Drone

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Hardware

Structure

The basic structure will be 3D printed.

Flight-controller

The flight-controller is based on the STM32f407G.

Sensors

Currently the intend is to use SPI to communicate with all Sensors to ensure fast and reliable communication.

Attitude Sensors

The Drone will use an LSM9DS1 containing an Accelerometer, Gyroscope and Magnetometer for attitude determination.

Software

The SPI bus should mainly be concerned with handling Attitude relevant sensor information and sending control commands. All other sensors should be only queried when necessary.

Flight-controller

The flight-controller is based on an STM32f407G ruining SROS. Currently the intend is to communicate through all external devices using SPI.

Attitude Determination

Using the LSM9DS1 Gyroscope and Accelerometer data is gathered every 3 ms, while magnetometer data is gathered when it becomes available (about every 50ms). An EKF is used to determine the Attitude.