UNIVERSITI TEKNOLOGI MARA

A 3D Generative of Urban Scenes Using Uav Image At Arau, Perlis.

ZAINUNDIN BIN ZAINALWATI

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ABSTRACT

Urban 3D models are useful for geo-visualization tasks, they can help us to identify places in everyday navigation, assist autonomous driving via 3D road information systems and they can be used in movies and games. They enable the interactive measurements of 3D distances, surface areas and volumes without physical presence at the location. If the 3D model is augmented with semantic information, example it distinguishes between objects or regions like streets, sidewalks, vegetation, buildings, walls, windows, entrances, such information further simplifies the aformentioned tasks and can robustify other tasks, example knowledge of road areas contributes to vehicle detection and traffic monitoring, or locating entrances can robustify pedestrian detection and action recognition tasks. However, there is no single data that allows one to create full spherical coverage of all structures. The aim of the study is to creation of 3D surface models of urban scenes primarily of architecture from imagery. To achieve the aim of the study, the objective of the study are to generate the orthophoto using agisoft and to construct 3D modelling image. The location for this research study is at UiTM Arau, Perlis. The data that will be use is image from unmanned aerial vehicle (UAV). For the methodology for this study, UAV will be used to take the image at study area. Then the image can be process using Agisoft photoscan Profesional to build orthophoto image and also to construct the 3D mapping.

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Zainundin bin Zainalwati,

Bachelor of Surveying Science and Geomatics (Hons.)

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Urban 3D model enable the interactive measurements of 3D distances, surface areas and volumes without physical presence at the location. If the 3D model is augmented with semantic information for example it distinguishes between objects or regions like streets, sidewalks, vegetation, buildings, walls, windows, entrances, such information further simplifies the aformentioned tasks and can robustify other tasks. The endeavour for creating semantic 3D models of real cities by computer vision techniques has intensified in the last decade, also fuelled by the increasing availability of 3D acquisition technologies and datasets, by maturating 3D reconstruction algorithms, and by the unleashed computational power in graphics cards (GPUs). These altogether now allow the production of imagery, semantic and 3D data of urban scenes at a massive scale and possibilities are far from being fully exploited yet.

Recent developments in aircraft-based aerial photogrammetry or unmanned aerial vehicles (UAVs) offer promising 3D modeling techniques. However, 3D models generated from aerial vertical imagery in urban areas with densely distributed high-rise buildings may show geometric defects and blurred textures, particularly on building façades, due to problems such as occlusion and large camera tilt angles. In the meantime, mobile mapping systems (MMSs) can capture street-side images of close-range objects at a high level of detail from a complementary view of the ground, but do not offer full coverage. Mobile mapping system (MMSs) has not been used in this research. UAV will be replace MMSs technique to capture the street side image.

This relevant of this study is to construct the 3D mapping. According to Andr´as B´odis-Szomor´u, (2018), the method can be use is airborne acquisition imagery. This study involving research planning, collecting of data, data processing, and result and data analysis. This study is carried out at Arau, Perlis area as a sample study area. In