

Microprocessor Systems and Interfacing

Lab Report

Lab02

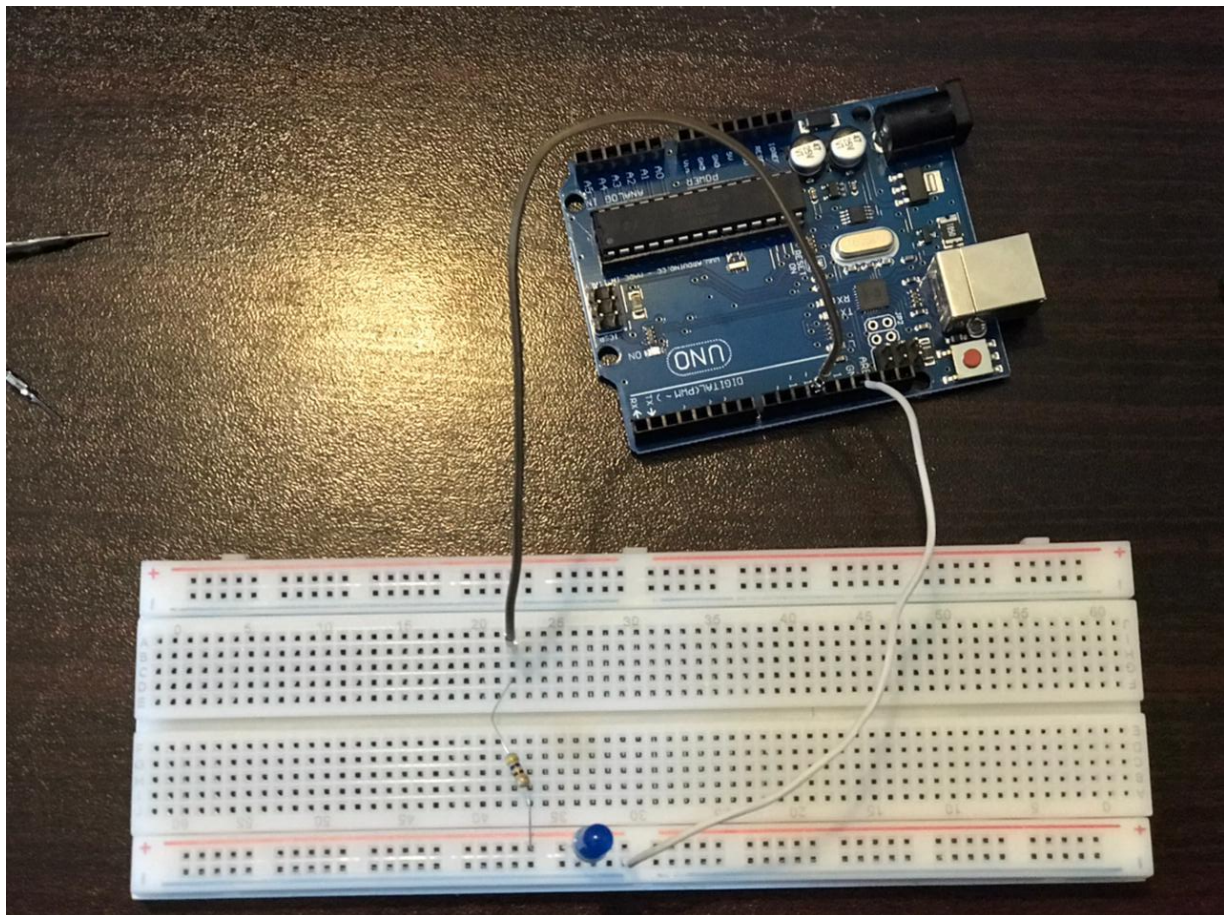


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Class	Microprocessor Systems and Interfacing CPE342 (BCE-6B)
Instructor's Name	Dr. Omer Ahmad

In Lab Tasks

Task 1:

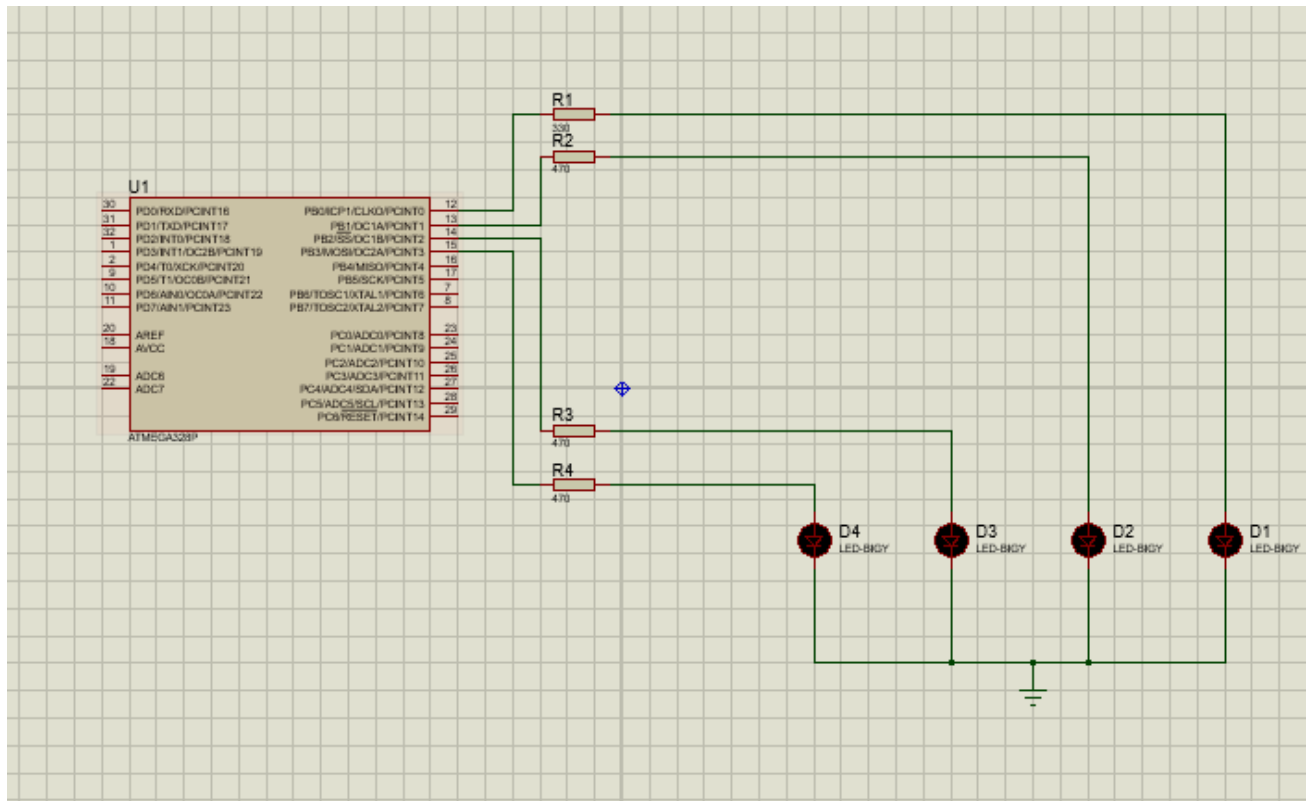
In this task we made our circuit on the breadboard, we used pin 11 and GND of Arduino Uni, the picture is given below.



