

- a) Conduct an experiment with 2 LEDs. When the 1st LED is ON the 2nd should be OFF and vice versa.(serial monitor).
- b) Write down the installation steps of arduino IDE.

Aim: To implement the 2 LEDs ON and OFF. By using the Wifi Server if the 1st LED is ON and the another LED should be OFF vice versa.

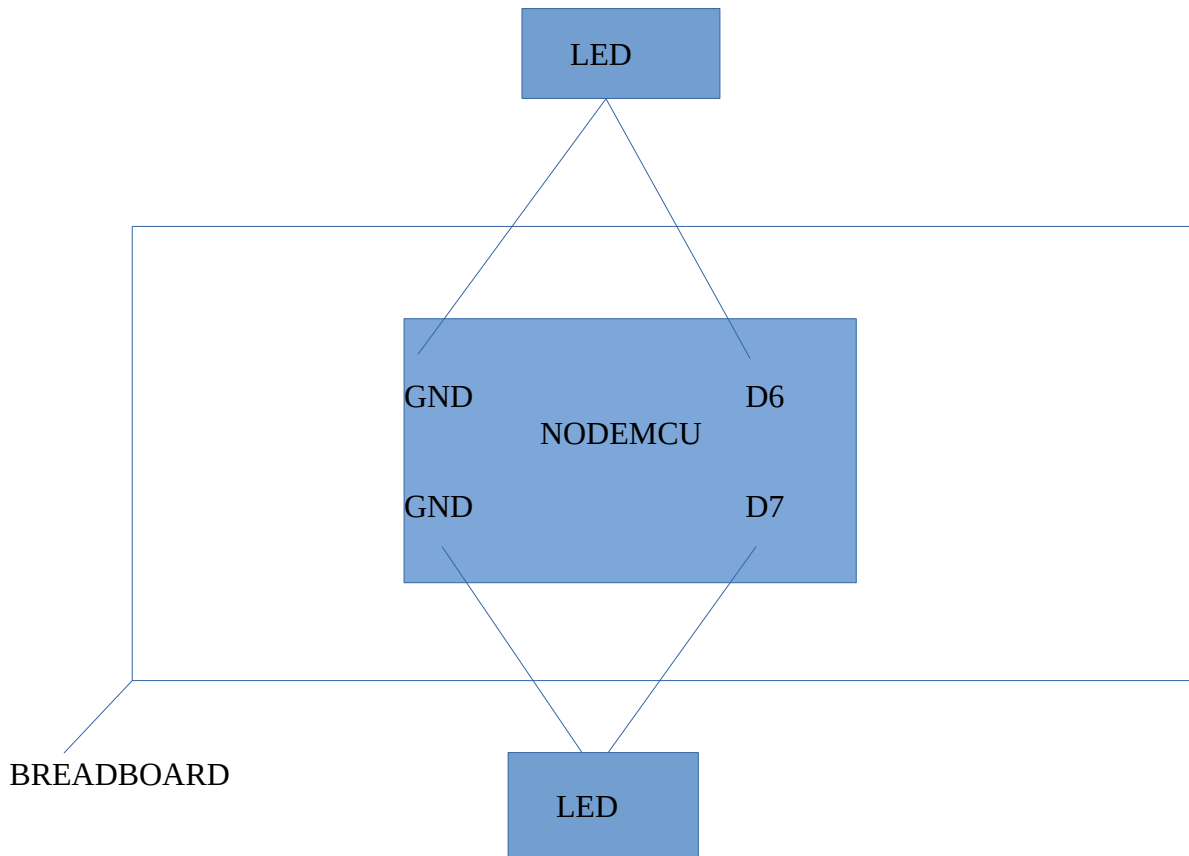
Device Description:

NodeMCU is a cheap wifi chip released by ESP2866. Node MCU is more advantageous than raspberry pi. NodeMCU contains GPIO(GP input output). All the D pins are used for input for extra components.

RSV are reserved pins. A0 is used to connect the A0 of drivers that contain A0. Since Node MCU only allows 3.3V to pass through, only the half of Node MCU must be used for items such as Ultrasonic device.

