

Bus on the Edge: Applications

Purpose: To explore new applications and an interactive map using the bus-on-the-edge system to help detect problems at bus stops, make operations more efficient and improve data.

Approach: The bus-on-the-edge system uses cameras mounted on a public transit bus to monitor infrastructure and traffic. A computer is installed on the bus with software that analyses and manages data before sending data of interest to a central location for further analysis. As a part of this project, four new applications were developed and tested, including detecting obstacles on sidewalks near bus stops and extracting spatial data for interactive maps.

New Applications:

- ✓ Snow and Sidewalks
 - Determine if sidewalks are covered with snow and trigger notification to transit agency for snow removal
 - Benefit passengers and those with mobility challenges
- ✓ Detecting full trash cans near bus stops
 - Detect when trash cans are full and needing to be emptied
 - Benefits transit agency by saving money and time by emptying trash cans only when full
- ✓ Methods for extracting data
 - Develop methods for extracting spatial (longitude, elevation etc.) and temporal (time related) attributes
 - Benefit of having these attributes already available in the data, displayed as part of the data
- ✓ High Definition (HD) map updates
 - Observe changes of the roads by focusing on zebra crosswalks
 - Benefit for integration into autonomous vehicle mapping applications

Conclusion: By utilizing the existing bus-on-the-edge system, 4 new applications can be realized: snow and trash detection, a new way to extract data and providing high-definition map updates.



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Project Record:

- <https://ppms.cit.cmu.edu/projects/detail/356>

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