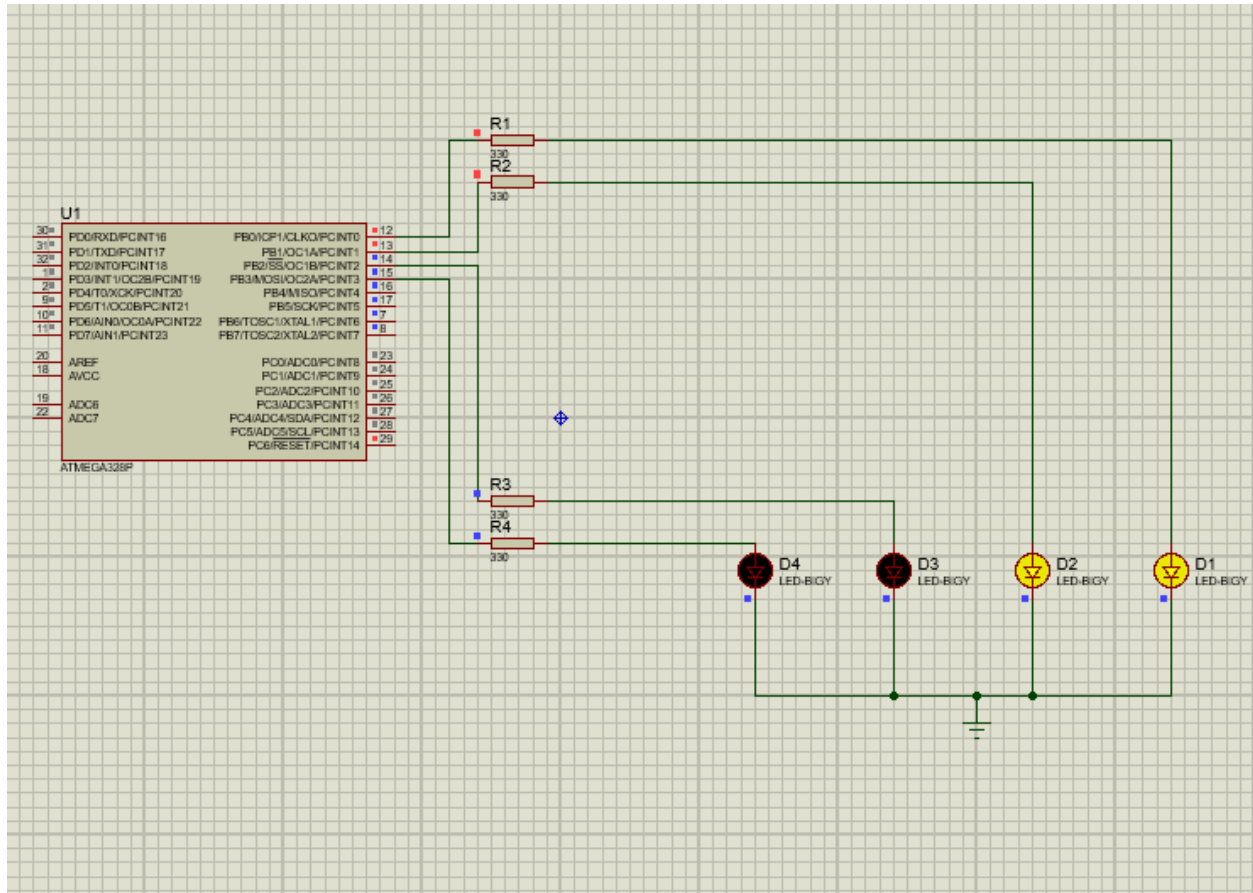
Task:2

In this task we built the provided Assembly code using Microchip Studio and generated a hex file, which we added on our atmega328p in proteus simulation.

The simulation is shown below,



In simulation, four leds represented four-bits, and showed table of 3 from 3 till 30 in binary using the leds.

