

Digital Twin Concept for Multi-Modal Door-to-Door Travel Monitoring

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Abstract. To address the major issue of traveller frustration caused by delays or disruptions in their journey, this paper introduces a digital tool designed to assist travellers throughout their entire door-to-door travel experience. This tool monitors progress and warns travellers if a missed connection is anticipated so an alternative route can be chosen. Traveller satisfaction can be enhanced by tools that can provide personalized, up-to-date, and on-demand travel information. Consequently, there is a growing demand for an advanced digital travel model that can optimise travellers' travel according to their own preference and monitors progress along the way. In this study, a multi-modal, door-to-door travel companion is introduced that can be accessed through personal devices like smartphones or tablets. By providing delay warnings and alternative options in advance, the door-to-door travel companion helps travellers achieve seamless door-to-door travel. The functionality of the model was evaluated through real-world case studies conducted as part of this study.

Keywords. Digital twin, modelling, simulation, information technology, validation test, travel disruption, door-to-door travel

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