Development & Construction of an Autonomous Path-Following Drone

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1 Introduction

do at the end of the writing process

2 Personal Motivation

rather short

3 Literature Review

3.1 general software considerations

why I choose the software (work around the same topic that already exists)

4 Methodology

(only what has been done + which parts are needed and why I choose them)

4.1 parts

4.1.1 Flight Controller

Kakute H7, comes with betaflight

4.1.2 GNSS(Global Navigation Satellite System)

Micro M10 from Holybro choosen, because it is from the same manufacturer as the Fc. 4 Concurrent GPS CEP of 2 m(short explanation box)

4.2 soldering

4.3 ardupilot

4.3.1 Ground Station

ground station = software running on ground-based computer, transmit data to the UAV and can control it

- **Mission Planner** widely used and has a wiki(Open Source)

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- **Mavproxy**, for Linux used for code developers, written in Python(Open Source)

- some considerations for Smartphone (might be useful for connection between Raspi and ground)

downloading of latest stable Ardupilot firmware for Kakute H7 fc
  loading Ardupilot firmware onto Fc with STM32 CubeProgrammer by connecting the Fc in DFU(Direct Firmware Update) Mode with the computer(quick explanation box for STM32 and DFU mode)
  reconnecting Fc with Comp. opening Mission Planner and connecting to Fc seeing first Yaw measurements

Trying to get GPS connection – No GPS changing the GPS_Type to 2 for Ublox GPS... doesn't work

Micro M10 probably connected, due to compass being seen on Mission Planner

soldering might be the problem?– Should be fine
blinking blue LED indicates no satellite fix... did blink in- and outside
cables are also connected correctly

5 Results

6 Discussion and Outlook

7 Conclusion

8 References

9 Table of Figures

(short table on which every figure description with the page number is listed)