

# IOT Journal

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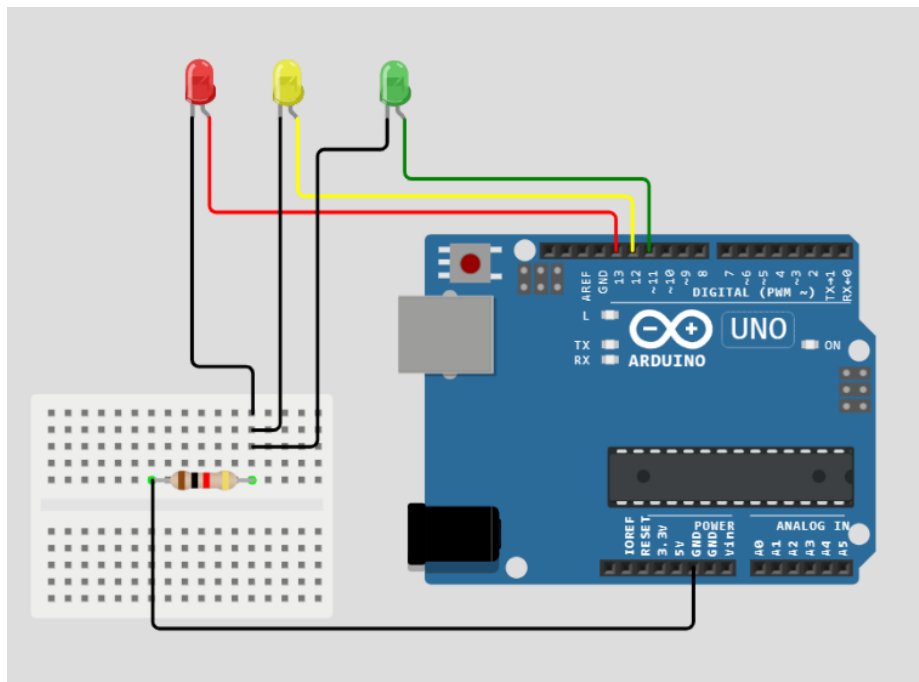
## Practical 01

Date: 6/1/23

**Aim:** Traffic Lights Using Arduino

**Apparatus:** Arduino uno, Arduino USB 2.0 data Cable, Breadboard, LED (Green, Red and Yellow), Jumper Wires, resistor 110 ohm.

**Circuit Diagram:**



**Code:**

```
// 13 = red;  
// 12 = yellow;  
// 11 = green;  
  
void setup() {  
  // put your setup code here, to run once:  
  pinMode(13, OUTPUT);  
  pinMode(12, OUTPUT);  
  pinMode(11, OUTPUT);  
}
```

```
void loop() {  
  // put your main code here, to run repeatedly:  
  digitalWrite(13, HIGH);  
  delay(5000);  
  digitalWrite(13, LOW);  
  
  digitalWrite(11, HIGH);  
  delay(1000);  
  digitalWrite(11, LOW);  
  
  digitalWrite(11, HIGH);  
  delay(500);  
  digitalWrite(11, LOW);  
  delay(500);  
  
  digitalWrite(11, HIGH);  
  delay(500);  
  digitalWrite(11, LOW);  
  delay(500);  
  
  digitalWrite(11, HIGH);  
  delay(500);  
  digitalWrite(11, LOW);  
  delay(500);  
  
  digitalWrite(11, HIGH);  
  delay(500);  
  digitalWrite(11, LOW);  
  delay(500);  
  
  digitalWrite(12, HIGH);  
  delay(2000);  
  digitalWrite(12, LOW);  
  
}
```

## Conclusion:

The Simulating Traffic Signal Lights using Arduino was studied successfully.

