

A Review on 3D Smart City Platforms Using Remotely Sensed Data to Aid Simulation and Urban Analysis

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Abstract : 3D urban models provide powerful tools for decision making, urban planning, and smart city services. The accuracy of this 3D based systems is directly related to the quality of these models. Since manual large-scale modeling, such as cities or countries is highly time intensive and very expensive process, a fully automatic 3D building generation is needed. However, 3D modeling process result depends on the input data, the proprieties of the captured objects, and the required characteristics of the reconstructed 3D model. Nowadays, producing 3D real-world model is no longer a problem. Remotely sensed data had experienced a remarkable increase in the recent years, especially data acquired using unmanned aerial vehicles (UAV). While the scanning techniques are developing, the captured data amount and the resolution are getting bigger and more precise. This paper presents a literature review, which aims to identify different methods of automatic 3D buildings extractions either from LiDAR or the combination of LiDAR and satellite or aerial images. Then, we present open source technologies, and data models (e.g., CityGML, PostGIS, Cesiumjs) used to integrate these models in geospatial base layers for smart city services.

Keywords : CityGML, LiDAR, remote sensing, SIG, Smart City, 3D urban modeling

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