IIT MADRAS
Indian Institute of Technology Madras

Technology Transfer Office
TTO - IPM Cell

Industrial Consultancy & Sponsored Research (IC&SR)

SYSTEM AND METHOD FOR ESTIMATING RELIABLE CORRIDOR LEVEL TRAVEL TIME ESTIMATION USING PROBE VEHICLE DATA

IITM Technology Available for Licensing

Problem Statement

- In the field of transportation and traffic management, the provision of real-time and accurate travel time information to travelers is crucial for enabling them to make informed decisions regarding their choice of transportation mode, route selection, and travel timing.
- Existing methods for collecting travel time information rely on various data sources, including arterial cameras, location-based sensors, GPS, and other tracking sensors.
- There is a need for an improved approach to effectively predict on-time bus travel, bus dwelling times, and bus arrival times for both single and multiple bus routes.

Intellectual Property

- **IITM IDF Ref. 1810**
- **IN201941021493**

Key Features / Value Proposition

❖ ***Technical Perspective***

- ❑ The present invention discloses A system for estimating travel time for a traffic stream with respect to a public transportation vehicle, in real-time
- ❑ Provides an enhanced, efficient and improved real-time source of corridor level travel time prediction using bus GPS data

❖ ***User Perspective***

- ❑ The route data comprises coordinates of one or more stations of the public transportation vehicle
- ❑ The said plurality of variables comprises long section travel time data; short section travel time data, stream travel time, number of stops, time of the day, peak hours, off-peak hours etc.

Technology Category/ Market

Category –Automotive
Applications – Transport systems, Automation, Automobiles
Industry –Automotive/ Transportation Systems
Market -The global intelligent transportation system market is projected to grow from $22.91 billion in 2021 to $42.80 billion in 2028, at a CAGR of 9.34%

Technology

Intelligent data collection module

Prediction Processing Module

Power Supply Module

- ❑ The intelligent data collection module comprises **a GPS module and a Wi-Fi module**.
- ❑ The GPS module is configured to receive route data of the public transportation vehicle, wherein the route data comprises coordinates of one or more stations of the public transportation vehicle.
- ❑ The Wi-Fi module is configured to collect Wi-Fi data from a plurality of vehicles present in the traffic stream.
- ❑ The prediction processing module is configured to determine a correlation between the data received from the GPS module and the data collected from the Wi-Fi module.
- ❑ The power supply module comprises AC power supplies and DC power supplies for the system.

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The invention further discloses a **method for estimating travel time for a traffic stream** with respect to a public transportation vehicle **in real-time** comprising:

- **Receiving, by a GPS module,** route data of the public transportation vehicle
- **Congregating, by the GPS module**, the route data based on a plurality of variables dividing the data in to one or more sections
- **Collecting, by a Wi-Fi module**, Wi-Fi data from a plurality of vehicles present in the traffic stream
- **Determining, by a prediction processing module**, a correlation between the data received from the GPS module and from the Wi-Fi module
- **Predicting, by the prediction processing module** the travel time for the traffic stream based on the correlation
- **Transmitting, by a wireless means, the travel time to a display module**

- ❑ The method disclosed is capable of controlling the vehicles commuting via one or more stations
- ❑ The receiving module is located at one or more stations and controls the vehicles commuting via the one or more stations therein receiving **at least one route data indicating the location of said public transportation vehicle**
- ❑ The **prediction processing module utilizes linear regression and Artificial Neural Network, ANN, technique**.
- ❑ The said display module is configured to the one or more stations and/or a mobile device and wherein the user is able to view the travel time**, in real-time, through the display module**

TRL (Technology Readiness Level)

TRL4-5,**Technology Validated in relevant Environment**

Research Lab

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