DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

Research Notes

Implementing a Community-Based Mobility Lab: Improving Traffic, Protecting Data Privacy

Using artificial intelligence techniques to improve congestion and safety data while protecting data privacy rights

Planning, Policy and Programming

NOVEMBER 2023

Project Title:
Implementing a Community-Based Mobility Lab: Improving Traffic, Protecting Data Privacy

Task Number: 3463

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WHAT IS THE NEED?

More information is needed on the collection of traffic/mobility data and use of artificial intelligence techniques to develop intelligent transportation systems (ITS) technologies to improve congestion and safety conditions at busy truck intersections. Particularly, Caltrans is interested in methods of ensuringthat the data privacy rights of Long Beach residents and visitors (who pass through intersections of study) are protected and assured through community-based research and outreach practices that foster stakeholder trust.

WHAT ARE WE DOING?

The research team will recruit a diverse pool of at least 80 study participants during meetings and events hosted by community organizations and City Council members representing districts adjacent to the Port. The research team will also recruit participants through posts on relevant social media sites (i.e. Long Beach Immigrant Rights Coalition, Long Beach Forward). Incentives will be provided in the form of $25 gift cards disseminated to survey participants. An on-site participant survey will be conducted as well. On the day of the walk itself, prior to heading out on the route, the research team will facilitate a group conversation with study participants to obtain baseline perceptions. Questions may include:

- Have you ever questioned your data privacy before? If yes, in what instances?
- Do you believe there is too much technology installed around the city?
- After observing the technology deployed throughout the city, do you feel watched, unsafe, or violated?

Student research assistants will take handwritten notes and audio record both these "before" and "after" datawalk conversations. Conversations and survey findings will be analyzed. The research

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team will link relevant discourses (i.e. data privacy, benefits of smart technology, transparency, accountability) evident in participant responses with a critical perspective on data privacy.

WHAT IS OUR GOAL?

The goal of this research is to address how to collect traffic/mobility data and use artificial intelligence techniques to develop ITS technologies to improve congestion and safety conditions at busy truck intersections while ensuring that the data privacy rights of Long Beach residents and visitors are protected.

WHAT IS THE BENEFIT?

Ultimately, findings from this research will introduce innovative ITS and smart-community systems. The analytical methods applied to the video recordings used for this study will contribute to the development of a community-based mobility lab. The research conducted at the intersection of Santa Fe Avenue and Pacific Coast Highway will serve as the first test node in that lab. It connects to schools, homes, businesses, and government buildings and is among the busiest truck intersections in the country.

WHAT IS THE PROGRESS TO DATE?

During the first quarter reporting period, the research team conducted research launch meetings with the Caltrans team. During these initial meetings, Caltrans provided the research team with access to Streetlights software to provide a baseline of mobility data at the intersection of Pacific Coast Highway and Santa Fe Avenue.

IMAGES

Image 1: Sample traffic camera.