Experiment 11: Interfacing motion sensor with Arduino Uno board

Objective:
• To understand the configuration of the motion sensor and how to interface with Arduino uno board

Equipment needed:
- Arduino Uno board
- Arduino IDE (Compiler)
- Proteus (Simulator)
- PIR sensor (motion sensor)
- PIR sensor Proteus libray (Available on ELMS)

Motion sensor:

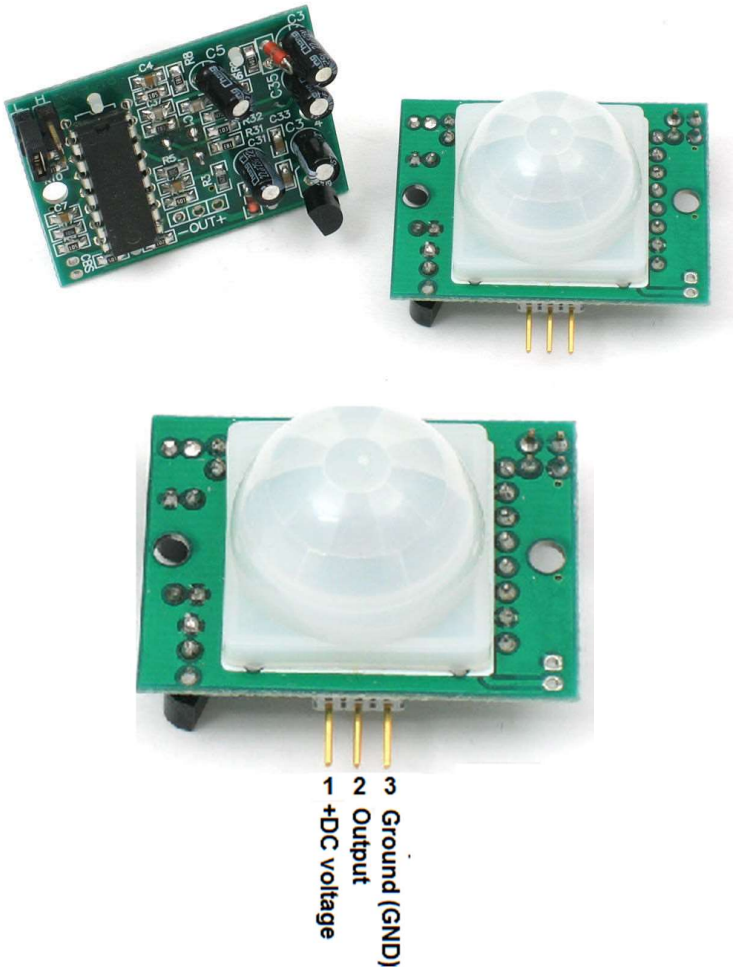


Figure: Motion sensor

The main electronic component we will use that allows us to pick up this detection is the PIR motion sensor. The PIR motion sensor is a sensor which detects movement through picking up infrared radiation. Being that a person emits infrared radiation, the detector is able to detect this and react, according to the how the circuit is designed to react. The sensor can also pick up the movement of inanimate objects as well, such a rolling ball, because as those objects move, friction acts on them, generating heat. This heat emits infrared radiation, which the PIR sensors may be able to detect if great enough.

