

# DroneRelay:

Aerial Drone Platform  
with relays for scenarios of  
limitation and emergency

Project in informatics engineering  
2020/2021 **Milestone 3**

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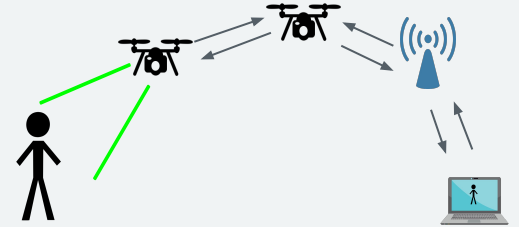
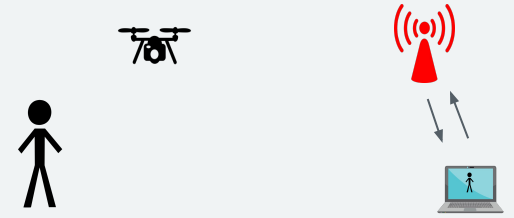
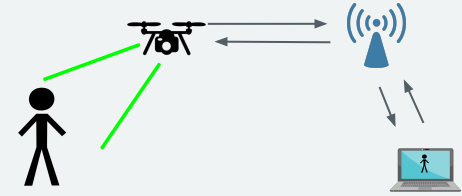
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# Context

- Many investigation projects have been developed due to the importance of UAVs in Surveillance and monitoring tasks.
- This project is going to be developed with the foundation of a mission planning project.

# Goals

- Relay drone adopts an optimal position through some parameters like network, video quality etc. This position is dynamically updated
- Dynamically adapt telemetry frequency, transmission ratio and video quality according to the current communication quality



# Tasks and Steps

# Relay Module – Tasks

**FG2** - Should be able to place relay drones in a optimal position taking into account communication and services parameters **(60%)**

# Relay Module – Steps

Construction of the structure for the relay.

Definition of the position for the drone relay in cases of optimal network.

Development of an optimized search (Search Tree), for the relay of drones.

Convert the relay algorithm in python to the final language used, groovy.

Documentation.

# Camera Module – Tasks

**FG4** - The system should be able to automatically adapt video parameters (10%)

**FDR3** - Should be able to send video with different codecs and quality (90%)

# Camera Module – Steps

Research and development of the functionality to change the quality of the camera.

Integrate quality change functionality into the dashboard.

Documentation.



# Network Sensor – Tasks

**FG1** - Must be able to process network characteristics between the ground station and the drones (100%)

**FDR1** - Must be able to monitor network characteristics between the ground station and the drones (100%)

**FDR2** - Monitor the network characteristics between itself and the other drones and transfer that information to the ground station (100%)

# Network Sensor – Steps

Investigation of commands and ways to obtain information about the ad hoc network for the sensor.

Observe and understand which of the ad hoc nodes we are connected to (sensor network).

Obtaining several fields of the network: RSSI signal, TX bitrate and RX bitrate.

Obtaining latency for the network sensor.

Small improvements and ways of passing the data to the relay.

Documentation

# Dashboard – Tasks

**FD1** - Should be possible to visualize real time video sent from the drones (100%)

**FD2** - Should display information about the mission (0%)

**FD3** - Must be able to display telemetry information from the drones (0%)

**FD4** - Must be possible to adjust relay parameters to optimize drone position (0%)

# Dashboard – Steps

Add video live features.

Manual quality video changing on the dashboard.

# Telemetry Data – Tasks

**FG3** - The system should be able to automatically adapt telemetry information sending ratio (0%)

**FDR4** - Should be able to adapt telemetry sending ratio according to the ground station (0%)

# Thanks!

Do you have any questions?

Micro site github  
Micro site

