



A7.1. Dizajn eksperimenta i radni sastanak

D7.1.1. Izrađen nacrt eksperimenta te definirane ključne varijable

Autori: Boris Tomaš

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Mjesto: Fakultet organizacije i informatike - FOI, Varaždin

1. Introduction

Testing constellation performance is to be properly defined in the form of experiment. This experiment will evaluate the performance of the final product, that is: a constellation navigation system and on-drone payload solution for scanning RF signals in the area.

Main scenario is signal localization of the intruder drone. Experiment will define a no-fly zone. Upon breach, a constellation will be dispatched and signal search will begin. When the signal is locked, the constellation should calculate the location of the intruder drone pilot.

2. Experiment setup

a. Environment (location)

Experiment should happen in a non urban environment in order to minimize potential hazard for people and assets.

Minimum required dimensions are 1000m x 1000m., Potential experiment locations include:

- Military proving ground "Eugen Kvaternik" Slunj, Croatia.
- Automotive proving ground ZalaZone, Zalaegerszeg, Hungary.



- Military proving ground Gakovo, Croatia.

b. Environment (weather)

To minimize potential disruptions in UAV hardware temperatures should be at least above 10°C and less than 30°C with 0 precipitation and no winds. According to meteorological data early summer would be the ideal time of the year.

c. Variables.

Actual pilot location is determined using maximum precision GNSS system or physical geolocation markings (depending on experiment location). Estimated (calculated) location is tested against actual and variables are:

- Estimated location error offset - X (Ex)
- Estimated location error offset - Y (Ey)
- Estimated location error offset - Z (Ez)

Total time of localization is time required for the ORKAN system to localize the intruder pilot. Time is measured starting from take off and until system reports result location.

Time of localization is the time required for the algorithm to calculate reported location.

- Total Time of localization (TTL)
- Time of localization (TL)

Minimum precision of *acceptable result precision* is a parameter of experiment.

d. Monitoring

Whole experiment should be recorded with several cameras to gather materials for analysis. Video feed sources:

- Screenshot of UCCC software
- Video recording of UAV on board cameras
- 1 in field static camera
- 1 camera focusing on intruder remote pilot.