

# Development and testing of methods for drones control

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# Flight Stack selection

Autopilot selection is made by evaluating possible pros and cons which every autopilot flight stack brings with it. Three possible solution were evaluated:

- ▶ INAV [1]
- ▶ PX4 [2]
- ▶ Agilicious [3]

Evaluation based on the following parameters:

- ▶ configuration
- ▶ missions definition
- ▶ future developments

# Configuration

INAV videos on Youtube at this [link](#)

PX4 follow sections from *Basic Assembly* to *Flying* in the official documentation

Agilicious no description

# Missions definition

INAV provide a Ground Control Station (GCS) which is capable of define only waypoints [link](#)

PX4 typically use QGroundControl (QGC) as GCS<sup>1</sup>, here different missions can be defined and it is worth to note that there is also survey missions which seems particularly suited with the aim of this project

Agilicious doesn't not provide a GCS for missions definition, but it has a module called [reference](#) which implements different ways of generating reference trajectories

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<sup>1</sup>QGC supports only PX4 and Ardupilot

# Future developments

INAV no description to interface with Robot Operating System (ROS)

PX4 has a subsection dedicated to [ROS communication with PX4](#). In addition PX4 has a MATLAB package called UAV Toolbox Support Package for PX4 Autopilots [4]

Agilicious has very good structure for future developments because you can change controller or estimator by simply modify a `yaml` file. It's not provided a way to integrate GPS measurements. An interface for ROS called [agiros](#) is provided.

Both PX4 and Agilicious docs propose a simulator.

# Conclusions

1. PX4
2. Agilicious
3. INAV

# References I



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