
Bus on the edge: Applications

A Data Management Plan created using dmptool

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Project abstract:

In the past two UTC cycles, we have built the "Bus on the Edge" as a data gathering and analysis platform that regularly monitors traffic and infrastructure. In this project cycle, we want to develop applications that are specifically useful for the transit agency. The lead application is to detect snow, ice, or any other hazards at or near the bus stop that would make it difficult for pedestrians to reach the bus. This application will be particularly useful to make bus stops accessible for people with mobility problems.

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Data Collection

What data will you collect or create?

The data will consist of videos and images of the surrounding of a transit bus tagged with GPS localization. All the data will be taken in public places and will contain traffic (vehicles, pedestrian, etc.), infrastructure (road, signs, etc.) and the environment (vegetation, etc.).

How will the data be collected or created?

Five cameras are mounted on the outside of a transit bus. The video streams go into a computer where interesting data are selected. The selected data will then be transmitted to our central data server.

Documentation and Metadata

What documentation and metadata will accompany the data?

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
Most of the raw data will be analyzed on the edge computer inside the bus. Only relevant observations will be sent to the central computer on a regular basis. Only some samples of the raw data will be saved for development of the edge computing software. The final results will be in .csv, GIS or similar format and can be viewed with standard mapping software (ArcGIS, Google Earth, etc.)

Ethics and Legal Compliance

How will you manage any ethical issues?

All the data is taken in public places. There are no ethical issues.

How will you manage copyright and Intellectual Property Rights (IP/IPR) issues?

The data is collected by CMU and therefore it is the IP of CMU. The CMU IP rules apply.

Storage and Backup

How will the data be stored and backed up during the research?

The raw data will be stored in a raid server with automatic backup. Researchers will copy parts of the raw data onto their work computers where they will analyze the data and develop algorithms. Automatic backup will be installed on all work computers.

How will you manage access and security?

The data server is password protected. Researchers of the project will get an account on the server.

Selection and Preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

All the raw data should be preserved for the long term. If storage space becomes an issue, we will delete data which is similar to other data we collected.

What is the long-term preservation plan for the dataset?

The data server will be available for the long term.

Data Sharing

How will you share the data?

We will share the data within CMU and our UTC partner university OSU.

Are any restrictions on data sharing required?

No.

Responsibilities and Resources

Who will be responsible for data management?

Christoph Mertz will be responsible for the data management. He might delegate some parts of the management if necessary.

What resources will you require to deliver your plan?

A raid server and automatic backup. Both are already available.