Objectifs du documents mettre à l’écrit :

-Les objectifs de chacun

-Comment tester ces fonctions mises en places

-Finalement est-ce que tout fonctionne bien sinon quoi

# 1- Loann’s work

Sequencer board:

The PCB has been ordered after finishing the design.

| ID | Name | Designator | Footprint | Quantity |
| --- | --- | --- | --- | --- |
| 1 | Power Board | ALIM | CONN-TH\_B2B-PH-K-S | 1 |
| 2 | Telem Board | CN1 | CONN-TH\_B2B-PH-K-S | 1 |
| 3 | servo 1 | CN2 | CONN-TH\_B3B-PH-K-S | 1 |
| 4 | servo 2 | CN3 | CONN-TH\_B3B-PH-K-S | 1 |
| 5 | servo 3 | CN4 | CONN-TH\_B3B-PH-K-S | 1 |
| 6 | DCmotor | DCMOTOR | CONN-TH\_B2B-PH-K-S | 1 |
| 7 | JACK | JACK | CONN-TH\_B2B-PH-K-S | 1 |
| 8 | PWMVAR | PWMVAR | CONN-TH\_B2B-PH-K-S | 1 |
| 9 | 1k | R3 | R0805 | 1 |
| 10 | ARDUINO\_NANO | U1 | COMM-TH\_ARDUINO\_NANO | 1 |
| 11 | 74HC139D/C4118 | U2 | SOIC-16\_L9.9-W3.9-P1.27-LS6.0-BL | 1 |
| 12 | CD74HC04M96 | U3 | SOIC-14\_L8.7-W3.9-P1.27-LS6.0-BL | 1 |
| 13 | LED board | U4 | CONN-TH\_B8B-PH-K-S-LF-SN | 1 |
| 14 | IRFZ44NS\_C7587862 | U5 | TO-263-2\_L10.1-W9.1-P5.08-LS15.2-BR-1 | 1 |
| 15 | 10kΩ | U6 | R1206 | 1 |
| 16 | L293DDM | U7 | SOP-20\_L12.8-W7.5-P1.27-LS10.4-BL | 1 |
| 17 | TMC5160 | U8 | TMC5160 | 1 |
| 18 | XT60PB-F.G.Y | VIN | CONN-TH\_XT60PB-F.G.Y | 1 |

Among the components in this list, some of them are missing due to order issues ( no one doesn’t want to buy the components, either the client SpaceTech or Polytech ). Then for the missing component, we cannot test it but based on the calculations we did and simulation on Proteus, we assume that it works.

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# 2- Clément’s work

## 2-1 Goals

My goal is to make a board that embeds different functions linked to telemetry ( gyroscope, pressure , temperature) in order to collect flight data for a rocket. The board will also have to send gps data when it lands. The most important part is that these data have to be sent to the ground base which is at a long range using some kind of technology.

## 2-2 How to make theses things

First of all the sensors to harvest flight data. We have a gyroscope (**MPU9250**) and a **BME680**.

* For long distance communication we are gonna use the **HopeRF RFM95** which is a LoRa module. **Vin** - power in. This is regulated down to 3.3V so you can use 3.3-6VDC in. Make sure it can supply 150mA since the peak radio currents can be kinda high **GND** - ground for logic and power **EN** - connected to the enable pin of the regulator. Pulled high to **Vin** by default, pull low to completely cut power to the radio.
* To ensure the gps function we will use the **UBLOX-NEO M8N**. ????????????
* Finally, to make sure that all these functions can be attended we are gonna use a **raspberry pi pico** board.

## 2-3 How to test these things

To begin with the tests we will try each function alone.

* MPU9250, BME680 and UBLOX : connect the module to the raspberry and verify that it transmits data.
* HOPERF rfm95 : connect two LoRa modules to two different raspberry boards and verify that we can send data from one module to another.
* Connect every sensor at the same time and gather data. Moreover we have to make sure data is structured in a good way.
* Send the sensor data using the LoRa and receive the data with the other module.

## 2-4 How the tests are going

LoRa test : We use a arduino nano and a LoRa module

| **Arduino nano** | **RFM95W** |
| --- | --- |
| D13 | SCK |
| D12 | MISO |
| D11 | MOSI |
| D5 | RST |
| D3 | CS |
| D2 | G0 |