Modelling 3D Topographic Space Against Indoor Navigation Requirements

Abstract:
Indoor navigation is growing rapidly with widespread developments in the collection and processing of sensor information for localisation and in routing algorithms calculating optimal indoor routes. However, there is a general lack of understanding about the requirements for topographic space information to be used in indoor navigation applications and thus the suitability of existing information sources. This work presents a structured process for the identification of topographic space information starting with use cases that support the complete capture of requirements, thus allowing existing models to be evaluated against these requirements and conceptual semantic and constraint models developed. A proposal is put forward for the implementation of topographic space semantic and constraints models as a CityGML Application Domain Extension (ADE) that will be integrated into the Multilayered Space-Event Model (MLSEM), a flexible framework supporting all indoor navigation tasks.

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Stichworte:
Building Modeling; Indoor Navigation; Indoor Route Planning; Topographic Space; LOCenr; GISPro_IndoorNavLoco; GISTop_CityModeling; GISTop_IndoorNav; LOCTop_Building_Information_Modeling; LOCTop_Spatial_modeling_and_algorithms