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Simulating an Infrastructure Project in Highway Engineering by Means of 4D BIM

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ABSTRACT

The Building Information Modeling – BIM has already become one of the most popular technology in the field of constructions. It is used by project management professionals and researchers aiming to unify and complete the design, construction and management in the structural process. The BIM technology is referred as a wider domain which implements the operations of design and processing digital information for buildings, structures and infrastructures. The integration of a time scheduling model and a 3-Dimension design model is referred as 4-Dimension BIM.The objectives of the present master thesis are, firstly the literature review of the theoretical background, regards to the BIM technology and especially the 4D BIM. Secondly the development of a 3D model of the highway interchange project and the required construction equipment, between the Meandrou street and the Western Inner Ring Road in Thessaloniki, as well as the time scheduling of the infrastructure project and eventually the simulation of the construction process using the 4D BIM.Within the framework of the present master thesis, the Autodesk AutoCAD® 2015 is utilized for the development of a 3D model of the highway interchange project and the required construction equipment, the Microsoft Project® Professional 2013 software is utilized for the development of the project's time scheduling, while for the 4D BIM simulation, the Autodesk Navisworks® Manage 2016 software is adopted. Producing a realistic simulation of an infrastructure project in highway engineering, by means of 4D BIM, important conclusion can be deducted regards to the implementation of BIM in the process of project design, construction and management.

KEYWORDS

3D modeling, AutoCAD®, Time scheduling, Ms Project®, 4D BIM, Navisworks®