

Northern University Of Bangladesh

Experiment No-5: Arduino

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Section : A

Course Name: Electronic Engineering Lab

Course Code: CSE 2161

Arduino :

Arduino microcontrollers are pre-programmed with a bootloader that simplifies the uploading of programs to the on-chip flash memory. The microcontroller is made of processor, ram, memory, rom. Its like a mini computer with a power supply.

There are many varieties of Arduino boards -

- 1) Power (USB / Barrel Jack)
- 2) Pins (5V, 3.3V, GND, Analog, Digital, PWM, AREF)
- 3) Reset Button
- 4) Power LED Indicator
- 5) TX RX LEDs
- 6) Main IC
- 7) Voltage Regulator

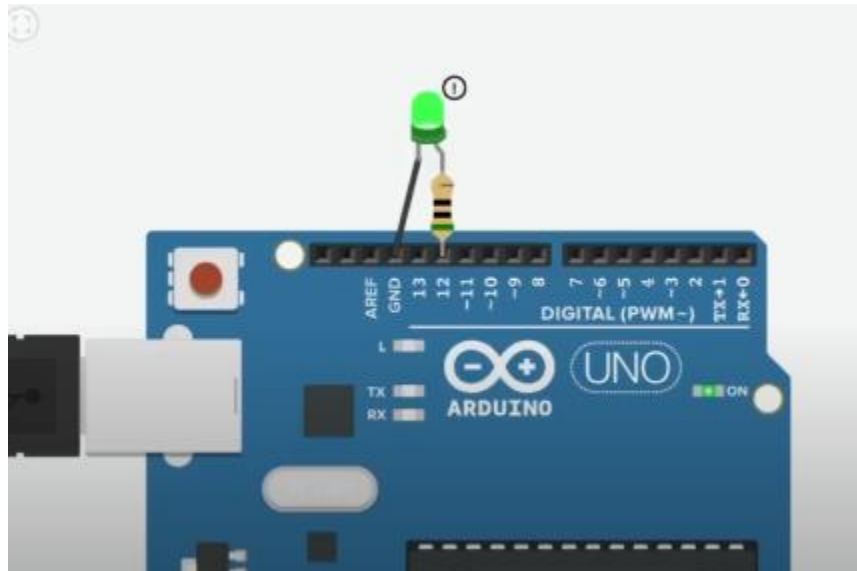
To code this microcontroller we need c++ programming language.

Code for aduino blinking light:

```
int led=12;
void setup() {
  pinMode(led,OUTPUT);
}

void loop() {
  digitalWrite(led,HIGH);
  delay(1000);
  digitalWrite(led,LOW);
  dealy(1000);
}
```

In setup function, 12 pins output will show. In loop function, at first light will on for 1sec and off for 1sec and this process will go for continuously.



Code for led and motor working:

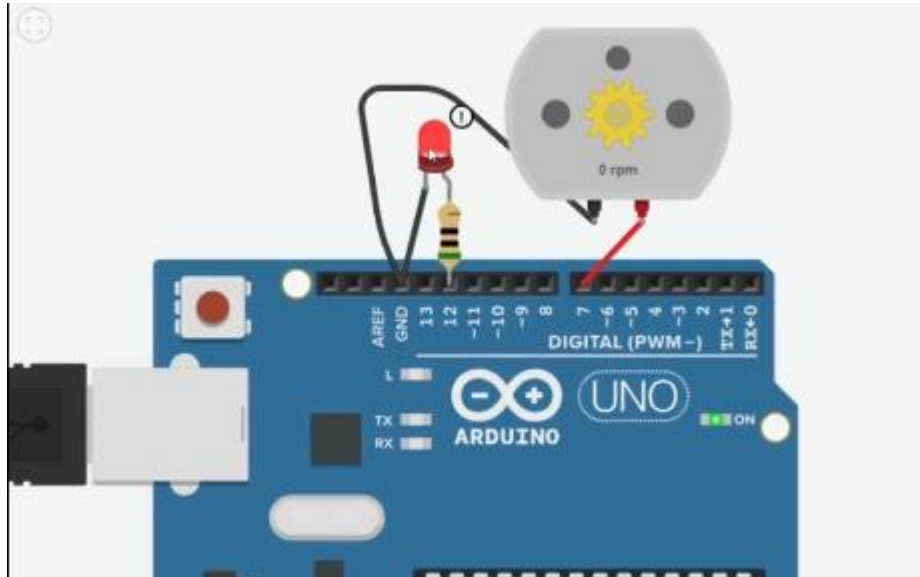
```
int LED_pin = 12;
int MTR_pin = 7;

void setup()
{
  pinMode(LED_pin, OUTPUT);
  pinMode(MTR_pin, OUTPUT);
}

void loop()
{
  digitalWrite(MTR_pin, 1);
  digitalWrite(LED_pin, 0);
  delay(1000); //1000ms

  digitalWrite(MTR_pin, 0);
  digitalWrite(LED_pin, 1);
  delay(1000); //1000ms
}
```

Here in loop function when led will off then the motor will on and led will on then motor will be off.



