Improving Rush Hour Traffic Flow By Computer-Vision Based Parking Detection and Regulations – Data Management Plan

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Data description

There are be two sets of data that are relevant to this project. The first is GPS tagged images and IMU data collected from a smartphone mounted on the windshield of a vehicle that travels in normal traffic. The information of interest in these images are parked cars alongside the road. Incidentally we will also capture every-day traffic like other vehicles, pedestrians, etc. All the data is taken in public places.

The second set of data is traffic flow data, parking information, and a wide array of mobility data available from the Mobility Analytics Center (http://mac.heinz.cmu.edu/). All traffic data to be used in this research are acquired from the public domain.

Data format and metadata standards

The images are in standard JPEG format. The metadata will be in plain text format, describing the scenarios and other relevant information. The metadata will be stored with the images

The raw data will first be converted to mySQL database file for cleansing, fusion and processing. The data in mySQL are further imported into OpenStreetMap for visualization. The PI and research assistants will code algorithms using ANSI C++ that is compatible for any platform. The output data will mainly be parking availability, prices and system performance metrics. The aggregated data, without any personally identifiable information, can be provided in the standard .cvs format or GIS formats to any interested party via the web application.

Policies for access and sharing

Throughout the duration of the proposed work, the PI will in a timely manner communicate any significant findings with the scientific community in accordance with USDOT policy through journal publications, national and international conference presentations, and seminars. The reported results will be made available to the research community, where possible and permitted and upon request.

When sharing the data, the PI commits to protect privacy, confidentiality, and security. If the research and discoveries found during the project might be secured with intellectual property, the PI will work with our respective Technological Transfer Offices to protect potential proprietary data. In addition, the PI will not post to any publicly available site any raw data that are not permitted to share, especially under data usage agreement with private sector.

Policies for re-use, redistribution, derivatives

Data derived from this project shall be retained for at least one year. The tool developed in this project will be open source and shared along with research results to research community through the web designed for this project. The data in this project does not contain private or confidential information.

Plans for archiving and preservation

Any used data will reside on PCs and workstations belonging to the PI's university. All data will be periodically and systematically backed up either onto multiple external hard drives, or a centralized backup cloud through the university, to ensure full data recovery in the event of equipment failure.