LAPORAN PRAKTIKUM MINGGU KE-6

"LED"

INTERNET OF THINGS

Disusun oleh:

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TI-3H

D4 TEKNIK INFORMATIKA

TEKNOLOGI INFORMASI

POLITEKNIK NEGERI MALANG

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REPORT

Link Github : https://github.com/ExplodedRiot/IOT-3H

PRACTICUM 1 : Running LED RGB

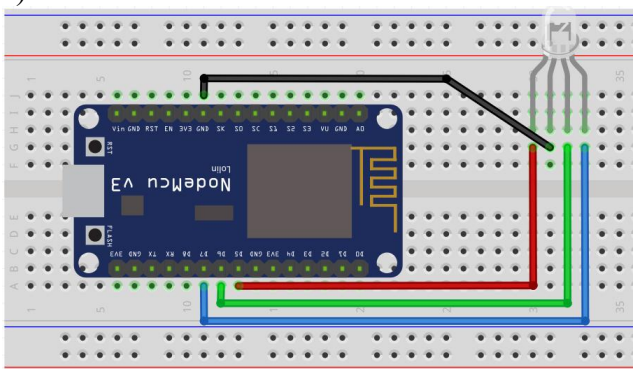
A. PRACTICUM

- Tools:

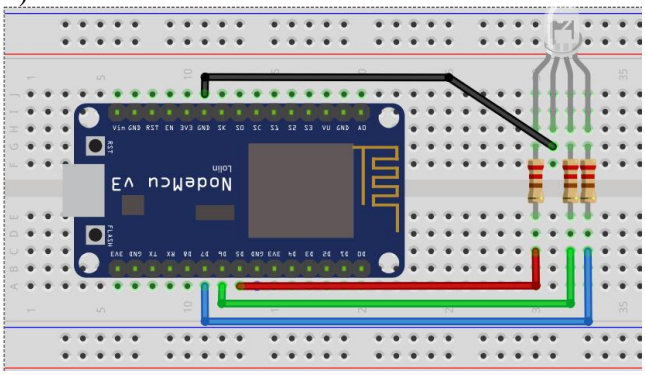
- NodeMCU x 1
- LED RGB x 1
- 220 ohm resistor x 3, optional
- Kabel Dupont (male to male)
- Micro USB cable x 1
- PC/laptop x 1
- Software Visual Studio Code

-Scheme:

a) Without Resistor



b) With Resistor

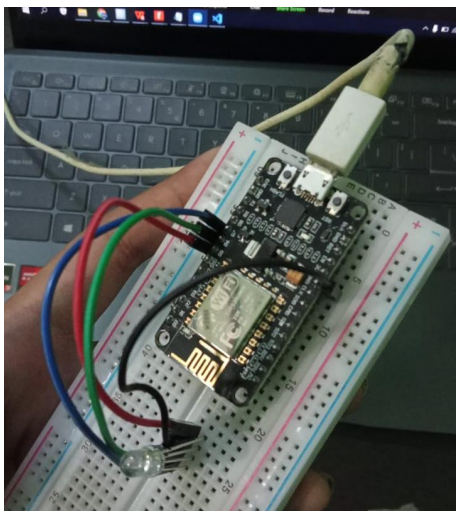


-Code Program :

```
#include <Arduino.h>

#define RED_LED D5   // Red color led
#define GREEN_LED D6 // Green color led
#define BLUE_LED D7  // Blue color led

void setup()
{
  Serial.begin(115200);
  pinMode(RED_LED, OUTPUT); // manage digital pins as the
```

```
output
  pinMode(GREEN_LED, OUTPUT);
  pinMode(BLUE_LED, OUTPUT);
  Serial.println("Example of LED RGB Program");
}

void rgbLED()
{
  digitalWrite(RED_LED, HIGH);
  digitalWrite(GREEN_LED, LOW);
  digitalWrite(BLUE_LED, LOW);
  Serial.println("Red LED turn on");
  delay(1000);

  digitalWrite(RED_LED, LOW);
  digitalWrite(GREEN_LED, HIGH);
  digitalWrite(BLUE_LED, LOW);
  Serial.println("Green LED turn on");
  delay(1000);

  digitalWrite(RED_LED, LOW);
  digitalWrite(GREEN_LED, LOW);
  digitalWrite(BLUE_LED, HIGH);
  Serial.println("Blue LED turn on");
  delay(1000);
}

void loop()
{
  rgbLED();
}
```

In practicum one, the activity carried out is assembling an IoT tool to turn on the LED so that the red, green and blue colors light up. The circuit that I have according to fritzing is as follows.



