Predicting Destination Station Based on Public Transit Passenger Profiling

Authors : Xuyang Song, Jun Yin

Abstract : The smart card has been an extremely universal tool in public transit. It collects a large amount of data on buses, urban railway transit, and ferries and provides possibilities for passenger profiling. This paper combines offline analysis of passenger profiling and real-time prediction to propose a method that can accurately predict the destination station in real-time when passengers tag on. Firstly, this article constructs a static database of user travel characteristics after identifying passenger travel patterns based on the Density-Based Spatial Clustering of Applications with Noise (DBSCAN). The dual travel passenger habits are identified: OD travel habits and D station travel habits. Then a rapid real-time prediction algorithm based on Transit Passenger Profiling is proposed, which can predict the destination of in-board passengers. This article combines offline learning with online prediction, providing a technical foundation for real-time passenger flow prediction, monitoring and simulation, and short-term passenger behavior and demand prediction. This technology facilitates the efficient and real-time acquisition of passengers' travel destinations and demand. The last, an actual case was simulated and demonstrated feasibility and efficiency.