

CLAIMS

1. A system for processing travel-related data, the system comprising:
 - a mobile computing device;
 - a mobile application configured to execute on the mobile computing device and collect and store in a memory travel data including position of the mobile computing device as the mobile computing device moves so as to collect and store in the memory travel data representing a history of movement of the mobile computing device with the history of movement corresponding to a journey and the travel data representing one or more travel events and one or more stop events taken by the mobile computing device in the journey, and wherein the mobile application is configured to communicate the travel data representing the journey over a network;
 - a networked data processing device coupled to receive the travel data from the network and analyze the one or more travel events to identify a mode of travel taken by the mobile computing device during at least one of the one or more travel events; and
 - a graphical user interface that allows a user of the mobile computing device to verify accuracy of the identified mode of travel by presenting the identified mode of travel and a graphical element with which the user can confirm that the identified mode of travel corresponds to the mode of travel taken by the mobile computing device;
 - wherein the data processing device is configured to receive the identified mode of travel after it has been verified and analyze subsequently travel data based on the identified mode of travel.
2. The system of claim 1 wherein the data processing device is further configured to identify one or more events associated with the travel of the mobile computing device, and the graphical user interface is further configured to allow the user to verify accuracy of the identified one or more events.
3. The system of claim 1 wherein the data processing device is configured to compile a series of travel activities and stop activities based on the travel-related data.
4. The system of claim 3 wherein the data processing device identifies the means of travel by analyzing the travel activities and stop activities to determine one or more of: a speed of travel, a location of travel, and an apposition of the locations of the travel to public transportation routes, and/or an apposition of times of the travel to public transportation times.
5. The system of claim 1 wherein the data processing device is configured to identify whether the data indicates the mobile computing device is stationary or traveling by analyzing hand-offs and,

to determine that the device is stationary if one or more of accelerometer data and cellular data indicate no change in location when the hand-offs occur.

6. The system of claim 1 wherein the data processing device is configured to identify whether the data indicates the mobile computing device is stationary or traveling based on one or more of: GPS data, accelerometer data, cellular data, and Wi-Fi data.

7. The system of claim 3 wherein the data processing device is configured to determine a type of the stop activities based on proximity of the mobile computing device to an area or structure.

8. The system of claim 1 wherein the graphical user interface allows a user to verify the identified means of travel by entering a type of travel.

9. The system of claim 8 wherein the data processing device is configured to verify whether the type of travel entered by the user is consistent with the travel-related data.

10. The system of claim 1 wherein the data processing device is a server computer.

11. The system of claim 1 wherein the graphical user interface is a web interface.

12. The system of claim 1 wherein the mobile application is capable of disabling use of GPS systems to reduce battery consumption.

13. A method comprising:

executing, by a mobile computing device, an application that collects travel data including position of the mobile computing device as the mobile computing device moves so as to collect a history of movement of the mobile computing device, the history comprising a journey having travel data representing one or more travel events and one or more stop events taken by the mobile computing device;

transmitting the travel data representing the journey to a central server;

analyzing the journey by the central server to:

identify one or more modes of travel undertaken by the mobile computing device by analyzing the one or more travel events;

identify one or more activities associated with the movement of the mobile computing device by analyzing the one or more stop events;

providing a web interface including features to verify the modes of travel and activities associated with the movement of the mobile computing device; and

identifying whether a mode of travel entered by a user via the web interface is consistent with the history of travel.

14. The method of claim 13 wherein the web interface is configured to present the journey to the user for verification.

15. The method of claim 13 further comprising identifying the activities of the user based on contextual data.

16. The method of claim 15 wherein the contextual data includes one or more of: past verifications made by the user, maps of the area, local events in the area, and land use information.

17. The method of claim 13 further comprising collecting registration information about the user.

18. The method of claim 17 wherein the registration information include one or more of: age, gender, marital status, employment information, education, race, income, housing information, mobility information, and frequently visited places.

19. A method comprising:

Collecting, by an application executing on a mobile computing device, travel data including position of the mobile computing device as the mobile device moves so as to collect a history of travel of the mobile computing device;

transmitting the travel data to a central server;

analyzing the travel data by the central server by:

segmenting the data into travel segments representing stops based on the stop events and movement of the mobile computing device based on the travel events;

filtering one or more false-stops from the stop events;

determining data features from the travel events for identifying a type of travel of one or more of the travel segments;

classifying one or more of the data segments as one or more of a stop and a mode of travel;

providing a web interface including features to verify the modes of travel and stops of the user.

20. The method of claim 19 wherein analyzing the data further comprises merging data segments to eliminate one or more false stops and false trips.

21. The method of claim 19 wherein analyzing the data further comprises classifying the mode of travel data segments to determine a type of travel.
22. The method of claim 21 wherein the type of travel includes one or more of: car travel, bus travel, and train travel.
23. The system of claim 1 wherein the networked data processing device is configured to identify the mode of travel by utilizing user-verified contextual data related to the mode of travel.
24. The method of claim 13 wherein the central server is configured to analyze the one or more travel events by utilizing user-verified contextual data related to the travel events.
25. The method of claim 19 wherein classifying the one or more data segments includes utilizing stored, user-verified contextual data related to the data segments.