



Weekly Report

Week 6: 03/02/2025 – 07/02/2025

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: 6.5 hours

Activity:

Monday [03/02/2025]: 3.5 hours

This morning, I used the diagram on paper that I had made for the system power supply. I determined that it was necessary to receive 5V, 4A therefore 20W in total to power the blade. The induction component I had could only send 5V and 1A so it's not good enough. I tried to unsolder its rectifier part to measure and make a rectifier myself later, but the transmitter burned, I don't know why. I either must find a new component or take this one back to repair it by modifying.

Wednesday [05/02/2025]: 3 hours

I started by looking for components to replace our burnt out induction coils. I found a similar component that sends 100W, 24 to 32V and up to 4A. Which corresponds to what I need to power the blade. I also looked for a converter to be able to use the sector to power the system. I found a 220V to 24V converter. After that, I brainstormed with Axel to help with the code.

2-Axel

Number of hours spent on the project this week: 6 hours

Activities: I had 3 activities this week.

First activity: 2h30

My first activity was to keep working on the way to get RGB data from the image. This time, using a “for” loop and adapting a bit the previous program to get the lengths right, I managed to get the data from the whole image, line by line. To lose as little time as possible, I didn’t try to display it as I know the data stored in the byte array is right.

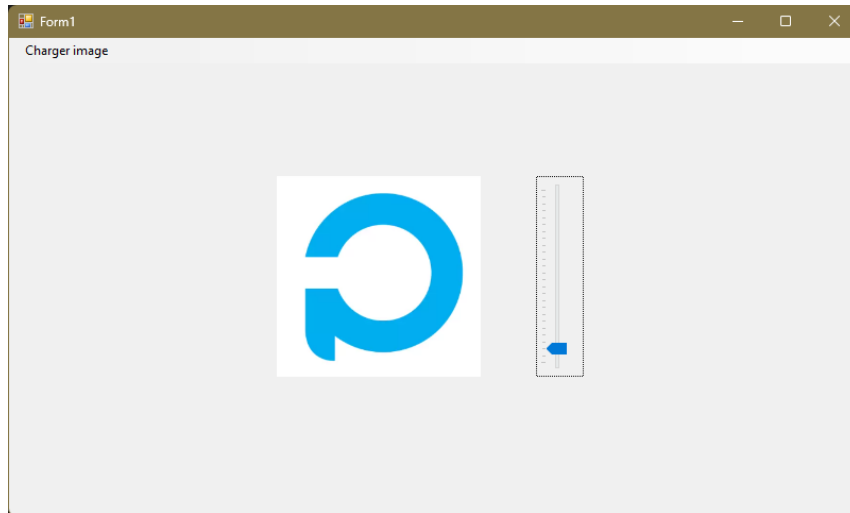
Second activity: 1h

My second activity was to help Mustafa with the measure of the maximum power transmittable by the inductive coils. In doing so, the inverter heated and burnt out. We don’t really know why as we used it with a voltage of 12V and a current of 1A, which we had already used before and worked well. These values being in the range written in the datasheet of the component, we think one of the individual components had a fault.

Third activity: 2h30

My third activity was to work on the cropper and zoom part of the app. Still in C# Winform, I managed to zoom in and out of an image with a

trackbar. Currently I am trying to work on a way to adapt the amount of zoom possible to the original size of the image.