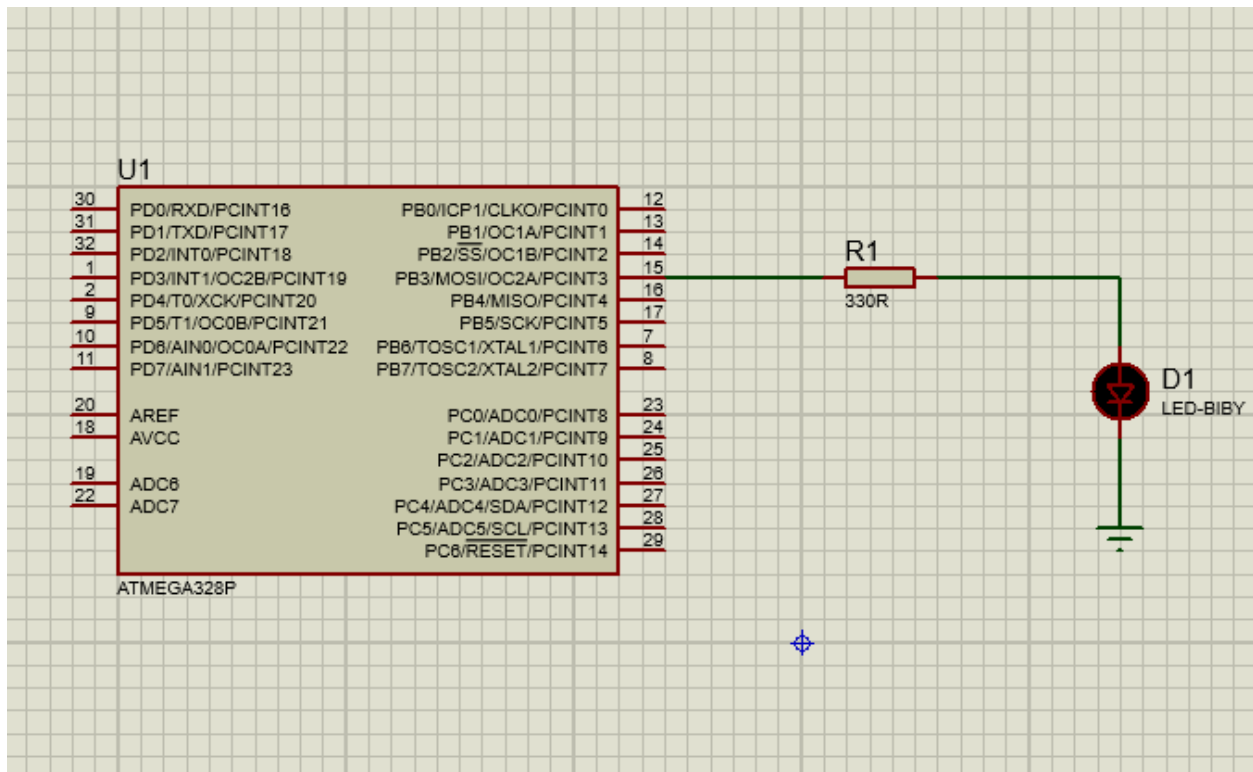


The picture above shows, decimal 3 represented in binary using LEDs

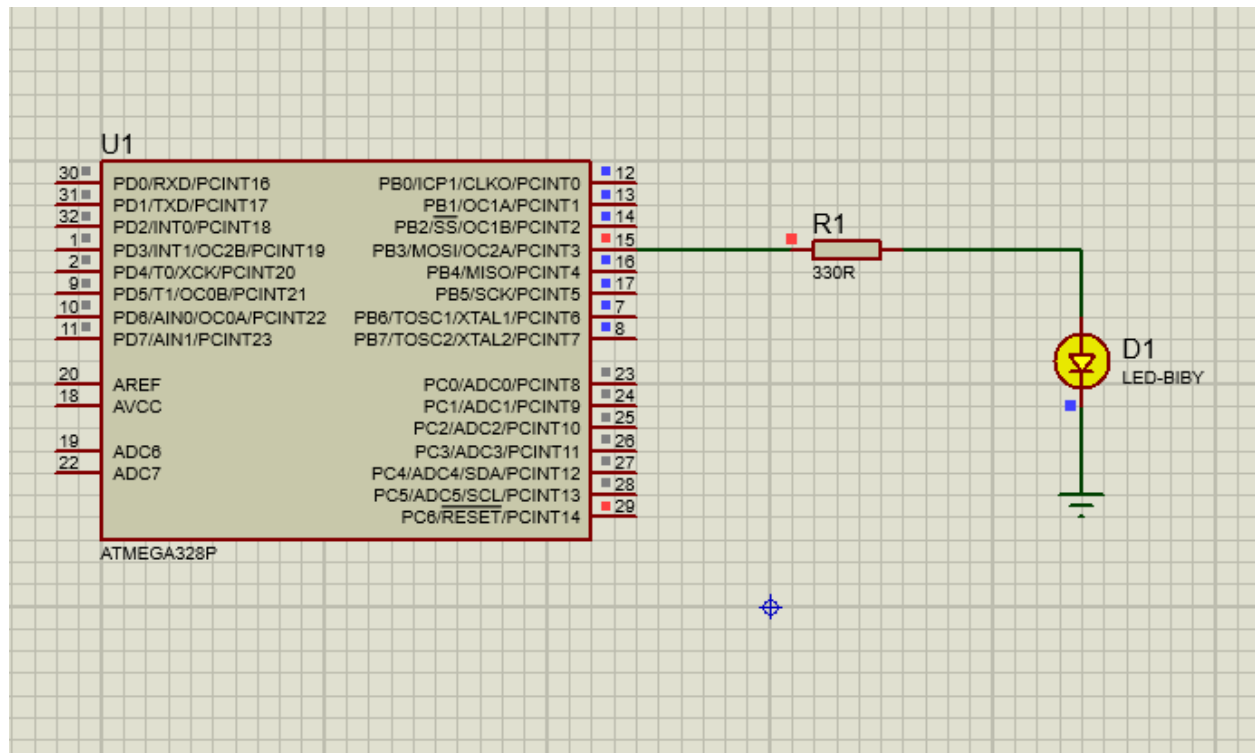
Task:3

In this task we built the provided C-code using Microchip Studio and generated a hex file, which we added on our atmega328p in proteus simulation.

