ABSTRACT

With the increasing number of tourists visiting Cirebon City, efficient travel planning has become a significant challenge, particularly related to accessibility between destinations and frequent traffic jams. To address these issues, the RuteX system was developed as a web-based travel route recommendation application that utilizes the RandomForestRegressor model to predict estimated travel duration based on historical data. This travel duration prediction is then used as a weight on a graph processed with Dijkstra's algorithm to determine the fastest path between destinations by considering traffic conditions dynamically. The system provides route and travel time data that can be used to display the recommended routes along with detailed information about each destination, such as address, operating hours, ticket prices, and available facilities, on the user interface. Google Maps API is integrated to support the geocoding process and obtain real-time travel time estimates when historical data is not available. The test results show that the system is able to provide route recommendations with a high level of accuracy in estimating travel duration.

Keywords: Dijkstra algorithm, route planning, Google Maps API, machine learning, travel duration estimation