



Object Detection and Following with Quadcopters

Nowadays, flying robots are widely applied and quite popular in many fields of research. Quadcopters are cheap, lightweight, and can be programmed for various tasks.

The goal of this master thesis is to detect a moving object (a person or a wheeled robot) and follow it at a given height in an outdoor environment. The robot should detect obstacles and avoid them using efficient maps e.g. Octomap. Using existing methods (e.g. DroNet [1] with traditional object detection or YOLOv3 [2] object detection with assisted OptiTrack/GPS) is acceptable, and using a novel algorithm is also encouraged.

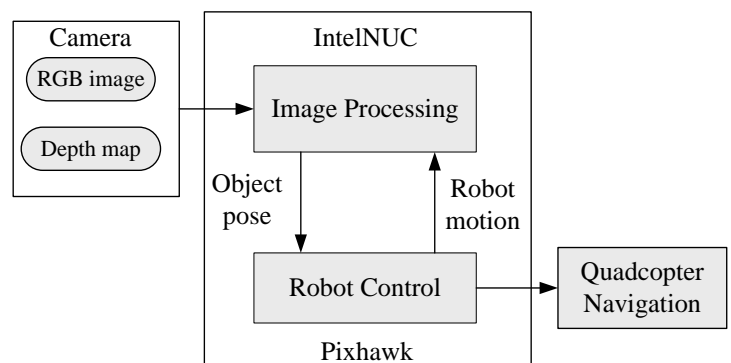
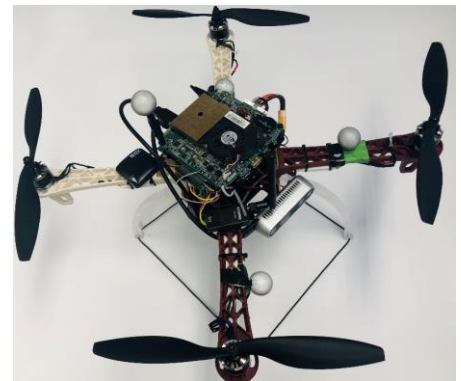
The quadcopter to be used has one downward-looking color camera, and one forward-looking RGB-D camera. The experiments may be started in the flying robot lab, and should be continued in the outside.

Requirements:

- Interest in Quadcopters, preferably flying robots practical course
- Python and C++
- Be familiar with ROS
- Proficiency in English

References:

1. DroNet, RA-L 2018.
2. YOLOv3, arXiv 2018.
3. OpenCV Documentation.
4. ROS Tutorials.



Kontakt

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