Visual Navigation for Flying Robots – Project Proposal

Autonomous Landing on the Moving Platform

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Motivation

- Controlled landing in difficult environments
- Following the marker implicitly
- Control with the Android Smartphone
State Graph

- Control Command from the mobile
- Manual Control
- Estimate the Position (EKF)
- Landing on the Marker (PID)
- Following the Marker (PID)
- Find the Marker
What is done?

- User Interface for the mobile phone
- User Interface for the mobile phone
- Landing on the moving platform is implemented and tested
- Following the marker is implemented and tested
How did the landing go?

- Try to land when the ARdrone is stable enough
  - Video 1
- Try to detect the other marker and set him as the goal for the PD controller
  - Video 2
- Follow the detected moving marker
  - Video 3
Next steps

- Try different marker following approaches (i.e. Use the marker for EKF as the moving marker)
- Improve the autonomous landing
- Combine the software with the mobile user interface
- Test it with the mobile
- If there is enough time → try to apply controller for height of the ARdrone
Autonomous Landing on the Moving Platform

Questions?

Thank you for your attention.