عنوان مقاله:

Public Transport Ontology for Passenger Information Retrieval

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خلاصه مقاله:

Passenger information aims at improving the user-friendliness of public transport systems while influencing passenger route choices to satisfy transit user's travel requirements. The integration of transit information from multiple agencies is a major challenge in implementation of multi-modal passenger information systems. The problem of information sharing is further compounded by the multi-lingual and multi-cultural population of developing countries such as India. Ontology, by explicit specification of conceptualisation, not only addresses the issues pertaining to syntacticinteroperability arising due to widely varied system architectures and softwar used by different agencies, but also ensures semantic interoperability caused by cognitive and naming heterogeneity. This paper develops a domainspecificontology for public transport systems, which is further integrated with the domain-ontology of urban features with an objective of supporting multi-modal public transport information retrieval. The ontology thus developed isformalised using Web Ontology Language. In order to evaluate the capability of ontology in passenger information retrieval, the proposed ontology is implemented for five regular bus service routes and one bus rapid transit route in Ahmedabad city. The study defines 1336 named individuals (instances of concepts in ontology) including 293 instances of urban features and 1043 instances of public transport features. The capability of ontology in supporting general service information queries, itinerary planning, and multimodal trip planning have also been demonstrated. The study concludes that the domain-specific public transport ontology when integrated with urban features ontology, not only enables sharing of data across multiple transit agencies, but also expands the search space for passenger route choices by sharing the meaning of information.

کلمات کلیدی:

Ontology, public transport, passenger information, multimodal transport, semantic interoperability

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