Weekly Report

Week 4 : 20/01/2025 – 24/01/2025

Mustafa TOPBAS

4A GPSE

Axel LEROY

4A GPSE

Cédric DA CRUZ

4A GPSE

Abigaïl BROCHARD

4A GPSE

Eloïse MESTRE

Project Tutor

1-Mustafa

Number of hours spent on the project this week: 10 hours

Activity:

Tuesday [21/01/2025]: I participated in amperage measurements on the prototype. We unsoldered so we could measure the current in series with a multimeter. With Cédric and Axel, we concluded that a minimum of 4.7V was needed for around 300mA.

Wednesday [22/01/2025]: Given that the others were either absent or presenting the specialty to younger students. I took the initiative to start the electrical diagram including the LEDs, communication protocol and microcontroller. After presenting this to the group and adjusting it together, we distributed the tasks for the second semester. After that, I wanted to start making a more serious electrical diagram on professional software. The software we used in class did not include "footprint" of the LEDs. This is important for the rooting process that we will encounter in the future. So, I installed professional software. I started a diagram on it.

For the distribution of tasks, we decided that I was going to continue the electrical diagram, make the PCB and work on the amperage and power supply. Cédric will be with me for these games during this semester.

Thursday [23/01/2025]: With Axel and Ms. Debrus, we started the business plan for our project. To do this, we filled out a BMC (Business Model Canva). This table will be useful because it gives an overall vision of the business plan, which we can return to in detail.

Friday [24/01/2025]: We reviewed what was wrong in our CDD (Capability development document) with you, our tutor.

2-Axel

Number of hours spent on the project this week: 8 hours

Activities: I had 5 activities this week.

First activity: 1h

My first activity was to measure the inductive output current and voltage needed to power the Arduino and the HC-06 (Bluetooth module) with Mustafa and Cedric. We concluded that we needed a minimum of 4.7V with a current of 300mA.

Second activity: 2h

My second activity was to continue the coding of the application. I mostly worked on the way to get pixel data from an image. So, I worked in

the same framework as the prototype's app in C# (because I can reuse C# functions in the .NET MAUI framework). I found the function lockbit that returns an array of RGB data from a pixel of a Bitmap type image.

Third activity: 2h

My third activity was to help Cedric to make the motor work. We tried several codes and tried to use several Arduino pins to control the motor, but we didn't manage to start the motor at all. We suspect the issue to be with the ESC (Electonic Speed Controler) that is between the Arduino and the motor, which is supposed power the motor. As there is very little data about how to use this ESC, it is probable that we didn't use it correctly.

Fourth activity: 1h

My fourth activity was to start the business plan of the project with Mustafa and Ms. Debrus. We worked on how to make an appropriate Business Model Canva for our project. For example, we determined who would use our product, what services we could offer, or even how much we could sell one of our products for.

Fifth activity: 2h

My fifth activity was to review the CDD (Capability Development Document) with our tutor (you), Mustafa and Cedric.

3-Cédric

Number of hours spent on the project this week: 6 hours (+2 on Friday)

Activity:

Firstly, Axel, Mustafa, and me, tested the prototype to check the working current and tension input. We concluded that we needed a minimum of 4.7V with a current of 300mA on the input coil for the prototype to be powered properly. More extensive test will be needed on the final version which will incorporate the chosen LEDs.

Secondly, I started working on the brushless motor and the ESC (electronic speed controller). I encountered great problems as I couldn't make them work. The problem seems to originate from the ESC, as it seems to need a specific starting protocol which wasn't indicated on the specifications of the product.

4-Abigail

Number of hours spent on the project this week:

Activity:

I was absent Tuesday and Wednesday morning, so I was only able to be there Wednesday afternoon. I ordered the LEDs from Mr. LADROUZ. After we have divided the tasks, I will take care of the design of the base to print it with a 3D printer.