

The main objective of this thesis is to introduce a simulation platform, which has been developed utilizing Pogamut and USARSim, for cooperative aerial surveillance using multiple unmanned aerial vehicles (UAVs). The graphical user interface (GUI) of the simulator contains the automatically created bird's eye view of a 3D virtual environment. This is used to enter locations and parameters of objects (UAVs, charging stations and areas) and also to visualize the process of a simulation. The thesis proposes a system for the analysis of the quality of surveillance, whose results are presented in the GUI in the form of a time graph and a heat map. Part of the proposed platform is a UAV objective-based control system including charging stations scheduling. A total of seven algorithms for cooperative surveillance has been implemented, tested in three different scenarios and analyzed for coverage quality.