Projet YAFC

Yet Another Flight Controller

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1er Décembre 2022

Yet Another Flight Controller (YAFC) is a project being held within the Computer Science Master at Université Paul Sabatier.

Zhenyu Bai expressed their interest in drones. In particular for drones :

- that are cheap to produce ;
- physically basic ;
- easily configurable.

The project thus aims to provide a functionnal drone that complies with the aforementioned critierias.

To function nominally, a drone requires a Flight Controller (FC) to manage the different physical components, as well as some software in order to control how and where it flies. This is what PixHawks, PX4 and ArduPilot provide to name the ones we will be using.

Unfortunately, today, completely functionnal and ready-to-use drones are expensive. But it is technically possible to produce cheap drones inspired by PixHawks/PX4 or ArduPilot.

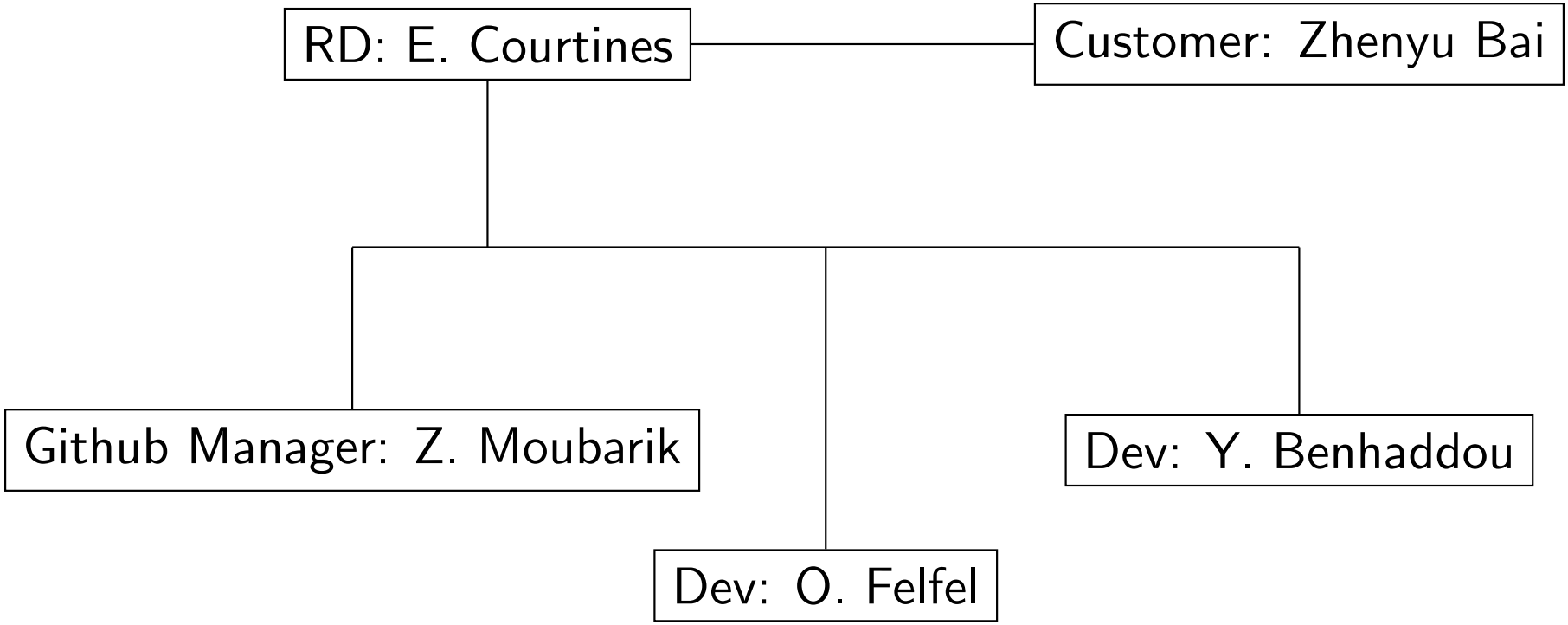
From a provided functionnal drone frame, Zhenyu Bai expressed the need :

- to investigate currently available "almost ready-to-use" options, such as ArduPilot ;
- to make the drone fly using ArduPilot first, then using PixHawks and PX4 ;

Subsequently, gradually, the following objectives will be set :

- to produce a custom-made PCB ;
- to produce a custom-made Flight Controller inspired by PixHawks and PX4, or possibly by ArduPilot ;

1. Context, Objective
2. Needs
3. Organisation
   - Project Management
   - Development Management
   - Customer - Supplier Communication


RD: E. Courtines
Customer: Zhenyu Bai
Github Manager: Z. Moubarik
Dev: Y. Benhaddou
Dev: O. Felfel

Project Management Deliverables :

- Kick Off Meeting presentation and minutes (project Plan V0)
- Project Plan V1
- Project Plan V2
- Project Plan V3
- "Soutenance"

Technical Deliverables :

- Version 0 : the components work together with ArduPilot ;
- Version 1 : the drone can fly with ArduPilot ;
- Version 2 : the drone can fly with PX4 and PixHawks ;
- Version 3 : the drone can fly with a custom-made PCB and Flight Controller (may be suddivided).

A Github organisation has been created for the project :
https://github.com/OYEZ-YAFC

A private Repository will contain everything related to the project :

- Arduino programs (C++) ;
- Component description files (PCB) ;
- Markdown documentation ;
- PDFs for the various deliverables, as well as their LaTeX code ;
- More depending on how the project evolves.

The Customer will be able to access it.

Most of the communication will happen on Discord, while the important exchanges will be done by email.

If needs be, the client will be able to submit issues directly on the Github Repository.