



Industrial Consultancy & Sponsored Research (IC&SR)

Departure Time Prediction Based on V2V and V2I Communication IITM Technology Available for Licensing

PROBLEM STATEMENT

- In the present era, there are various traffic prediction techniques that are implemented related to route planning, navigation and other mobility services to avoid heavy traffic & congestion.
- By literature survey, there are various sensing infrastructure deployed to monitor traffic flow & other details, however, such prior arts failed to address the issues related to predict **departure time** for a travel plan with a scheduled arrival time at a defined destination.
- Hence, there is a need to address the above challenges.

INTELLECTUAL PROPERTY

IITM IDF Ref. 2281, IN Patent No:411487

TECHNOLOGY CATEGORY/MARKET

Technology: Method & system for detecting traffic related variables parameters;

Industry: Transport Service Providers & etc.;

Applications: Transport Route Analysis system;

Market: The global traffic management system market is projected to grow at a **CAGR** of **12%** during **2023-2033**.

TECHNOLOGY

- The present invention describes a **method for detecting traffic related variables and parameters** from a combination of **different moving vehicles & stationary Wi-Fi sensor devices**.
- In this instant, the **traffic** related attributes (a **1st set** of device attributes & a **2nd set** of device attributes) are **collected** by the **on-board unit** installed on plurality of **monitoring vehicle & Wi-Fi sensor device(s)** installed or positioned on static locations along the corridor.
- Further, the **received** 1st and 2nd set of device attributes are processed to **estimate** a traffic state data of the corridor which is **stored** with respect to a **time stamp & location**.

- The claimed subject matter utilizes the **stored traffic state data** to predict a departure time on receiving a **user query** regarding **leaving an origin location** for **arriving at a destination location** at a **desired destination arrival time**.
- The operation of the present invention is depicted with an example in smart chart:

1st Aspect

•Once the travel time for each of the plurality segments is determined, the processing module aggregates the travel time of each of the plurality of segments & predict the departure time;

•For eg., the user may leave the origin location at 3:20 PM to reach the destination location at 4 PM.

2nd Aspect

•In another aspect, the central computing server may also suggest a number of possible routes to reach destination location from the origin location and displays departure time for each possible routes.

Herein, such **prediction** of **departure time** helps user to **schedule** their travel plan based on the traffic state data to **efficiently** utilize their **available time** & **ensures minimum** wastage of time caused by lengthening or shortening **travel time** due to **congestion/traffic** on roads.

TRL (TECHNOLOGY READINESS LEVEL)

TRL-7, System prototype demonstrated in operational environment;

RESEARCH LAB

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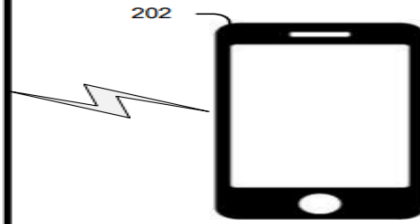
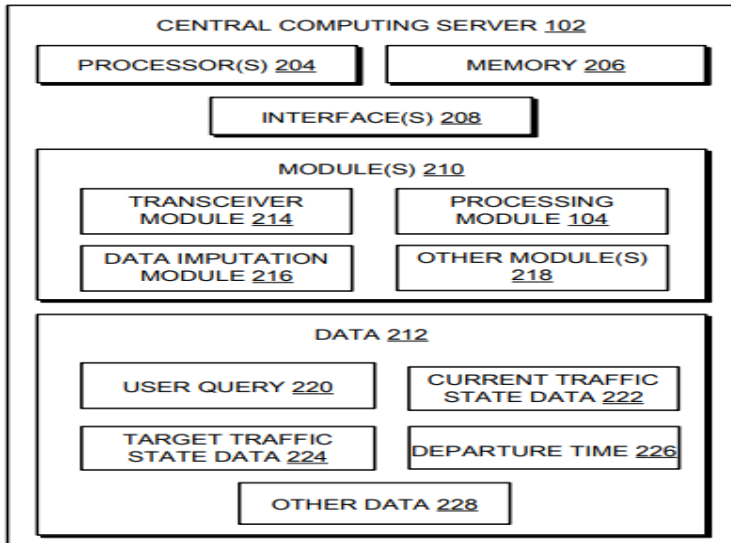
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Image

FIG 1 (Below): Illustrates an exemplary networking environment for estimating traffic state data based on detection of presence of plurality of vehicles



KEY FEATURES / VALUE PROPOSITION

❖ Technical Perspective:

- **Utilizes inbuilt variety of sensors:** The sensor comprises a WIFI-MAC sensor, an accelerometer, gyroscope sensor, and GPS sensor & etc. used for implementing the patented system.
- **Utilizes variety of Electronic Devices to provide the feasible time for a successful travel plan :** The user device may be a portable computer, notebook PC, Mobile phone, handheld device & etc.
- **Provides the prediction of departure time :** The user is benefited to schedule their travel plan based on the traffic state data to efficiently utilize their available time & ensures minimum wastage of time caused by lengthening or shortening travel time due to congestion/traffic on roads.

❖ Industrial Perspective:

- The Patented Technology can be easily applicable/implemented in the vehicles such as four wheelers, three wheelers and two wheelers, etc.

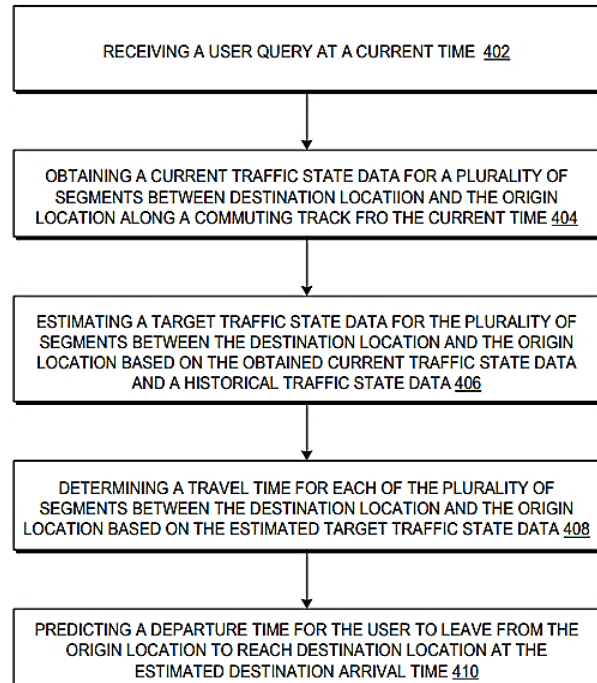


FIG 2 (Above): Illustrates a flowchart depicting an example method for predicting a departure time for a travel plan having scheduled destination arrival time based on current traffic state data & historical traffic state data;

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