

A Construction Scheduling Model by Applying Pedestrian and Vehicle Simulation

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Abstract : In the modern research of construction management, the goals of scheduling are not only to finish the project within the limited duration, but also to improve the impact of people and environment. Especially for the impact to the pedestrian and vehicles, the considerable social cost should be estimated in the total performance of a construction project. However, the site environment has many differences between projects. These interactions affect the requirement and goal of scheduling. It is difficult for schedule planners to quantify these interactions. Therefore, this study use 3D dynamic simulation technology to plan the schedule of the construction engineering projects that affect the current space users (i.e., the pedestrians and vehicles). The proposed model can help the project manager find out the optimal schedule to minimize the inconvenience brought to the space users. Besides, a roadwork project and a building renovation project were analyzed for the practical situation of engineering and operations. Then this study integrates the proper optimization algorithms and computer technology to establish a decision support model. The proposed model can generate a near-optimal schedule solution for project planners.

Keywords : scheduling, simulation, optimization, pedestrian and vehicle behavior

Conference Title : ICEMDS 2019 : International Conference on Enterprise Modeling and Decision Support

Conference Location : London, United Kingdom

Conference Dates : September 25-26, 2019