ESP8266WiFi.h is required for doing all Wi-Fi related functionalities such as connection, AP, etc. **WiFiClient.h** this file is required to send request to web browser. **ESP8266WebServer.h** it handles all HTTP protocols.

Circuit Diagram:

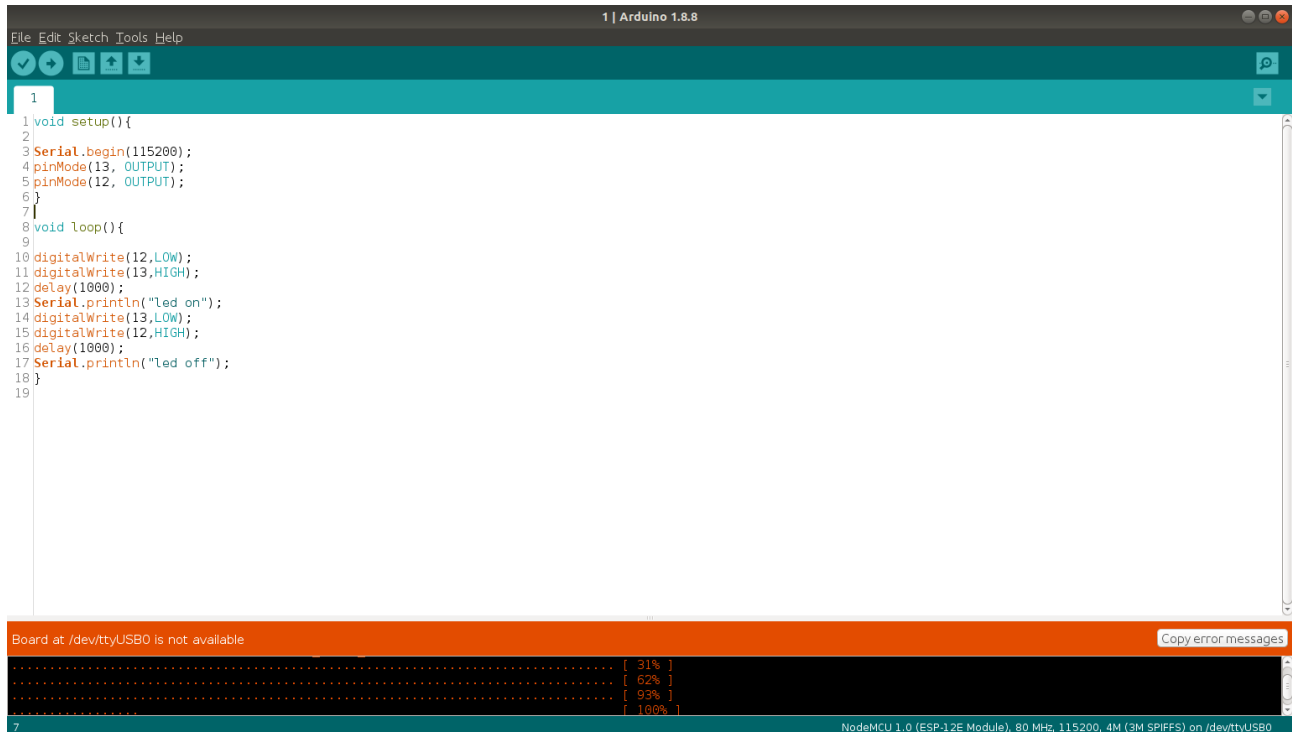


CODE:

```
void setup()
{
  Serial.begin(115200);
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
}
```

```
void loop()
{
  digitalWrite(12,LOW);
  digitalWrite(13,HIGH);
  delay(1000);
  Serial.println("led on");
  digitalWrite(13,LOW);
  digitalWrite(12,HIGH);
  delay(1000);
  Serial.println("led off");
}
```

OUTPUT:



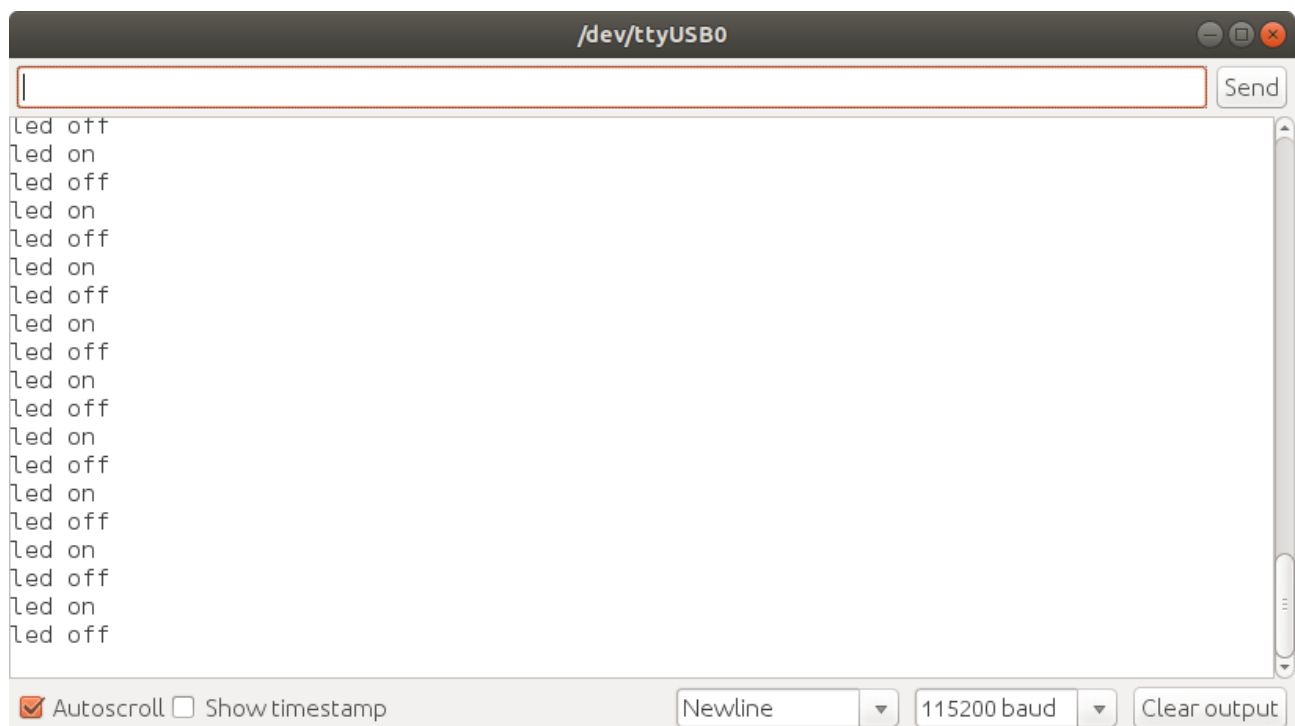
The screenshot shows the Arduino IDE interface. The top menu bar includes File, Edit, Sketch, Tools, and Help. The toolbar contains icons for opening, saving, and running the sketch. The main text area displays the following code:

```
1
2
3 void setup(){
4   Serial.begin(115200);
5   pinMode(13, OUTPUT);
6   pinMode(12, OUTPUT);
7 }
8
9 void loop(){
10  digitalWrite(12,LOW);
11  digitalWrite(13,HIGH);
12  delay(1000);
13  Serial.println("Led on");
14  digitalWrite(13,LOW);
15  digitalWrite(12,HIGH);
16  delay(1000);
17  Serial.println("Led off");
18 }
19
```

Below the code editor, a status bar indicates "Board at /dev/ttyUSB0 is not available" and "Copy error messages". The output window shows the following data:

Time	Serial
0.000	[31%]
0.000	[62%]
0.000	[93%]
0.000	[100%]