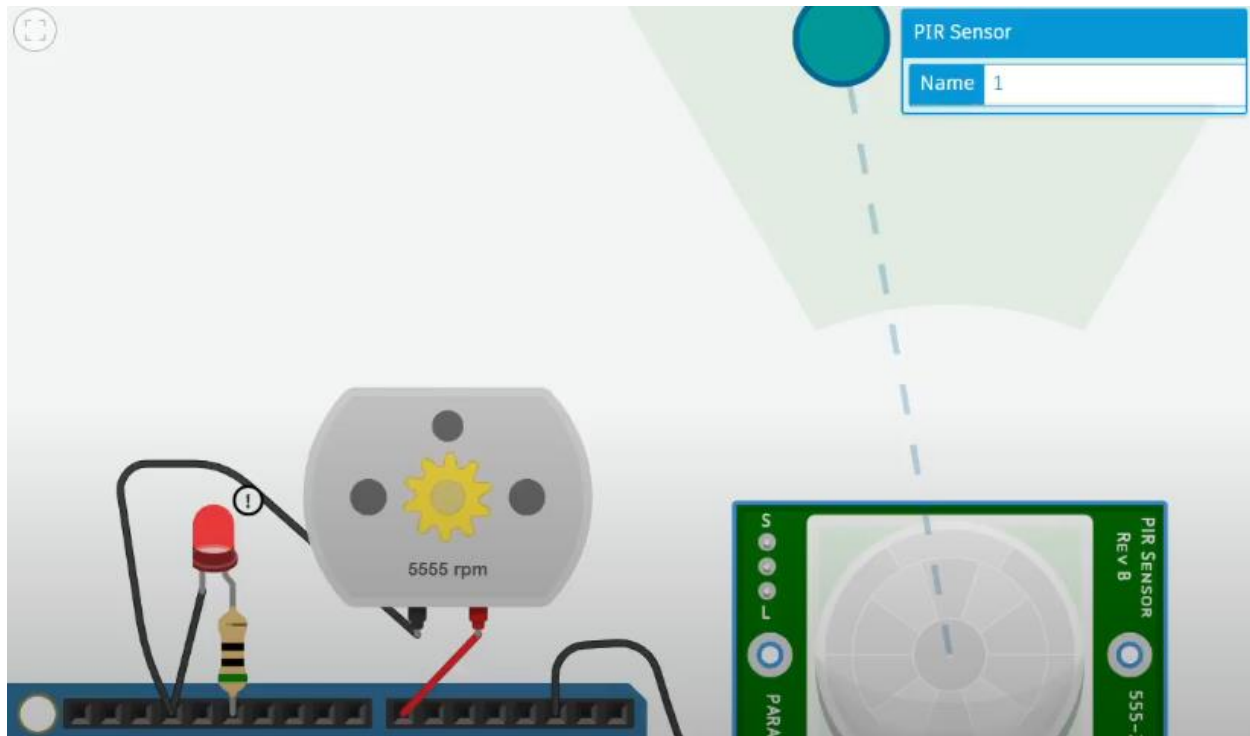
Code for PIR sensor :

```

3  int LED_pin = 12;
4  int MTR_pin = 7;
5  int Sns_pin = 2;
6
7  void setup()
8  {
9      pinMode(Sns_pin, INPUT);
10     pinMode(LED_pin, OUTPUT);
11     pinMode(MTR_pin, OUTPUT);
12 }
13
14 void loop()
15 {
16
17     if( digitalRead(Sns_pin)== 1 ){
18
19         digitalWrite(MTR_pin, 1);
20         digitalWrite(LED_pin, 1);
21         delay(10000); //1000ms
22     }
23
24     else{
25         digitalWrite(MTR_pin, 0);
26         digitalWrite(LED_pin, 0);
27     }
28
29 }

```

Here in loop function, when any human will detect in sensor light will be on and motor also on otherwise both will be off.



Code for servo motor :

```
#include<Servo.h>

int pin= 3 ;

Servo sm;

void setup (){
  sm.attach(Servo_pin);
}

void loop (){
  for (int pos = 0; pos <= 180; pos++){
    sm.write(pos);
    delay(15);
  }
  for (int pos=180 ; pos>=0; pos--){
    sm.write(pos);
    delay(15); }}
```

