NODEMCU BASIC - CONTROLLING LED

Hardware Preparation:

- NodeMCU
- LED
- 100-ohm Resistor
- Jumper Wires
- Micro USB cable
- Breadboard

Software:

- Arduino IDE

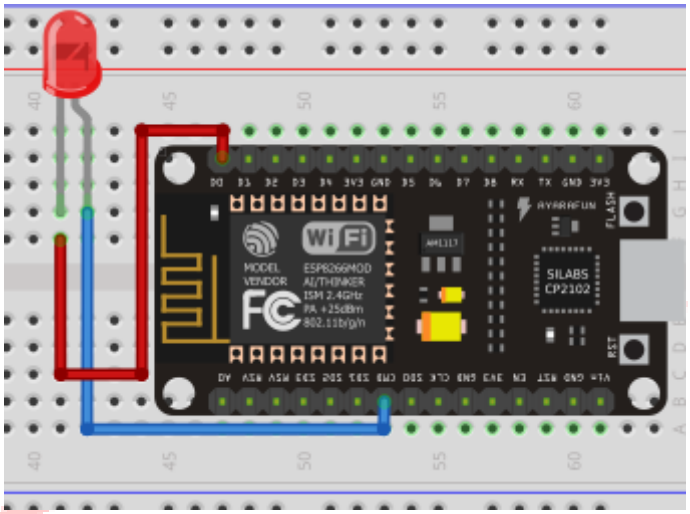
BLINK THE ON-BOARD LED

First, connect the NodeMCU to the PC, and upload the below code to the Arduino IDE or Go to File > Examples > ESP8266 > Blink:

Code:

```
#define LED_BUILTIN D0      //Inbuilt led connected at D0
void setup()
{
     pinMode(LED_BUILTIN, OUTPUT);      // Initialize the
LED_BUILTIN pin as an output
}
 // the loop function runs over and over again forever
void loop()
{
    digitalWrite(LED_BUILTIN, LOW);   // Turn the LED on
    delay(1000);                      // Wait for a second
    digitalWrite(LED_BUILTIN, HIGH);  // Turn the LED off by
making the voltage HIGH
    delay(2000);                      // Wait for two seconds
}
```

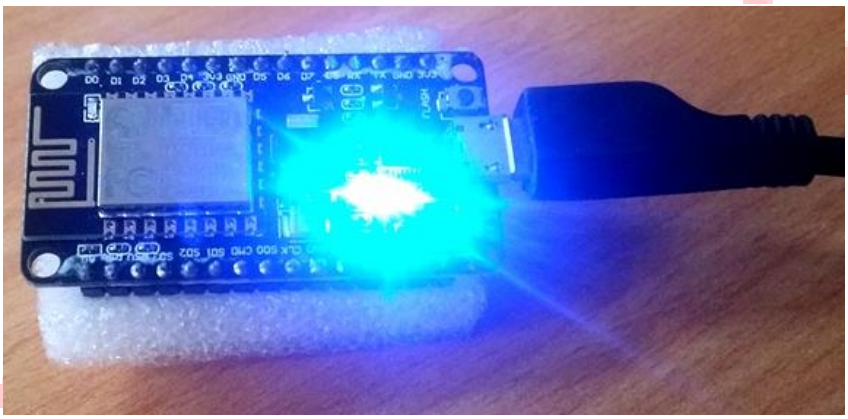
Circuit Diagram:



Then config the board settings (choose the corresponding board and port for your NodeMCU) and upload the sketch to the board.

After upload done, you will see the on-board LED blink every second.

Output:

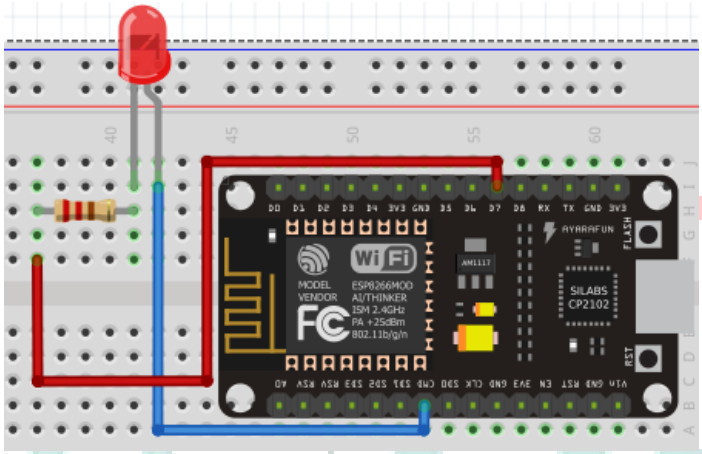


BLINK AN EXTERNAL LED

Code:

```
int LED_Pin = D7;        // declare LED pin
void setup() {
pinMode(LED_Pin, OUTPUT);   // Initialize the LED pin as an
output
}

void loop() {
digitalWrite(LED_Pin, LOW); // Turn the LED on
delay(1000);                // Wait for a second
digitalWrite(LED_Pin, HIGH);// Turn the LED off
delay(1000);                // Wait for a second
}
```