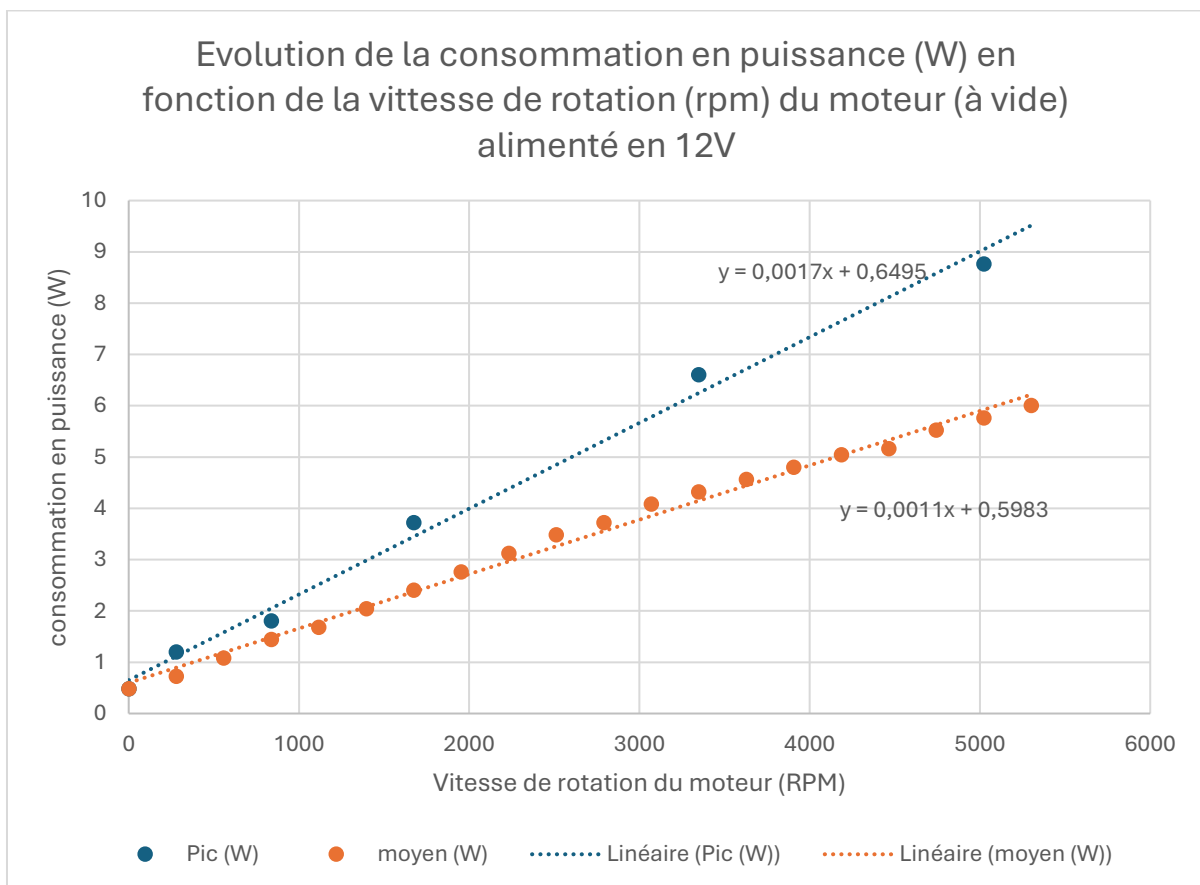
Screenshot of the app with the trackbar

3-Cédric

Number of hours spent on the project this week: 5 hours

Activity:

I mainly did test on the motor to check its power consumption



For speed range (900-1300 RPM) we would have a maximum consumption of 4W (12V 330mA).

I also tried repairing the induction coils but to no avail

4-Abigail

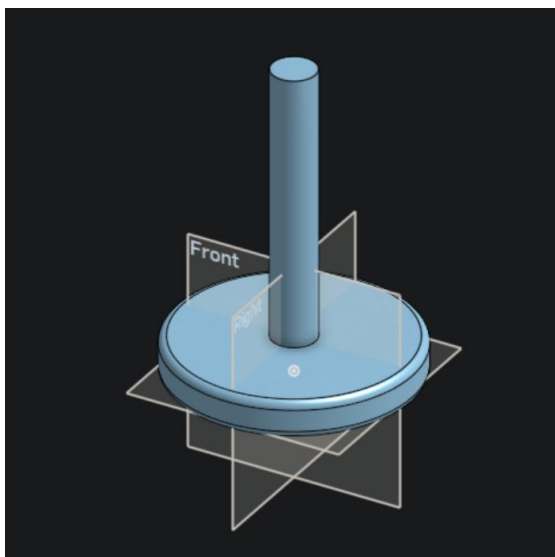
Number of hours spent on the project this week: 1.5h

Activity:

I was ill all week (and was off work for three days) and the doctor ordered me not to work in order to get better. As soon as I felt better, I wanted to get back to the project, because I know I'm behind schedule. I'm going to have a lot of work to do next week, as my colleagues are making better progress.