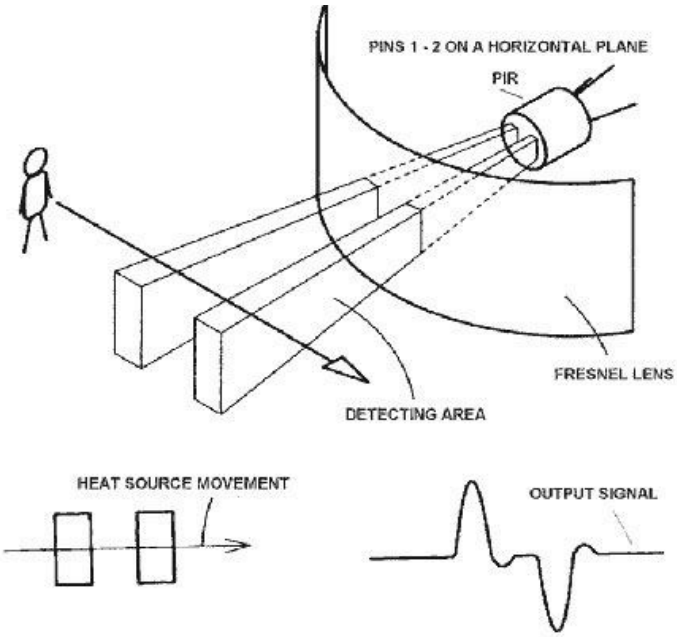


Figure: Motion detection

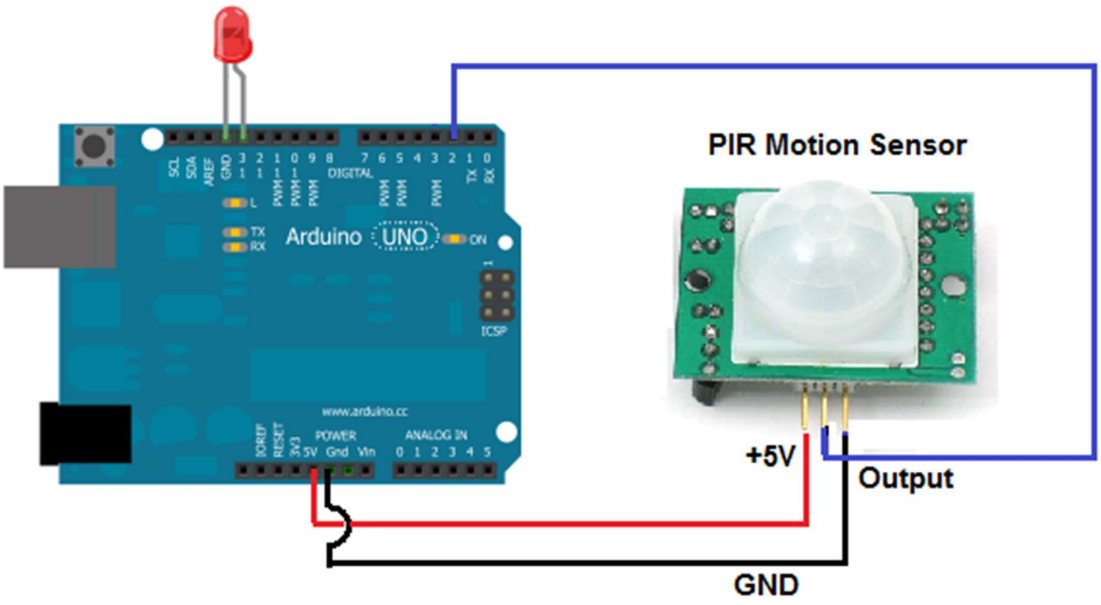
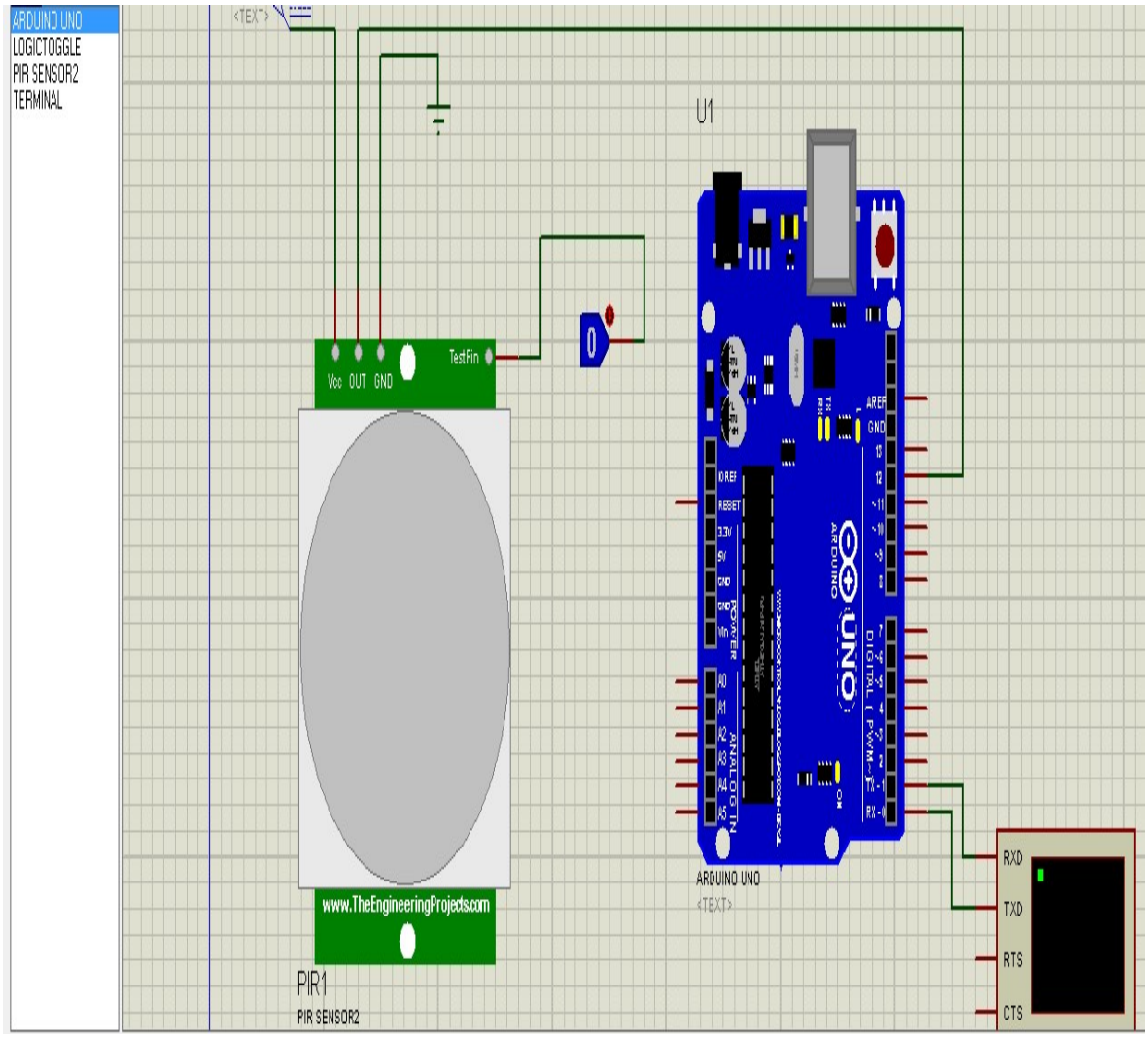