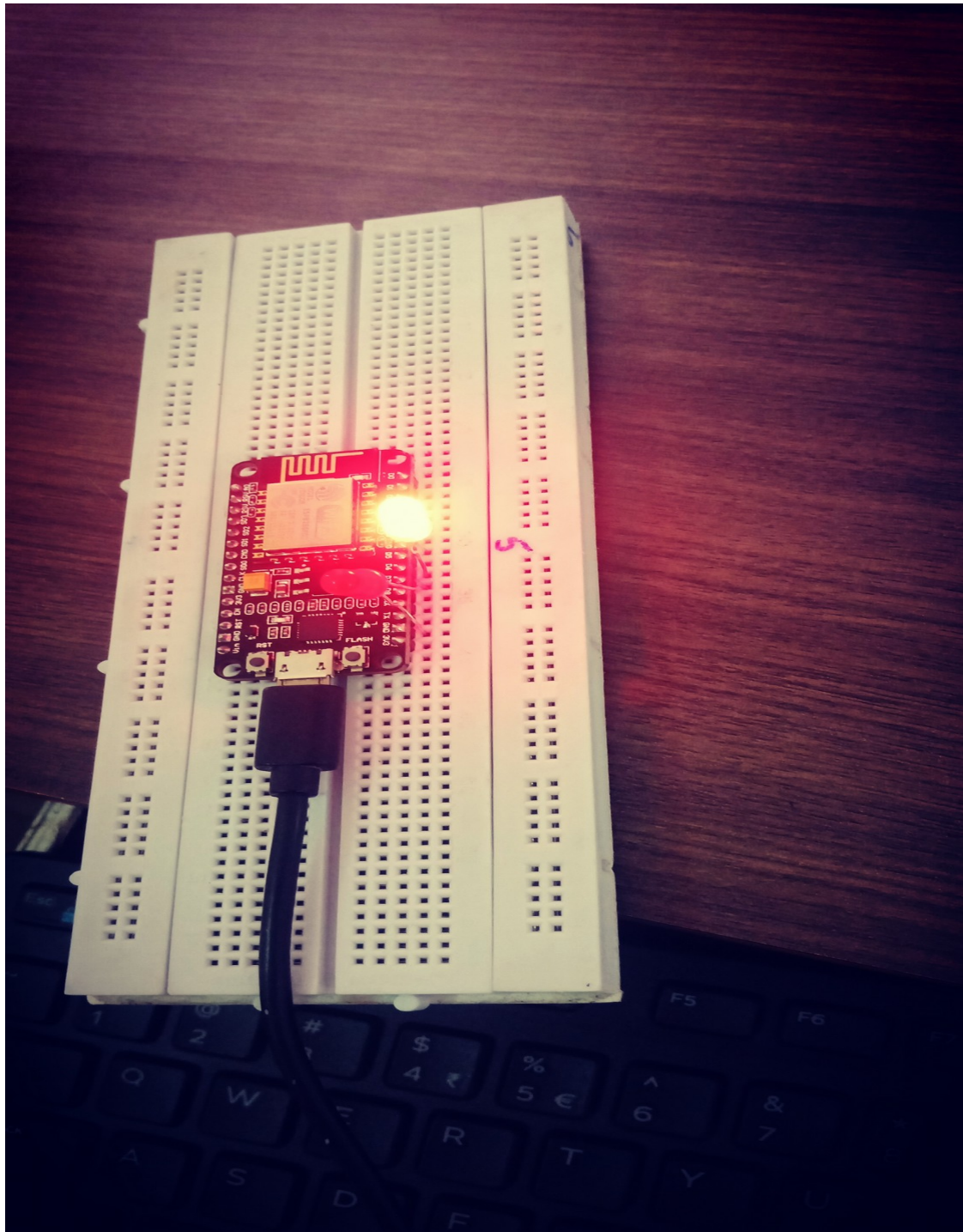
The bottom status bar shows "NodeMCU 1.0 (ESP-12E Module), 80 MHz, 115200, 4M (3M SPIFFS) on /dev/ttyUSB0".

