Double Tracking Antennas for UAS Communication Control and Automation

June 21, 2016

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Group CA

Introduction

Overvie

Farmer

Telecommunica

Method

Modellin

Controller

Simulatio

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Conclusion

The project is about UAS:

- ► What?
- ► Why?
- ► How?
- ► State each part and whom will present.



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Frames

Telecommunication

Methods

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Results

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Hardware

Frames

Telecommunica

Method

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Cimulatia

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Conclusio

Unmanned Aicraft System (UAS)

- 1. Unmanned Aircraft (UA)
- 2. Ground Station (GS)
- 3. Antennas
- 4. DC Servomotor



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Frames

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Geodetic Coordinate System

Earth-Centered Earth-Fixed (ECEF)

North-East-Down (NED)

Body Coordinate System

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Line-Of-Sight (LOS) Propagation

Link Budget

Fresnel Zones

MAVLink Protocol



Modelling

Moving Angle System (MAS)

Optimal Angle

Antenna



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PID

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Comparion



Simulation

LOS Coverage Map

2D UAS

3D UAS



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Four different scenarios:

- ► Angle Range
- ► Curvature of the Earth
- ► Above the GS
- ▶ Mountain

Variables that will be analysed:

- ► Azimuth angle (optimal and simulated)
- ► Elevation Angle (optimal and simulated)
- ► Signal Power

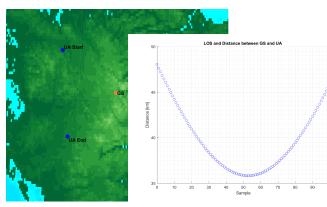


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Results

Goal

Describing the movement of the antennas when the UA is flying far away from the GS.



(a) A gull

(b) A tiger

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Overview

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Method

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Conclusion

We did this: ...

We can see that: ...

We conclude that: ...

Further work that can be built on the current project:

Thank you for flying with us!