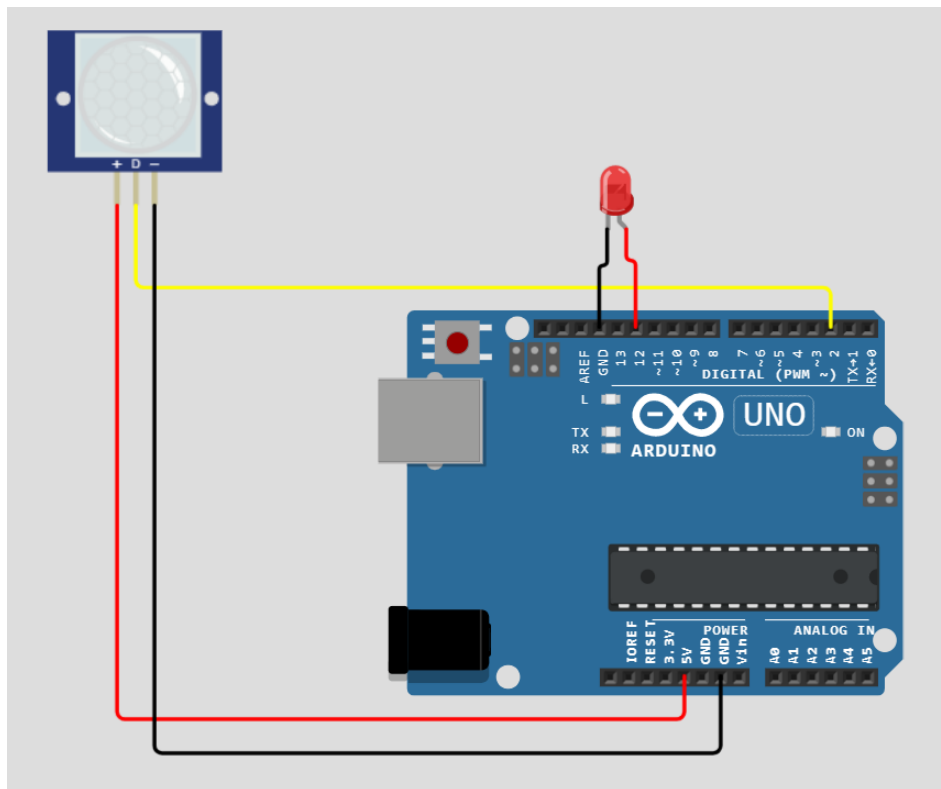
## Practical 02

Date: 10/1/2023

**Aim:** Night Security Lights using PIR (Passive infrared) sensor

**Apparatus:** Arduino uno, Arduino USB 2.0 data Cable, Breadboard, LED (Red), Jumper Wires, resistor 110-ohm, PIR sensor.

**Circuit Diagram:**



**Code:**

```
//right side of center pin is connected to vcc(5v)
//center pin is the input pin
//left side of center pin is connected to ground
//the above 3 lines are written into considering the real component

int val = 0;

void setup(){
  //put your setup code here, to run once
```

```
pinMode(12, OUTPUT);
pinMode(2, INPUT);
//pin 2 is used as input
Serial.begin(9600);
}

void loop(){
  //put your main code here, to run repeatedly:
  val = digitalRead(2);
  if(val == HIGH)
  {
    digitalWrite(12, HIGH);
    delay(100);
    Serial.println("Motion detected");
  }

  else
  {
    digitalWrite(12, LOW);
    Serial.println("Motion not detected");
  }
}
```

## Conclusion:

PIR motion sensor using arduino was implemented successfully.

