

LE (LIS-EPFL) quad

A quad for multi-robots experiments

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LE (LIS-EPFL) quad

To test collision-free navigation, we developed a MAV: the LE (LIS-EPFL) quadrotor of about 450gr and 50cm span. It is based on the MAV'RIC framework.

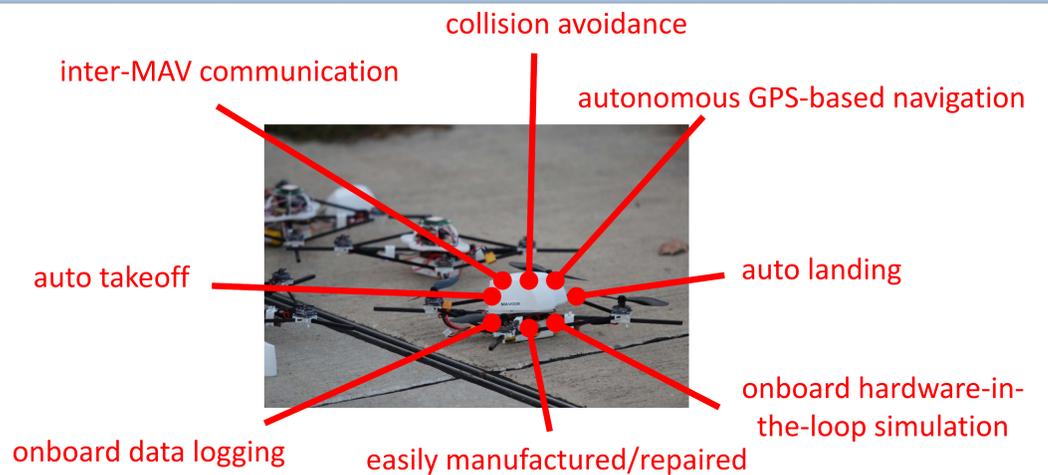
The mechanical design and the software were developed having multi MAV experiments in mind. The quadrotors are easily built by putting together carbon rods and 3D printed pieces.

The quadrotors are able to takeoff, navigate between waypoints and land autonomously. At any time, the control can be taken manually on one or many MAV to ensure the safety. The navigation can also be stopped/resumed if any issue occur.



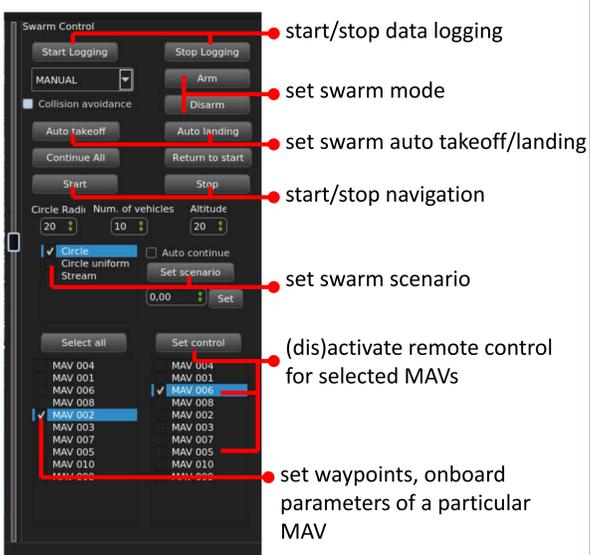
<http://lis.epfl.ch/Mycopter>

LE quad capabilities



Swarm control

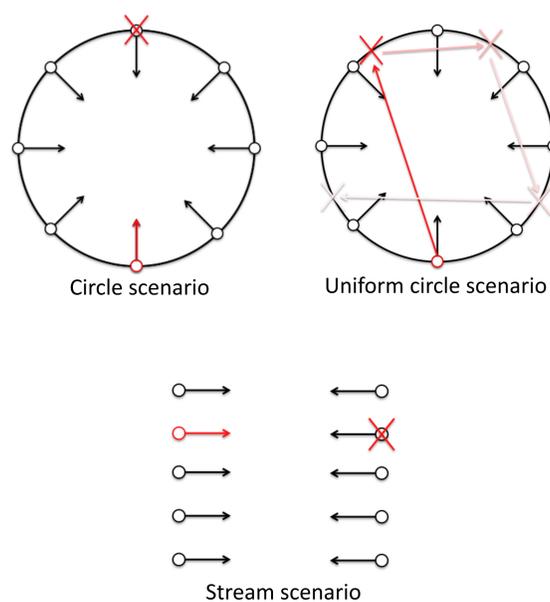
We extended an open-source software called QGroundControl to meet our requirements to control a whole swarm



<http://qgroundcontrol.org/>

Scenarios

Different scenarios can be played



MAV'RIC framework

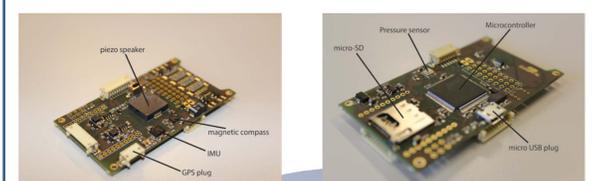


The development of a flying MAV led to the establishment of a framework named MAV'RIC.

This framework is now a basis for multiple projects in our lab.

This framework is soon to be released as an open-source autopilot software. It is designed to fit any kind of flying platform (multi-rotor, flying wing, transition platform, etc.).

It is also a teaching tool for a Mobile Robot class here at EPFL. All the practicals were designed using this framework. At the end of the semester, one month mini-project will allow students to extend one aspect they have seen in the class.



mycopter



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