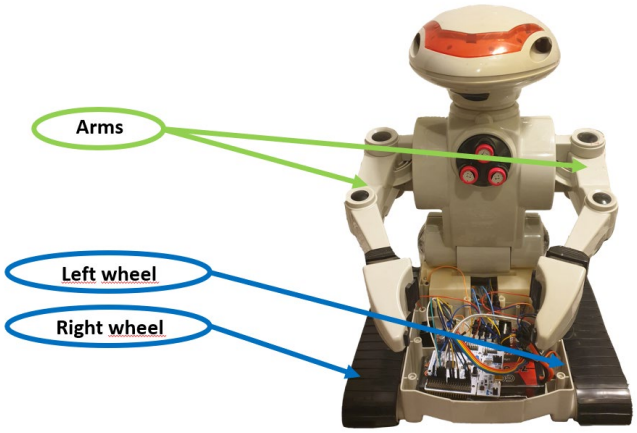
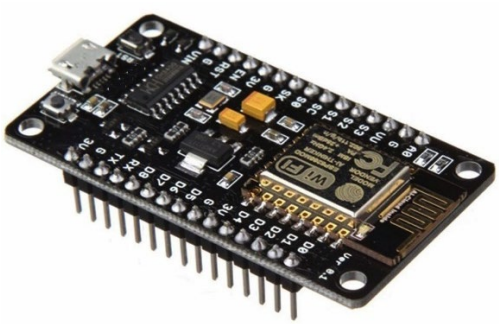
# Finale Dokumentation WP2Aufgabe

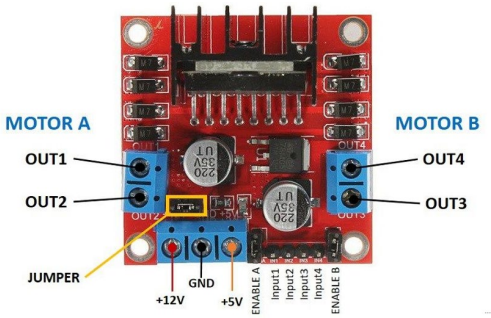
## Project documentation

The purpose of this project was it to control my robot (left) over a local webserver via the ESP8266 Wi-Fi module (right).



The robot of this project has 3 motors integrated, used to control its wheels (2) and arms (1). To control these motors, I used the L298N motor driver (left). One driver is capable of controlling two motors and since I have 3 motors, I included 2 motor drivers. To supply the robot with electricity, I used a Lipo battery (right).





## Changes

Originally, I planned on doing this exact project with the NUCLEO-L476RG microcontroller and using the ESP8266 Wi-Fi module. I wanted to write the program using the STMCubeMX and the STMCubeIDE. However, due to insufficient documentation, I did not succeed in doing so. That is why I decided to use the ESP8266 Wi-Fi module as a standalone project and the Arduino IDE.

## Lessons learned

- How to use the L298N motor driver to control direction of the motors
- How to power the motors with a battery
- How to use the Arduino IDE
- How to use libraries within the Arduino IDE
- How the ESP8266 module works
- How to connect to local Wi-Fi with the SSID and password
- How to control the GPIO pins over a webserver
- How to design a webserver with HTML and CSS within the Arduino IDE

## Source code

https://github.com/HIP24/Robot_ESP8266

After entering the SSID and the password for the local Wi-Fi network, we can run the program and we see the following output:

```
Connecting to PamukAilesi2.4GHz
.......
WiFi connected.
IP address:
192.168.0.235
```

When we enter this IP address to our browser, we can control the robot. For that, we first have to turn on the 3 motors. After that, we can separately control its arms, left wheel and right wheel by clicking on the respective buttons.