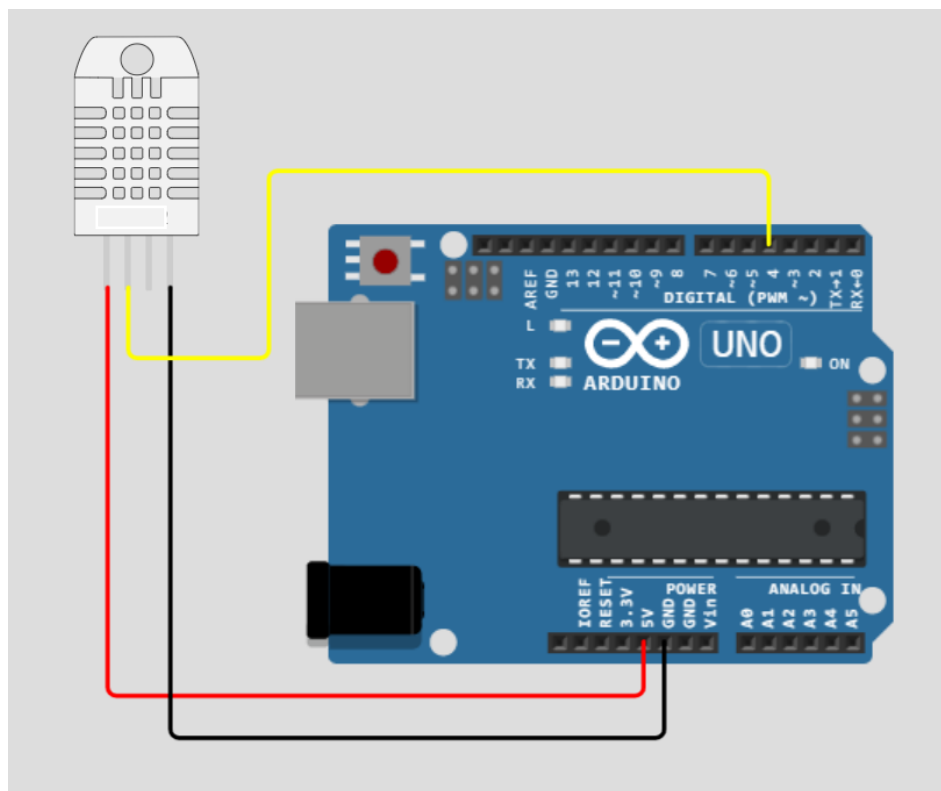
## Practical 03

Date:17/1/23

**Aim:** Temperature and Humidity Sensor Using Arduino

**Apparatus:** Arduino uno, Arduino USB 2.0 data Cable, Jumper Wires, resistor 110-ohm, DHT11 sensor.

**Circuit Diagram:**



**Code:**

```
#include <DHT.h>

DHT dht(4,DHT11);

void setup() {
  // put your setup code here, to run once:
  Serial.begin(9600);
  dht.begin();
}
```

```
void loop() {  
  // put your main code here, to run repeatedly:  
  Serial.println("Temperature (%): ");  
  Serial.println(dht.readTemperature());  
  
  Serial.println("Humidity (%): ");  
  Serial.println(dht.readHumidity());  
  
  delay(3000);  
}
```

### Conclusion:

Temperature and Humidity Sensor Using Arduino was implemented successfully.