Figure: Arduino Motion Sensor Light Circuit


ARDUINO UNO
LOGICTOGGLE
PIR SENSOR2
TERMINAL
<TEXT>
U1
Vcc OUT GND
TestPin
www.TheEngineeringProjects.com
PIR1
PIR SENSOR2
ARDUINO UNO
<TEXT>
RXD
TXD
RTS
CTS

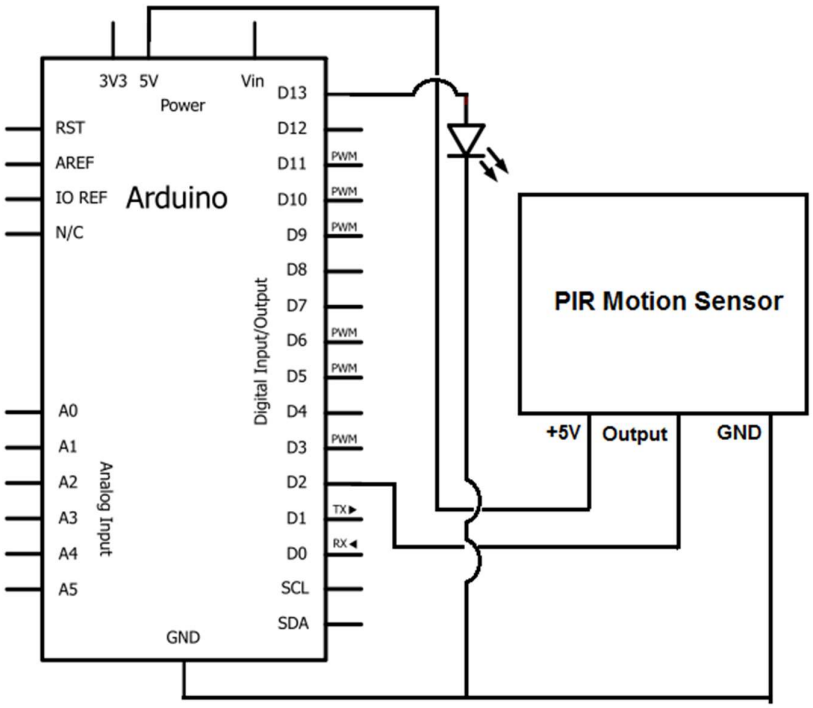


Figure: schematic diagram

Code:

```
int motion_1 = 2;
int led = 13;
void setup(){
  pinMode (motion_1,INPUT);
  pinMode (led, OUTPUT);
}

void loop (){
  digitalWrite (led,LOW);
  delay(1000); //this delay is to let the sensor settle down before taking a reading
  int sensor_1 = digitalRead(motion_1);\
  if (sensor_1 == HIGH){
    digitalWrite(led,HIGH);
    delay(500);
    digitalWrite(led,LOW);
    delay(500);

  }
}
```