Design and Control of a Bicopter MAV

Design and control of a UAV using only two rotors, and additional actuation to allow for full position and orientation controllability.

Keywords: MAV Control Design Omnidirectional

Description

Omnidirectional UAVs present numerous advantages over traditional UAVs for aerial interaction and unobstructed observation.

This project aims to develop a UAV using only two rotors, and additional actuation to allow for full position and orientation controllability.

As a semeter thesis, this project would target demonstration of the system in simulation. As a masters thesis, the project would include integration of a real platform and evaluation of real flight performance.

Work Packages

- Investigate morphology and actuation
- Evaluate controllability
- Design a controller for omnidirectional flight
- Test in simulation and evaluate performance

If masters thesis:

- Build system
- Flight testing and performance evaluation

Requirements

- c++ coding experience
- Knowledge of ROS recommended

If masters thesis:

- System integration experience