In this circuit, the red led is connected to pin D5, green is to pin D6, and blue is to pin D7, while the ground leg is connected to the GND pin. after that the program code in the practicum is built and uploaded to the NodeMCU so that the lights can turn on.

Video for the results of one practicum at the following link

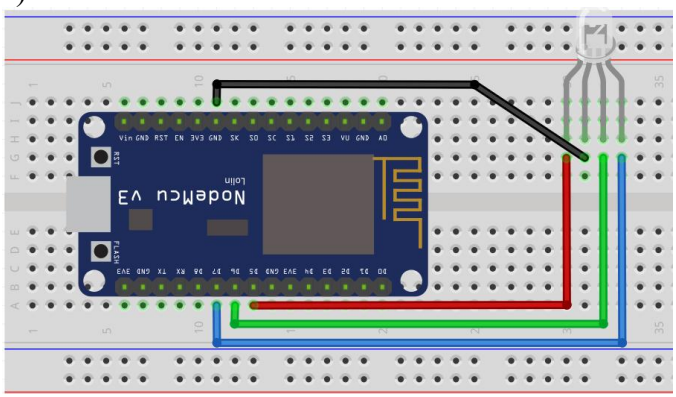
B. CONCLUSION

On the LED, there are 4 legs where the longest leg is the leg that is connected to the ground pin, for the other leg it connects to the pin according to the existing program code, namely in define D5, D6, D7 or on other pins. If there is a match in the program code and circuit, the light on the LED will light up

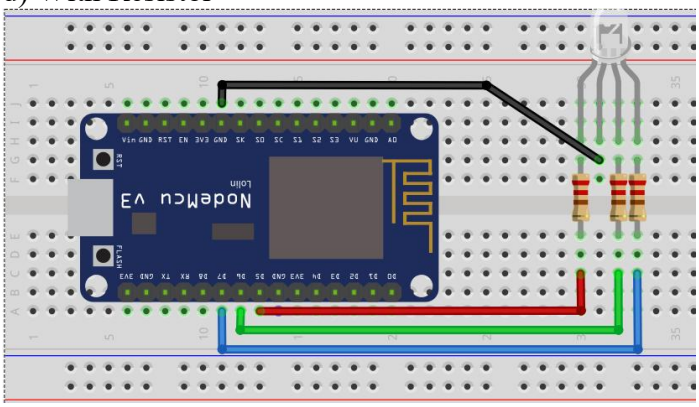
PRACTICUM 2
A. PRACTICUM
- Tools:

- NodeMCU x 1
- LED RGB x 1
- 220 ohm resistor x 3, optional
- Kabel Dupont (male to male)
- Micro USB cable x 1
- PC/laptop x 1
- Software Visual Studio Code

-Scheme:
c) Without Resistor



d) With Resistor



-Code Program :

```
#include <Arduino.h>

#define RED_LED D5   // led warna merah
#define GREEN_LED D6 // led warna hijau
#define BLUE_LED D7  // led warnah biru

void setup()
{
  Serial.begin(115200);
  pinMode(RED_LED, OUTPUT); // atur pin-pin digital sebagai
output
```

```
  Serial.println("Contoh Program LED SOS");
}

void loop()
{
  // 3 dits (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(RED_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
    digitalWrite(RED_LED, LOW);  // LED mati
    delay(100);                  // delay selama 100ms
  }
  delay(100);

  // 3 dahs (3 garis atau huruf O)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(RED_LED, HIGH); // LED nyala
    delay(400);                  // delay selama 400ms
    digitalWrite(RED_LED, LOW);  // LED mati
    delay(100);                  // delay selama 100ms
  }

  // 100ms delay to cause slight gap between letters
  delay(100);
  // 3 dits again (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(RED_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
    digitalWrite(RED_LED, LOW);  // LED mati
    delay(100);                  // delay selama 100ms
  }

  // wait 5 seconds before repeating the SOS signal
  delay(5000);
}
```

In practicum 2, which is to make an SOS signal with a red light, there are three loops in the loop() function, each of which represents the letters S, O and S. Video for practicum 2 demonstration at the following link

B. CONCLUSION

In conclusion, the red light is only red because the loop function used is RED_LED, the light will light up according to the delay and loop in the program code.