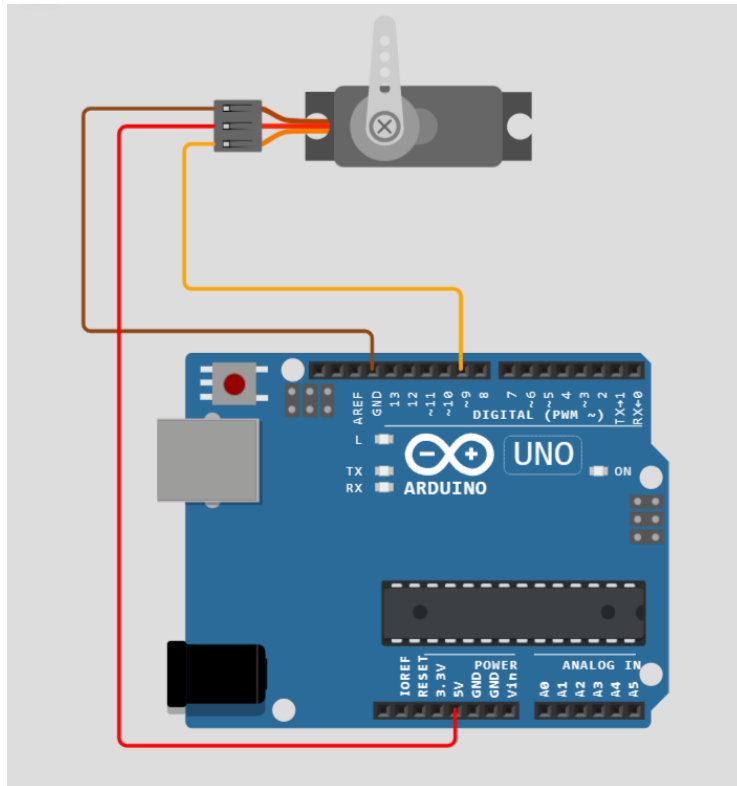
## Practical 04

Date:19/1/2023

**Aim:** Controlling Servo Motor Using Arduino

**Apparatus:** Arduino uno, Arduino USB 2.0 data Cable, Jumper Wires, Servo Motor.

**Circuit Diagram:**



**Code:**

```
//brown wire of servo motor - ground
//red wire of servo motor - 5v
//orange wire of servo motor - any pwm pin (in this case it is 9)
#include <Servo.h>
Servo myservo;
int pos = 0;

void setup() {
  // put your setup code here, to run once:
  myservo.attach(9);
```

```
}  
  
void loop() {  
  // put your main code here, to run repeatedly:  
  for(pos =0; pos <=180; pos +=1)  
  {  
    myservo.write(pos);  
    delay(10);  
  }  
  for(pos =180; pos>=0; pos -=1)  
  {  
    myservo.write(pos);  
    delay(10);  
  }  
}
```

### Conclusion:

Servo motor Using Arduino was implemented successfully.

