



ABSTRACTS

3. Aurel SĂRĂCIN, Constantin COSARCA: 3D City Modeling: Techniques and Applications

The 3D city model is a digital representation of the Earth's surface and its related objects such as buildings, trees, vegetation and some manmade feature belonging to urban area. There are various terms used for the city's 3D models, such as "Cybercity", "Virtual City" or "Digital City". 3D city models are basically a computerized or digital models of cities that contain the graphic representation of buildings and other 3D objects.

Generally, there are three Geomatics approaches to generating 3D Virtual City models.

In the first approach, conventional techniques such as vector map data, Digital Earth's Model (DEM), aerial images are used. The second approach is based on high-resolution satellite images with LASER scanning, and the third method uses terrestrial images near objects to extract contours and texture of objects.

The techniques of 3D City modeling are divided into two main categories: one based on automation (automatic, semi-automatic and manual methods), and another are based on data input techniques (photogrammetry or laser techniques).

This paper gives an overview about the techniques of generating 3D city virtual models using Geomatics techniques and Virtual Reality Application Models for cities.

Photogrammetry, terrestrial and aerial LASER measurement technologies, GPS technology, or a combination of these modern Geomatics techniques play a major role to create a virtual 3D City model. Each technique and method has certain advantages and disadvantages. Point cloud model is a modern trend for virtual 3D city model. Photo-realistic, Scalable, Geo-referenced virtual 3D City model is very useful for various applications such as navigation, tourism, disaster management, transportations, municipality, urban environmental managements and real-estate industry. So the construction of virtual 3D city models is a most interesting research topic in recent years.

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