The simulation is shown below,



In this code, our led keeps turning on and off, with a delay that we have added between the two commands.

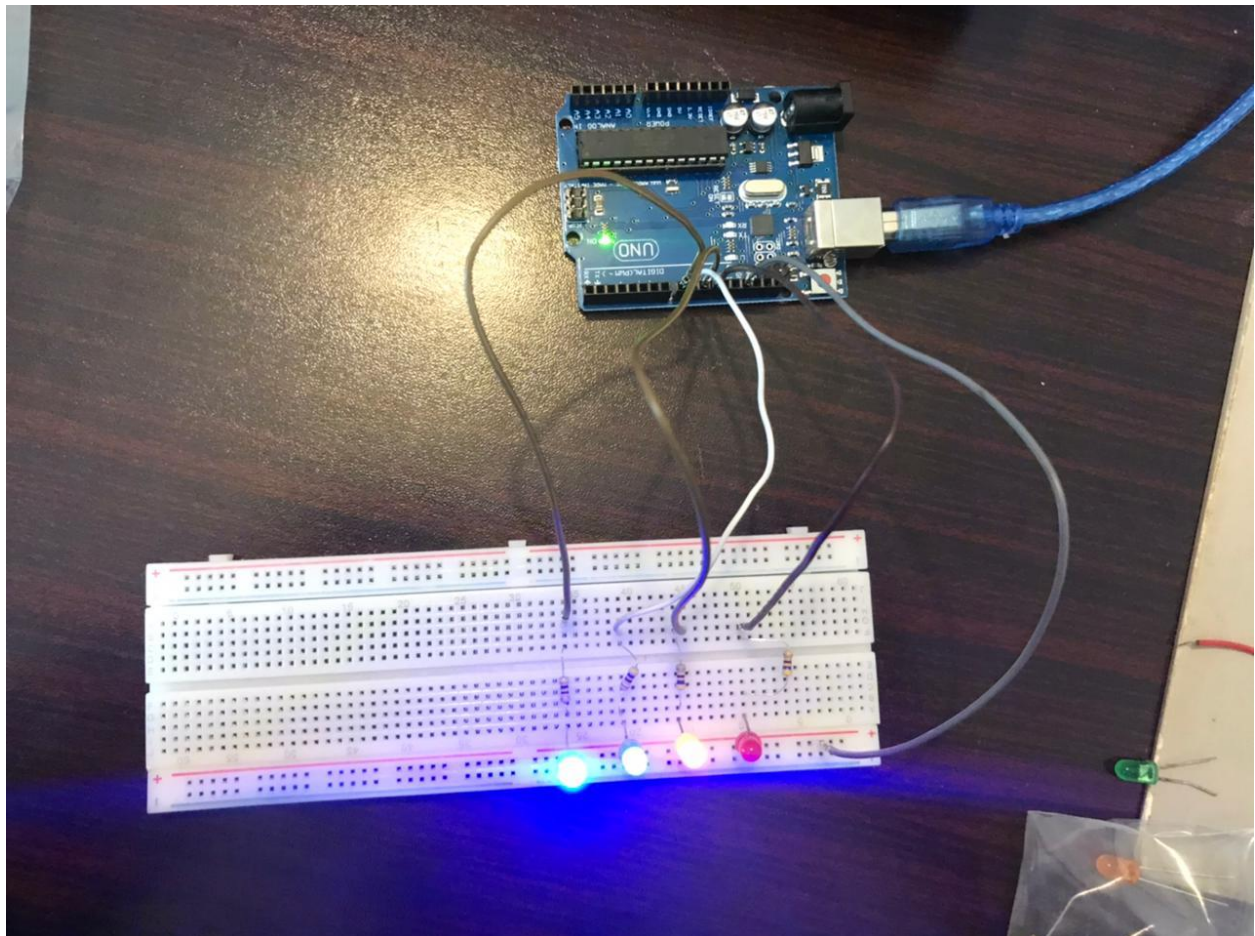


The above simulation shows when the led is on.