Circuit Diagram:



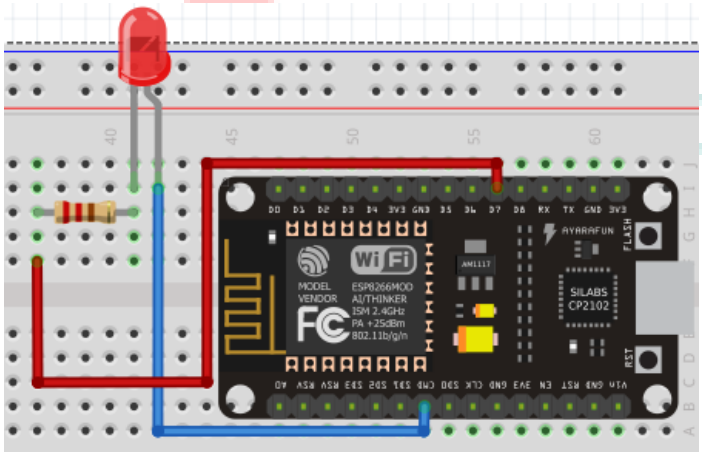
NODEMCU	LED
GND	Anode Pin
D7	Cathode Pin

LED CONTROL BASED ON USER INPUT

Code:

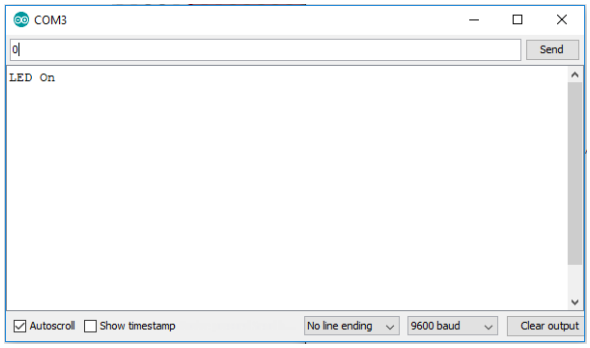
```
int temp=0;
int LED_Pin = D7;        // declare LED pin

void setup() {
  Serial.begin(9600);
  pinMode(LED_Pin, OUTPUT);    // Initialize the LED pin as an
output
}

void loop() {
  if(Serial.available()>0)
  {
    temp=Serial.read();
    if(temp=='0')
    {
      digitalWrite(LED_Pin, HIGH); // Turn the LED on
      Serial.println("LED On");
    }
    else if(temp=='1')
    {
      digitalWrite(LED_Pin, LOW);// Turn the LED off
      Serial.println("LED Off");
    }
  }
}
```

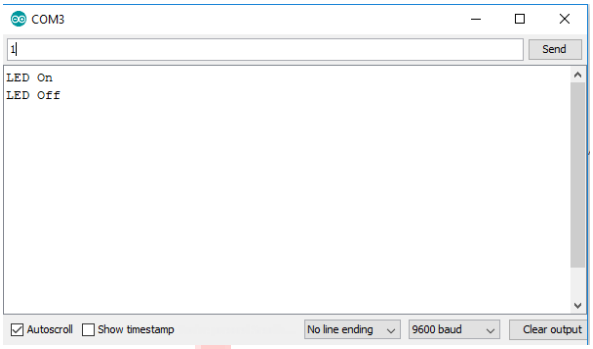
Circuit Diagram:



NODEMCU	LED
GND	Anode Pin
D7	Cathode Pin

Output:



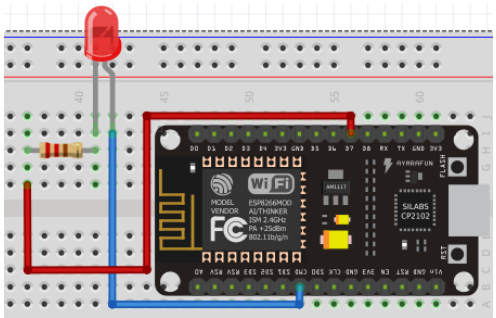


LEAD FADING

Code:

```
#define ledPin D7
void setup()
{
  Serial.begin(9600);
  pinMode(ledPin,OUTPUT);
}
void loop()
{
  for(int i=1;i < 1024;i=i+5)
  {
    analogWrite(ledPin,i);
    Serial.print("light up : ");
    Serial.println(i);
    delay(10);
  }
  delay(1000);
  for(int j=1023;j >0;j=j-5)
  {
    analogWrite(ledPin,j);
    Serial.print("Fading : ");
    Serial.println(j);
    delay(10);
  }
  delay(1000);
}
```

Circuit Diagram:



NODEMCU	LED
GND	Anode Pin
D7	Cathode Pin