IBM ASSIGNMENT – 1

Team ID	PNT2022TMID50840
Project Name	Gas leakage monitoring and alerting system

Thinkercad with 2 sensors, an,Led, buzzer :

Let's learn how to control multiple LEDs using Arduino's digital outputs and a breadboard. Expanding upon the last lesson on blinking an LED, We'll
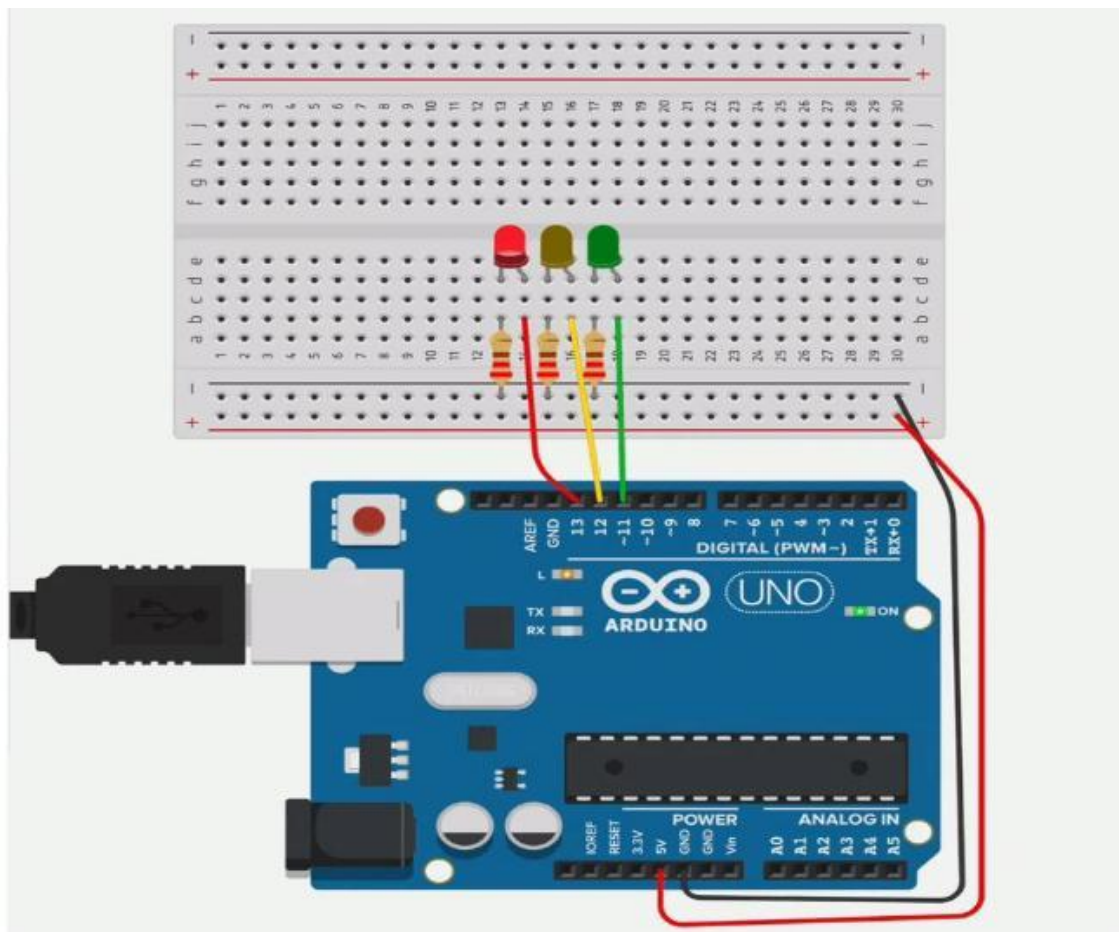
connect some LEDs to the Arduino Uno and compose a simple program to light them up in a pattern.

You can follow along virtually using Tinkercad Circuits. You can even view this lesson from within Tinkercad if you like! Explore the sample circuit and build your own right next to it! Explore the sample circuit in the workplane, and build your own along side it. Tinkercad Circuits is a free browser-based program that lets you build and simulate circuits. It's perfect for learning, teaching, and prototyping.

Program:

```
the time we give the sensor to calibrate (10-60 secs according to the
datasheet)
int calibrationTime = 30;

//the time when the sensor outputs a low impulse
long unsigned int lowIn;

//the amount of milliseconds the sensor has to be low
//before we assume all motion has stopped
long unsigned int pause = 5000;

boolean lockLow = true;
boolean takeLowTime;

int pirPin = 3;      //the digital pin connected to the PIR sensor's
output
int ledPin = 13;


/////////////////////////////
//SETUP
void setup(){
  Serial.begin(9600);
  pinMode(pirPin, INPUT);
  pinMode(ledPin, OUTPUT);
  digitalWrite(pirPin, LOW);

  //give the sensor some time to calibrate
  Serial.print("calibrating sensor ");
```

```arduino
    for(int i = 0; i < calibrationTime; i++){
      Serial.print(".");
      delay(1000);
      }
    Serial.println(" done");
    Serial.println("SENSOR ACTIVE");
    delay(50);
  }

/////////////////////////////
//LOOP
void loop(){

    if(digitalRead(pirPin) == HIGH){
      digitalWrite(ledPin, HIGH);   //the led visualizes the sensors
output pin state
      if(lockLow){
        //makes sure we wait for a transition to LOW before any
further output is made:
        lockLow = false;
        Serial.println("---");
        Serial.print("motion detected at ");
        Serial.print(millis()/1000);
        Serial.println(" sec");
        delay(50);
        }
        takeLowTime = true;
      }

    if(digitalRead(pirPin) == LOW){
      digitalWrite(ledPin, LOW);  //the led visualizes the sensors
output pin state

      if(takeLowTime){
        lowIn = millis();          //save the time of the transition
from high to LOW
        takeLowTime = false;       //make sure this is only done at the
start of a LOW phase
        }
      //if the sensor is low for more than the given pause,
      //we assume that no more motion is going to happen
      if(!lockLow && millis() - lowIn > pause){
          //makes sure this block of code is only executed again after
```

```
       //a new motion sequence has been detected
       lockLow = true;
       Serial.print("motion ended at ");       //output
       Serial.print((millis() - pause)/1000);
       Serial.println(" sec");
       delay(50);
       }
    }
}
```