
void setup ()
{
  pinMode(11,OUTPUT);
  pinMode(12,OUTPUT);
  pinMode(13,OUTPUT);
  pinMode(14,OUTPUT);
  pinMode(15,OUTPUT);
  Serial.begin(9600);
}
void loop(){
  if (Serial.available()>0){
    char in= Serial.parseInt();
    switch(in){
    case 0:
    {
      digitalWrite(11,HIGH);
      digitalWrite(12,LOW);
```

```
digitalWrite(13,LOW);
digitalWrite(14,LOW);
digitalWrite(15,LOW);
break;
}
case 1:
{
digitalWrite(11,HIGH);
digitalWrite(12,LOW);
digitalWrite(13,LOW);
digitalWrite(14,HIGH);
digitalWrite(15,LOW);
break;
}
case 2:
{
digitalWrite(11,HIGH);
digitalWrite(12,LOW);
digitalWrite(13,HIGH);
digitalWrite(14,HIGH);
digitalWrite(15,LOW);
break;
}
case 3:
{
digitalWrite(11,HIGH);
digitalWrite(12,HIGH);
digitalWrite(13,HIGH);
digitalWrite(14,HIGH);
digitalWrite(15,LOW);
break;
}
case 4:
{
digitalWrite(11,HIGH);
digitalWrite(12,HIGH);
digitalWrite(13,HIGH);
digitalWrite(14,HIGH);
digitalWrite(15,HIGH);
break;
}
case 5:
{
```

```
digitalWrite(11,LOW);
digitalWrite(12,LOW);
digitalWrite(13,LOW);
digitalWrite(14,LOW);
digitalWrite(15,LOW);
break;
}
case 6:
{
digitalWrite(11,HIGH);
digitalWrite(12,HIGH);
digitalWrite(13,HIGH);
digitalWrite(14,HIGH);
digitalWrite(15,LOW);
break;
}
case 7:
{
digitalWrite(11,HIGH);
digitalWrite(12,LOW);
digitalWrite(13,HIGH);
digitalWrite(14,HIGH);
digitalWrite(15,LOW);
break;
}
case 8:
{
digitalWrite(11,HIGH);
digitalWrite(12,LOW);
digitalWrite(13,HIGH);
digitalWrite(14,LOW);
digitalWrite(15,LOW);
break;
}
case 9:
{
digitalWrite(11,HIGH);
digitalWrite(12,LOW);
digitalWrite(13,LOW);
digitalWrite(14,LOW);
digitalWrite(15,LOW);
break;
}
```

```
case 10:
{
digitalWrite(11,LOW);
digitalWrite(12,LOW);
digitalWrite(13,LOW);
digitalWrite(14,LOW);
digitalWrite(15,LOW);
break;
}
}
}
}
}
```

