University of Magdeburg

School of Computer Science

Bachelor Thesis

Mixed-reality Simulation of Quadcopter-Swarms

Author:

[Lukas] [Mäurer]

Matrikelnummer: 189073

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Advisors:

Prof. Sanaz Mostaghim

Department of Intelligent Systems

Christoph Steup

Department of Intelligent Systems

***[Mäurer]*, *[Lukas]*:**
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1. Introduction

1.1 Motivation

[project context of this work]

[who needs the results]

[what are the problems to be solved?]

[what are existing solutions, what's different in this approach, what is the improvement]

1.2 Problem Statement

[what are the goals] [how are we going to reach this goals] [what is to be done]

1.3 Outline

[short description of the sections]

2. Theory

2.1 Quadcopter Modelling

[fundamental physics]

[particle simulation]

2.2 Vrep

[connecting visual representation and physical model]

[simulation structure (lua scripts, scene structure]

[lua module structure]

[external interface (signals)]

2.3 Communication/Ivy-Bus

test check in

3. Implementation

3.1 Simulation Environment

[finken parameter estimation]

[controller tuning]

[simulation parameters]

[script structure]

3.2 Communication Link

[link in Vrep (signals]

3.3 *[fancy name]*

3.4 Quadcopter

4. Evaluation

[how realisitc is the simulation?] [which properties can be modelled well, which can't?]

4.1 Speed

[communication delay] [vrep simulation speed]

4.2 Accuracy

[error]

4.3 |

Stability

4.4 usability

5. Conclusion

5.1

[do the results show that it works?]

5.2 Future Work

Hiermit erkläre ich, dass ich die vorliegende Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel verwendet habe.

Magdeburg, den 29. November, 2013