# Double Tracking Antennas for UAS Communication Control and Automation

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### Introduction

Overvie

Hardwai

Telecommunica

#### Method

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Controller

Simulatio

#### nesuit

Conclusion

### The project is about UAS:

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



# Introduction

### Introduction

Overview

Hardware

Frames

**Telecommunication** 

Methods

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Hardware

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# Unmanned Aicraft System (UAS)

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



Introduction

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Frames

Tologommuni

Methor

Modelli

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Conclusio

Geodetic Coordinate System

Earth-Centered Earth-Fixed (ECEF)

North-East-Down (NED)

**Body Coordinate System** 



# **Telecommunication**

Double Tracking Antennas for UAS Communication Group CA832

### Introducti

### Overvie

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Frames

Telecommunication

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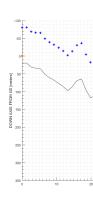
Simulati

Result

Conclusio

## Main hardware components

- ► GPS & IMU orientation & positioning
- Low Level Interface (LLI) gather measurements
- ► On-board computer (HLI) processing
- ► Wireless Router (WIFI) network interface
- ▶ DC motors movement
- Robot Operation System (ROS) internal communication





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Moving Angle System (MAS)

Optimal Angle

Antenna



Controller

PID

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Comparion



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Handre

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LOS Coverage Map

2D UAS

3D UAS



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Angle Range

Earth Curvature

Above GS

Mountain



Introduction

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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!