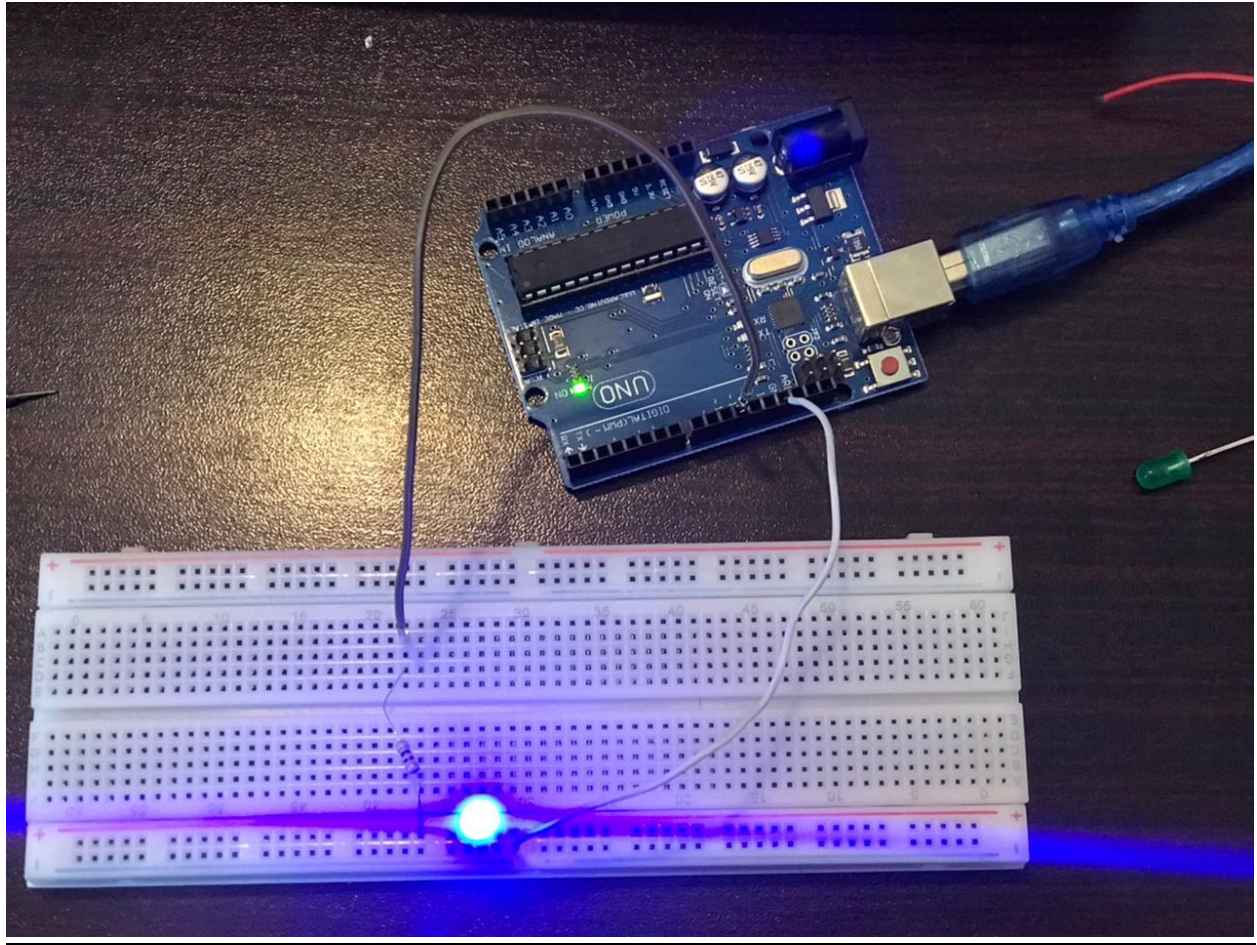
Task:4

In this task we Uploaded the provided Assembly and C-code using Microchip Studio to Arduino Uno,
Both the Circuits are shown below,