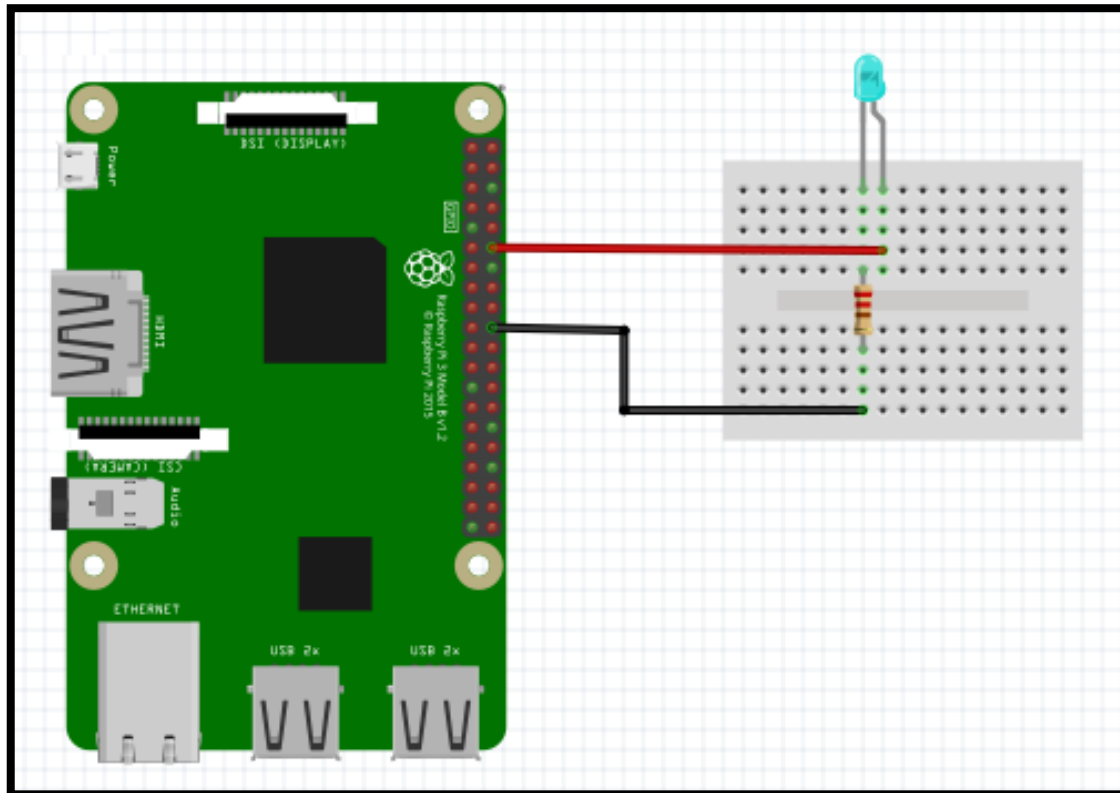
## Practical 05

Date:31/1/2023

**Aim:** Blinking Of Led Using Raspberry Pi

**Apparatus:** Raspberry pi, data Cable, Jumper Wires, led.

**Circuit Diagram:**



**Code:**

```
import RPi.GPIO as GPIO      # Import Raspberry Pi GPIO library
from time import sleep       # Import the sleep function from the time
                              # module

GPIO.setwarnings(False)      # Ignore warning for now
GPIO.setmode(GPIO.BOARD)     # Use physical pin numbering
GPIO.setup(8, GPIO.OUT)

while True:                  #Run forever

    GPIO.output(8, GPIO.HIGH) # Turn on
    sleep(1)                  # Sleep for 1 second
    GPIO.output(8, GPIO.LOW)  # Turn off
    sleep(1)                  # Sleep for 1 second
```

**Conclusion:** Blinking of an LED using a Raspberry pi was implemented successfully

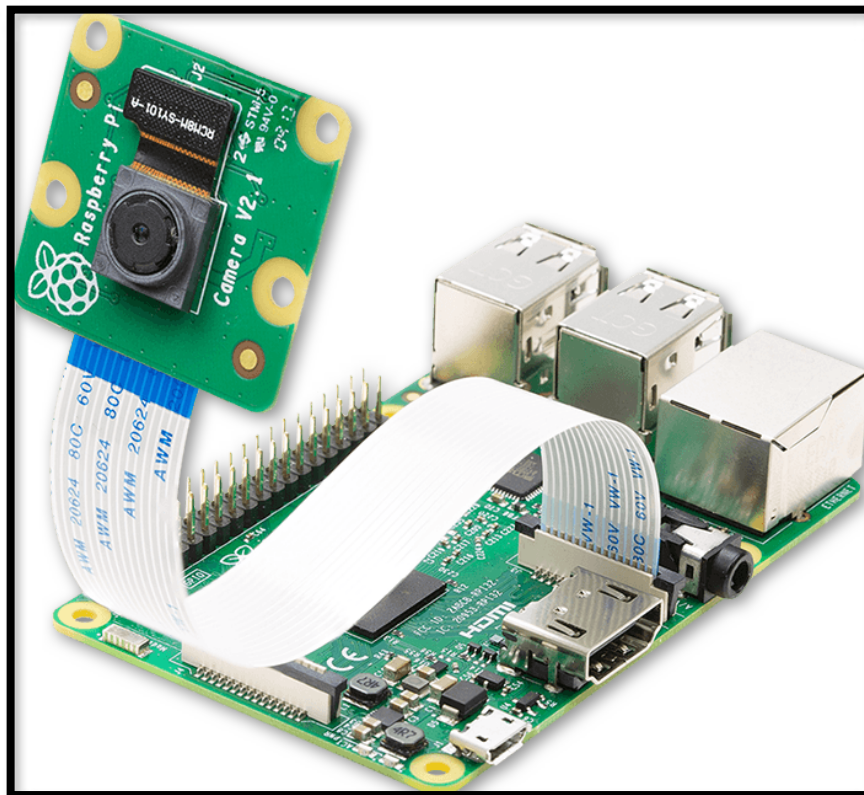
## Practical 06

Date:7/1/2023

**Aim:** Capturing Image and Videos Using Raspberry Pi

**Apparatus:** Raspberry pi, data Cable, Jumper Wires, led.

**Circuit Diagram:**



**Code:**

For image:

```
raspistill -o Desktop/img123.jpg
```

```
raspistill -o Desktop/image11.jpg -w 1980 -h 360 # for setting the width & height
```