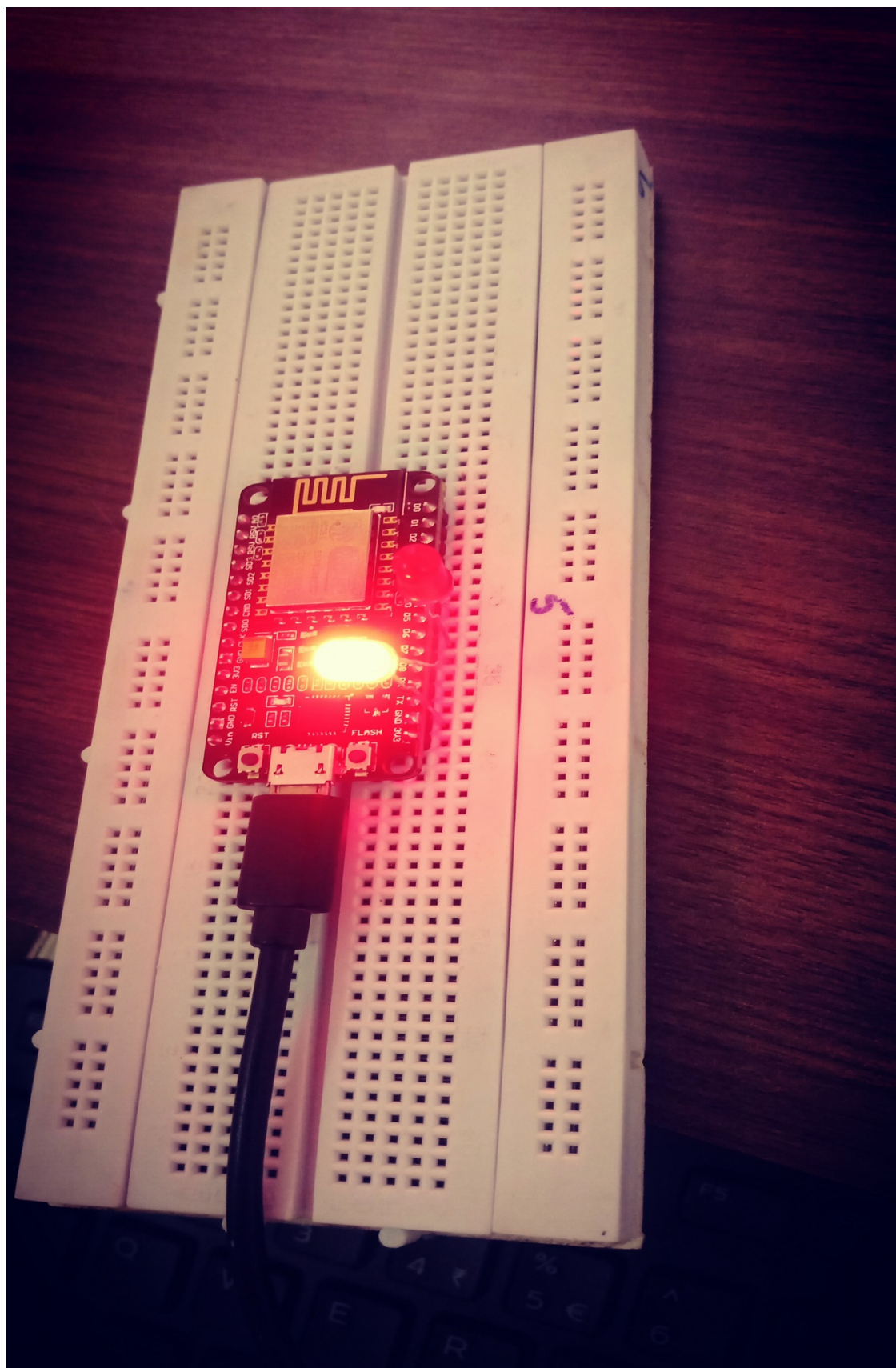


The screenshot shows a terminal window titled "/dev/ttyUSB0". The terminal displays the output of the sketch, which is a sequence of "Led on" and "Led off" messages. The output is as follows:

```
Led off
Led on
Led off
Led on
Led off
Led on
Led off
Led on
Led off
Led on
Led off
Led on
Led off
Led on
Led off
Led on
Led off
```

The terminal window has a "Send" button in the top right corner. At the bottom, there are checkboxes for "Autoscroll" (checked) and "Show timestamp" (unchecked). There are also dropdown menus for "Newline" and "115200 baud", and a "Clear output" button.





B)Installation steps for Arduino.

- Go to Arduino.com
- Download the Arduino Application
- Unzip the Arduino Zip folder
- Install the Application.
- Open Preferences in the Application
- Search for URL
- Go to board manager
- Install the esp8266 module in the board manager.

AFTTER PERFORMING ALL THE STEPS FOR INSTALLING ARDUINO.