- Task-2 Circuit with Arduino



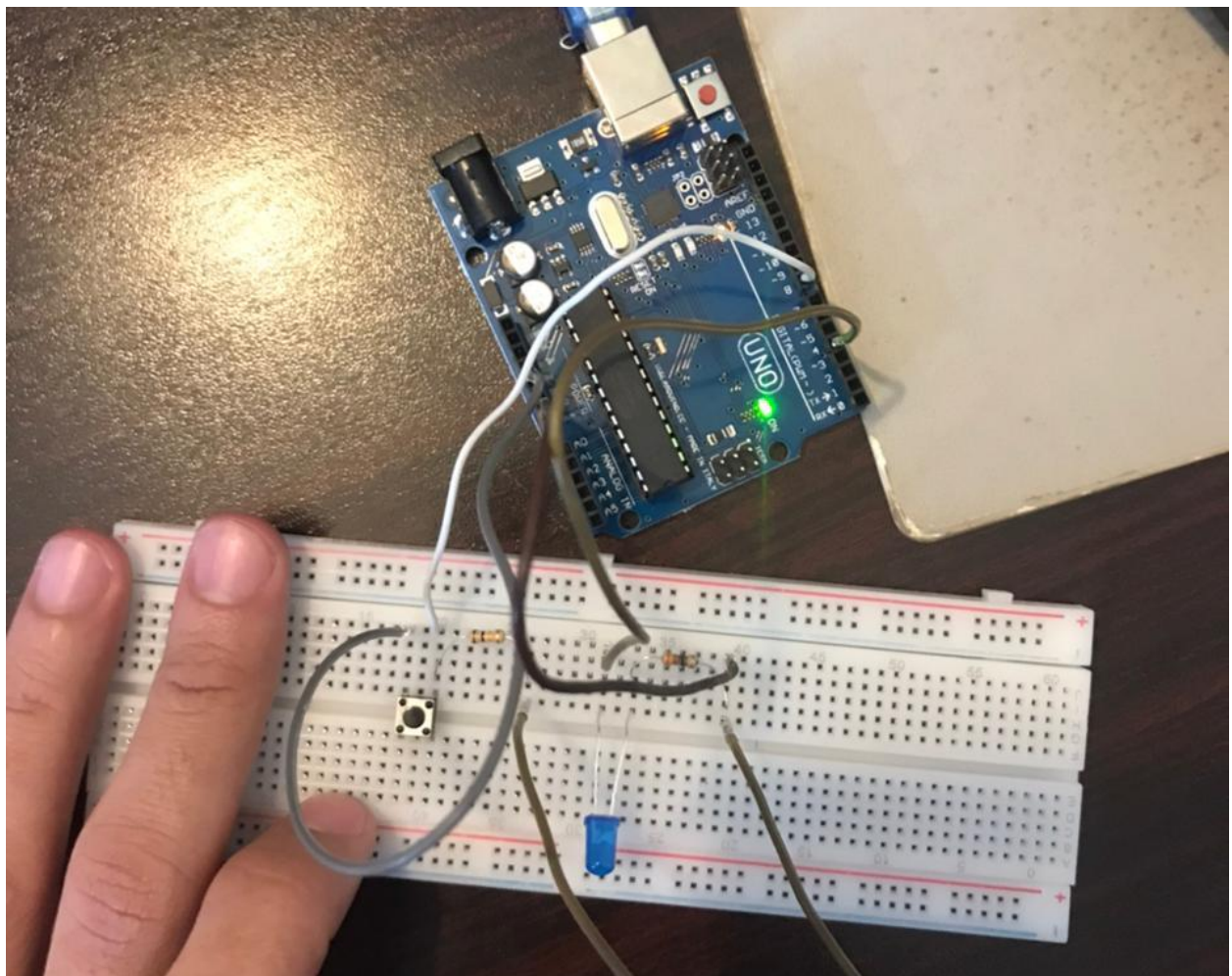
- Task-3 Circuit with Arduino



Post Lab Tasks

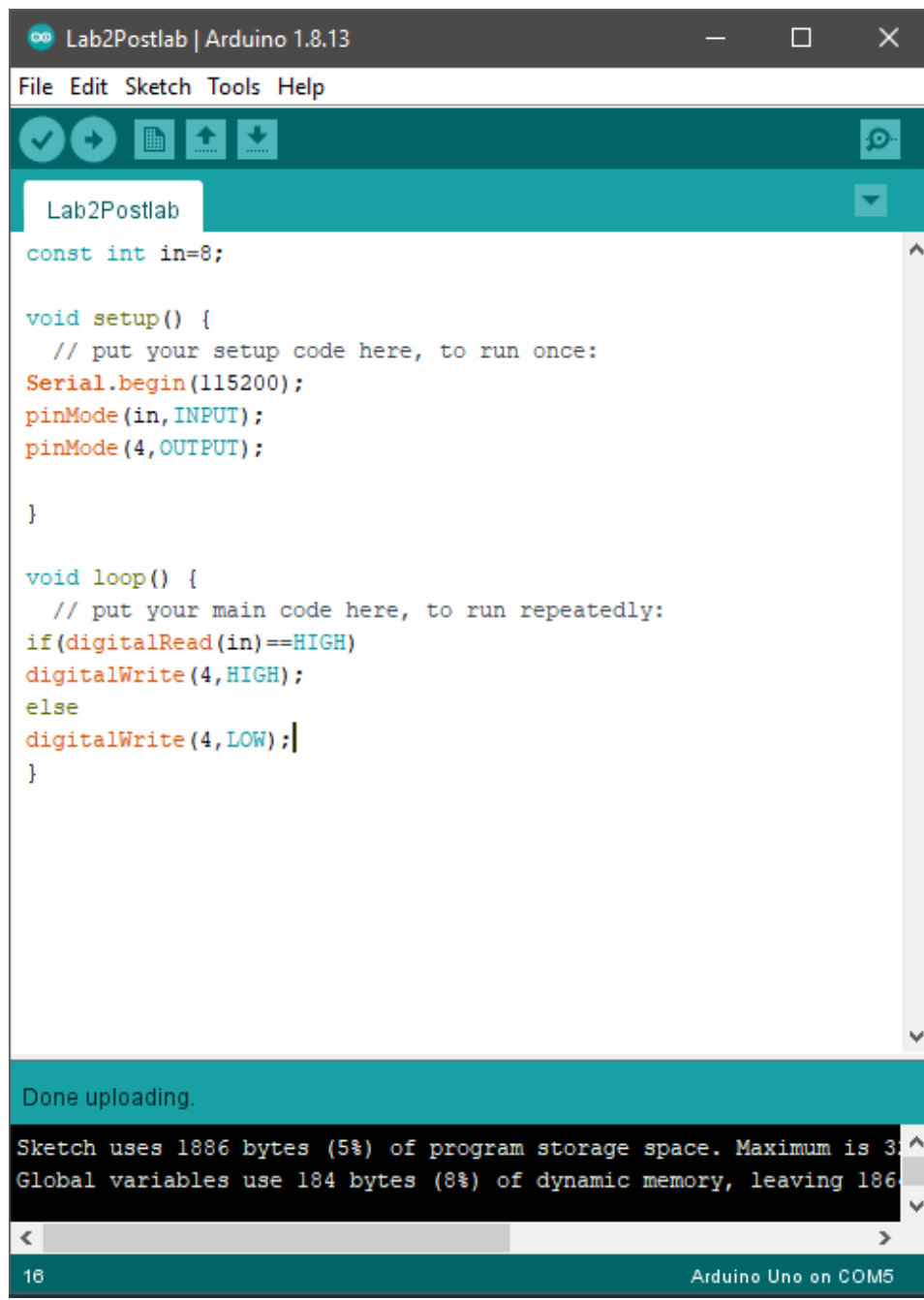
Task 1:

The Circuit is shown below,



Task 2:

I uploaded a code written in Arduino which works, I was not successful in editing the given Inlab code to my requirement.



The screenshot shows the Arduino IDE interface. The title bar reads "Lab2Postlab | Arduino 1.8.13". The menu bar includes "File", "Edit", "Sketch", "Tools", and "Help". The toolbar contains icons for checking, running, serial monitor, and uploading/downloading. A tab labeled "Lab2Postlab" is active. The code editor displays the following C++ code:

```
const int in=8;

void setup() {
  // put your setup code here, to run once:
  Serial.begin(115200);
  pinMode(in,INPUT);
  pinMode(4,OUTPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
  if(digitalRead(in)==HIGH)
    digitalWrite(4,HIGH);
  else
    digitalWrite(4,LOW);
}
```

Below the code editor, a status bar indicates "Done uploading." and provides memory usage details: "Sketch uses 1886 bytes (5%) of program storage space. Maximum is 32768 bytes." and "Global variables use 184 bytes (8%) of dynamic memory, leaving 1860 bytes free." The bottom status bar shows "16" and "Arduino Uno on COM5".

Image below shows circuit when the button is pressed and led is ON.

