



## Research Internship

# Integration and Testing of Novel Measurements for UAV Navigation

### Task:

Due to the current development in the aviation sector with small UAVS, eVTOLS and other new transportation concepts also new requirements for Navigation arises. The classical approach of determining the position and orientation of an aircraft mainly via inertial and satellite navigation does not meet those requirements in all cases. The main challenges are meeting weight and cost limits, as well as operation in GNSS-challenged environments while ensuring an integer navigation solution.

In order to meet those requirements, the integration of data link Tim of Flight-measurements is investigated. A test platform is already in place; however, improvements are needed. Those improvements shall also be tested on ground and **in air**.

First tasks include the introduction to the current system, then improvements and extensions are identified. After this, those improvements shall be integrated, tested and verified.

To get a better feel of the tasks at hand, already identified improvements:

- Communication between Raspberry and Pixhawk
- Lightweight ETH switch
- Online Telemetry
- All components integrated in lightweight 3D-printed box
- Thorough Documentation

### Requirements:

- Speaking German or English
- You can work independently as well as in a team
- Desired Skills
  - Clean working approach
  - C/C++ experience
  - Pixhawk Software/Firmware Experience
  - 3D-Print experience

### Start:

Now