TASK

QUESTION

- Develop the 2nd practicum (SOS) so that there are 3 LEDs used, namely red, green and blue. The green LED uses RGB LEDs, while the blue LEDs and red LEDs use the LEDs found on the ESP8266. Make a schematic (wiring drawing) and program code!
- Collect reports and assignments in LMS

ANSWER

- Code Program :

```
#include <Arduino.h>

#define RED_LED D0   // led warna merah
#define GREEN_LED D6 // led warna hijau

void setup()
{
  Serial.begin(115200);
  pinMode(RED_LED, OUTPUT); // atur pin-pin digital sebagai
output
  pinMode(BUILTIN_LED, OUTPUT);
  pinMode(GREEN_LED, OUTPUT);
  Serial.println("Contoh Program LED SOS");
}

void ledRED()
{

  // 3 dits (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(RED_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
    digitalWrite(RED_LED, LOW);  // LED mati
    delay(100);                  // delay selama 100ms
  }
  delay(100);

  // 3 dahs (3 garis atau huruf O)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(RED_LED, HIGH); // LED nyala
    delay(400);                  // delay selama 400ms
    digitalWrite(RED_LED, LOW);  // LED mati
    delay(100);                  // delay selama 100ms
  }

  // 100ms delay to cause slight gap between letters
  delay(100);
  // 3 dits again (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
```

```
  {
    digitalWrite(RED_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
    digitalWrite(RED_LED, LOW);  // LED mati
    delay(100);                  // delay selama 100ms
  }
}

void ledGREEN()
{

  // 3 dits (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(GREEN_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
    digitalWrite(GREEN_LED, LOW); // LED mati
    delay(100);                  // delay selama 100ms
  }
  delay(100);

  // 3 dahs (3 garis atau huruf O)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(GREEN_LED, HIGH); // LED nyala
    delay(400);                  // delay selama 400ms
    digitalWrite(GREEN_LED, LOW); // LED mati
    delay(100);                  // delay selama 100ms
  }

  // 100ms delay to cause slight gap between letters
  delay(100);
  // 3 dits again (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(GREEN_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
    digitalWrite(GREEN_LED, LOW); // LED mati
    delay(100);                  // delay selama 100ms
  }
  digitalWrite(GREEN_LED, HIGH);
}

void ledBLUE()
{

  // 3 dits (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(BUILTIN_LED, HIGH); // LED nyala
    delay(150);                  // delay selama 150ms
```

```
    digitalWrite(BUILTIN_LED, LOW); // LED mati
    delay(100);                     // delay selama 100ms
  }
  delay(100);

  // 3 dahs (3 garis atau huruf O)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(BUILTIN_LED, HIGH); // LED nyala
    delay(400);                     // delay selama 400ms
    digitalWrite(BUILTIN_LED, LOW); // LED mati
    delay(100);                     // delay selama 100ms
  }

  // 100ms delay to cause slight gap between letters
  delay(100);
  // 3 dits again (3 titik atau huruf S)
  for (int x = 0; x < 3; x++)
  {
    digitalWrite(BUILTIN_LED, HIGH); // LED nyala
    delay(150);                     // delay selama 150ms
    digitalWrite(BUILTIN_LED, LOW); // LED mati
    delay(100);                     // delay selama 100ms
  }
}

void loop()
{
  digitalWrite(RED_LED, HIGH);
  digitalWrite(GREEN_LED, HIGH);
  ledRED();
  delay(3000);
  ledGREEN();
  delay(3000);
  ledBLUE();
  delay(3000);
}
```

Explanation:
In practicum, the lights that are lit are red and blue on esp and blue on the led so for red use pin D0 and blue use the BUILDIN_LED variable to turn on blue on esp. After that, there are 3 functions with the names ledRED, ledGREEN, and ledBLUE, each of which functions to turn on the SOS signal for each color. after that, the three functions are called on the loop() function which gives a 3000 delay on each of the three functions. The demonstration video for the assignment is at the following link