

## Report of the second session

In this second session of the building our autonomous RC car, we did some major changes to our project:

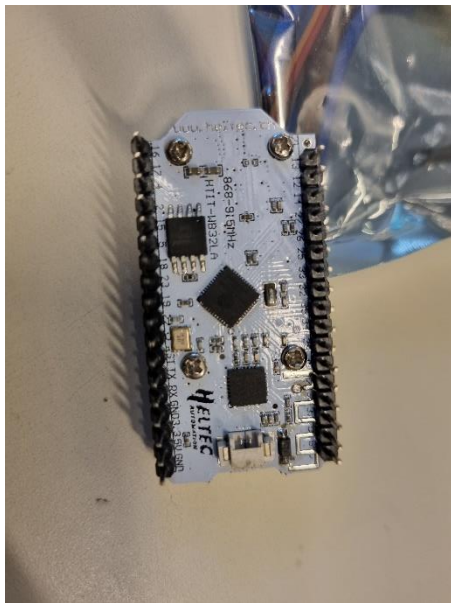
- We received a better module that enables us to communicate with the car. It is equipped with both WIFI and Bluetooth, and it even comes with an OLED screen. This page contains ample information about how to power up the WIFI/BLUETOOTH module HELTEC ESP32 V1:

<https://digitalelectronicsprojects.wordpress.com/tag/heltec-wifi-lora-oled-v1/>

Original datasheet of the module:

<https://heltec.org/project/wifi-kit-32/>

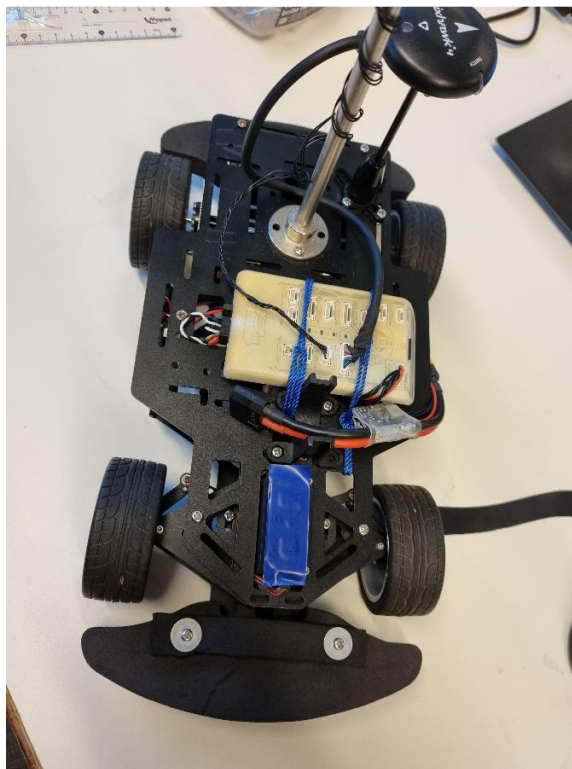
[https://docs.heltec.org/en/node/esp32/quick\\_start.html](https://docs.heltec.org/en/node/esp32/quick_start.html)