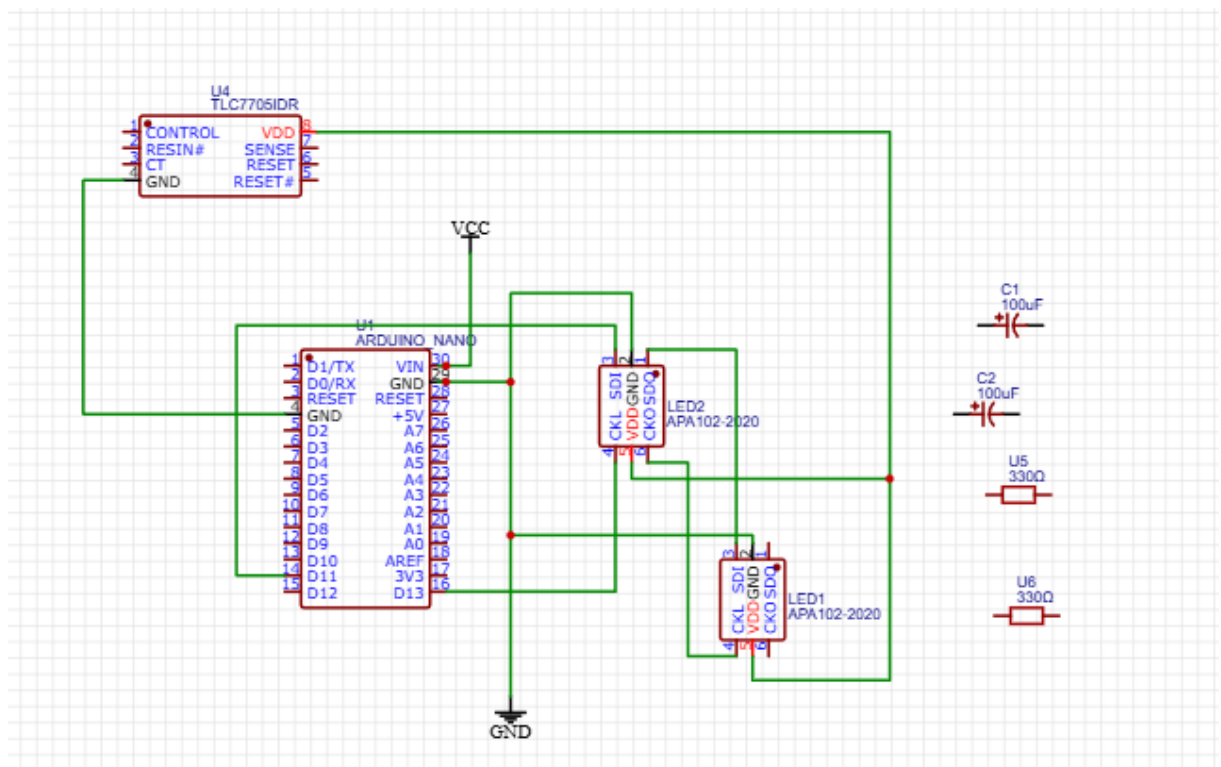
Back to the facts:

I did an initial CAD test on Onshape



For the moment, there aren't any real measurements, but I wanted to familiarize myself with the software so that I could see for myself what we could do with the boys and then send them into production.

I then started drawing the electrical diagram for my LEDs on EASYEDA to check the connections to the datasheets and microcontrollers. It's not at all well optimized yet, and on Monday I'll be drawing it on a sheet of paper to see how to place everything properly.



I know I'll have to add pull-up resistors and stabilizing capacitors to compensate for voltage drops. But for the moment I've really technically linked the various inputs and outputs and two LEDs together according to the SPI communication protocol:

DATA (DI) → MOSI (D11 on Arduino)

CLOCK (CI) → SCK (D13 on Arduino)

DATA OUT (DO) and CLOCK OUT (CO) go to next LED

VCC and GND in parallel on all LEDs

5V Power Supply → VCC of LEDs

GND Power Supply → GND of LEDs and Arduino

The connections will be in series for communication, and in shunt for power supply.