Safer, Faster, Smarter: Pairing Cloud-Based Vehicle Preemption and AI Intersection Video Analytics

Contributors to this project

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Project details

Research domain: Engineering and Technology
Project Start: 14 Aug 2023
Project End: 29 Jun 2025
Created: 19 Oct 2023 02PM
Modified: 28 Oct 2025 03PM
Ethical issues related to data that this DMP describes? unknown

Citation

When connecting to this DMP to related project outputs (such as datasets) use the ID:
https://doi.org/10.48321/D1V37D

Funding status and sources for this project

Status: Planned
Funder: United States Department of Transportation
Funding opportunity number: DOT-SMART-FY22-01
Grant: SMARTFY22N1P1G40

Project description

RTC's Safer, Smarter, Faster smart technology traffic signal project utilized a cloud-based signal timing optimization system that supports transit signal priority (TSP) and enhances safety using artificial intelligence intersection analytics (AIA). The limits for Stage 1 pilot project encompass UMC hospital and downtown Las Vegas. Intersection analytics were deployed at 20 signalized intersections within the project limits. TSP was deployed along RTC Transit Route 206 at 17 signalized intersections along Charleston

Boulevard and Casino Center Boulevard. This route often experiences lower on-time performance (OTP) scores than many other routes in the region, while being the 3rd highest passenger route.

Evaluation results showed weekday on-time performance improved by 3–6%, with delays reduced 7–13% and average savings of up to 78 seconds per trip. The AIA system achieved 92.2% accuracy for traffic detection and 97.6% precision in identifying red-light running and near-miss events.

Planned outputs

FY 22 Strengthening Mobility and Revolutionizing Transportation (SMART) Safer, Smarter, Faster: Pairing Cloud-Based Vehicle Preemption and Advanced Intersection Analytics Stage 1 Final Implementation Report

Final Implementation Report for Stage 1 SMART Grant

Format: Data paper
Anticipated volume: unspecified
Release timeline: 27 Oct 2025
Intended repository: ROSA P
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FY 22 Strengthening Mobility and Revolutionizing Transportation (SMART) Safer, Smarter, Faster: Pairing Cloud-Based Vehicle Preemption and Advanced Intersection Analytics Stage 1 Dataset

Dataset summarizing project findings and outcomes

Format: Dataset
Metadata Standard(s): DCAT-US
Anticipated volume: unspecified
Release timeline: 27 Oct 2025
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