For video:

```
raspivid -o Desktop/video1.h264
```

**Conclusion :** To capture pictures and video using Raspberry Pi camera

module was implemented successfully

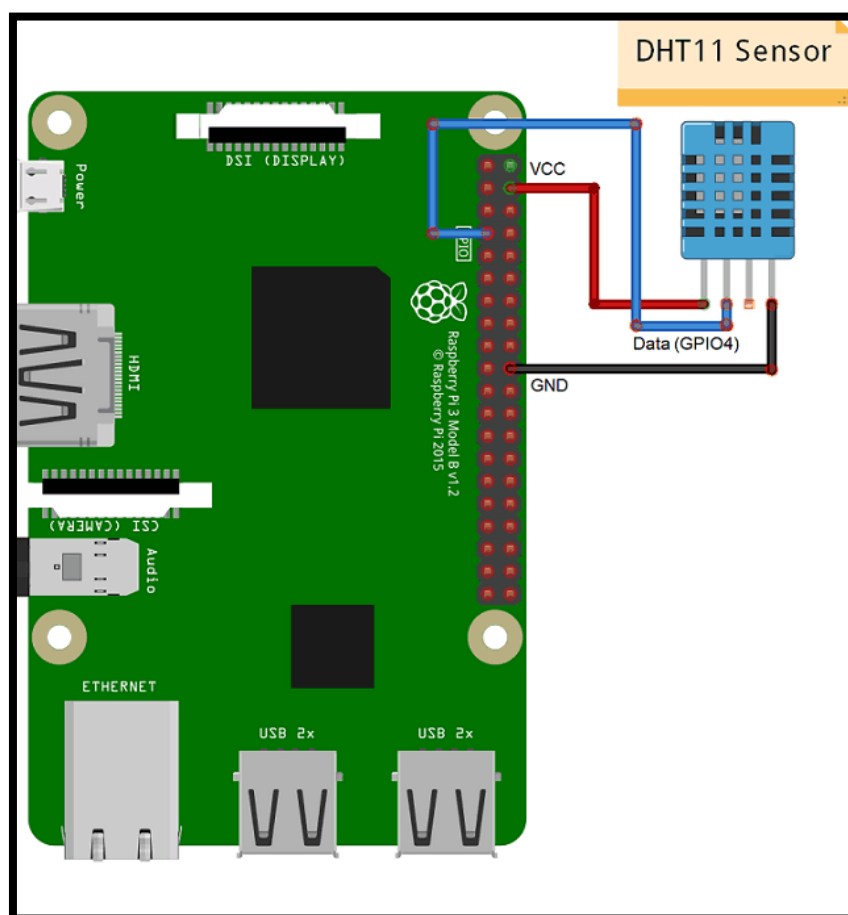
## Practical 07

Date: 16/1/2023

**Aim:** Temperature and humidity sensor Using Raspberry Pi

**Apparatus:** Raspberry pi, data Cable, Jumper Wires, led, DHT11 sensor.

**Circuit Diagram:**



**Code:**

```
import Adafruit_DHT
DHT11=Adafruit_DHT.DHT11

while True:
    try:
        temp, humid=Adafruit_DHT.read_retry (DHT11, 4)
        print("TEMP ={0:0.1f}°C HUMIDITY ={1:0.1f}%" . format(temp,
humid))
    except KeyboardInterrupt:
        break
```

**Conclusion :** to detect the temperature and humidity using dht11 in raspberry pi was studied successfully