

AUTOMATIC GRAPH GENERATION FOR BUILDING SURVEILLANCE WITH DRONE CAMERA

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Abstract. This paper presents the method of building surveillance, as the each build is separated to sides. Each side is segmented in viewing areas. Each viewing area is a field of view of a camera, mounted on a drone. The separate segments are connected sequentially and this gives the way for surveillance the this side, Connected the all paths for all sides will give the building surveillance. The proposed method is used to generate the coverage path of the whole buildings.

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1. Introduction

Path planning [6], [3], [7] and Coverage path planning [5], [2] are terms used in robotics area and provide the algorithms to find the optimal path for all robot types in 2D and 3D space. The first type of algorithms is used to find the shortest path between two points, while the second type is used for minimal surveillance of object for maximum coverage. In this paper, UAVs (Unmanned Aerial Vehicle) are used in the area of security, where the main mode is building observation at the maximum coverage of each building, using the camera mounted on a drone.

In general case, not every building can be wholly observed (100%) independent a various reasons (proximity to other buildings, presence of different types of obstacles around the building itself, etc.). Using the mounted camera we can estimate in real time what part of the building can be observed by the drone and what part remains potentially at risk, as well as finding an optimal surveillance path.