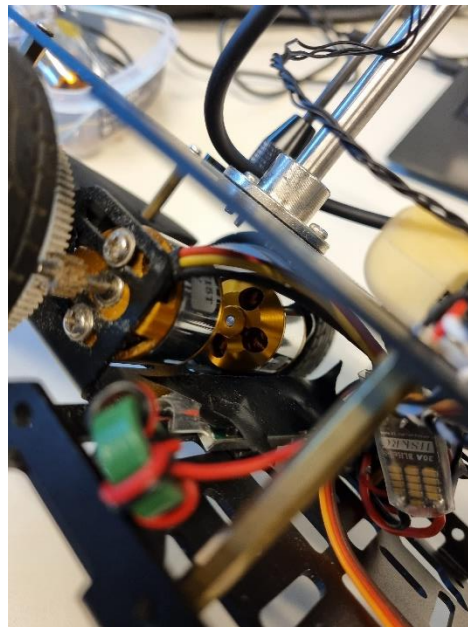
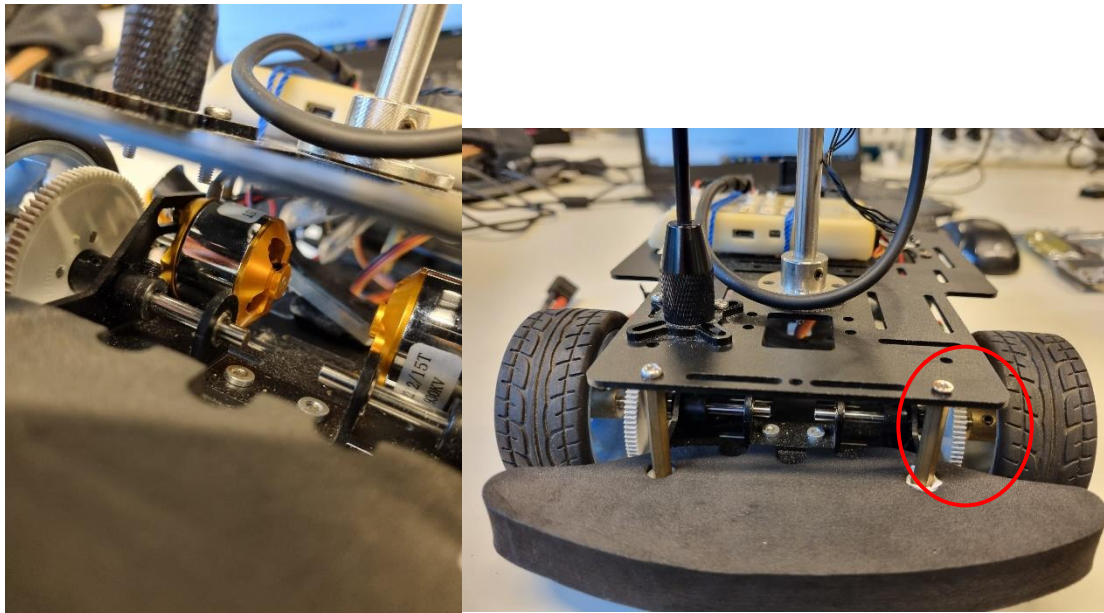
- With the aid of an engineer, we have been successful turning on the “RUNNER SPECIAL 2” CC motor that our supervisor had provided us in the last session. However, we were wide-eyed to see that the motor draws 3A under no pressure and no load. This means that it is power hungry and will need a bigger battery to run, which leads to heavier weight. We have discussed this subject with our supervisor and the engineer, they suggested that we use the brushless motors that draw much less power and are more efficient. We will be having 2 brushless motors with an ESC (the yellow module next to it in the photo below), one for each wheel at the back of the car.



- Our supervisor handed out to us a new car project that is more realistic and is easier to get done.



The car in the picture above is an autonomous car that is programmed to drive in defined tracks and trajectories. It comes with a GPS and a camera that do the job of the sensors and detectors. What is important for us is the way the brushless motors are mounted on the structure.



We can clearly see in the photos above that they are held by some screws and make a connection with wide gears connected to the wheels, this helps reduce the speed and increase torque. Moreover, we will not be buying the project car as planned in the first report because it costs too much according to our supervisor. Therefore, we will be fabricating the car from the ground up, and will have to get the right dimensions for the structure in order to place every other component of the car in its appropriate area. I have been taking some measurements of the car that we have in our hands and making some 3D CAD (computer-aided design) designs for the car structure and base. In the first try of printing the design, I will be using a plastic/wood laser cutter to cut wood pieces because I may not get the first measurements right, and this prevents waste at a certain extent.