Development of a Deployable Integrated Transit Operation System (IDTO) for Revolutionizing Suburb Transit Operation in California

Continue to demonstrate a fully functional IDTO prototype system that enables T-DISP and T-CONNECT services as well as real-time information for transit operations and travelers.

WHAT IS THE NEED?

Transit service has been very cost ineffective and the level of service, when measured by connectivity and service frequency, has been generally undesirable in the majority of suburban regions in California. The recent development of Connected Vehicle technologies (broadly defined as communication and positioning technologies) and real-time information about the overall transportation systems (both transit and highway networks) has begun to make dynamic transit operation feasible. Dynamic transit operations, including Dynamic Dispatch (T-DISP) and Connection Protection (T-CONNECT) can substantially improve transit service quality by providing faster, more convenient, and cost effective trips to the traveling public.

T-CONNECT application scenarios are intended to improve the successful transfer between mode (from car to bus, train to bus) and between different bus routes of an individual agency. T-CONNECT enables public transportation providers and travelers to communicate to improve the probability of successful transit transfers. T-DISP application scenarios are intended to adjust transit operation to be more responsive to travelers demand and traffic conditions. University of California (UC) Berkeley California Partners for Advanced Transportation Technologies (PATH) proposes transforming current fixed route operation into dynamically focused transit services in suburban regions across California.
WHAT ARE WE DOING?

This proposed study is the second phase of the research on IDTO. The objectives of the proposed research are:

1. To conduct thorough analyses on how an optimized transit schedule and IDTO will enable a completely new operation strategy for suburban transit operations. This should offer faster and better transportation services that attract choice travelers, reduce the transit operation costs, and allow public transit to assume a greater role in the overall solution in reducing transportation congestion, increasing safety, and improving air quality.

2. To develop a deployable system that implements the full IDTO strategies and conducts full scale field operational tests of the IDTO system at the Tri-Delta serviced region.

3. Develop deployment and commercialization plans for widely deployed IDTO systems for suburban transit operations within California.

WHAT IS OUR GOAL?

The goal is to address the needs of suburban transit agencies in California and across the country. This research best serves three of the California Department of Transportation’s (Caltrans’) Goals, namely, flexibility, reliability, and Performance. For flexibility, the strategic focus is to enable transit as an integral portion of solutions to congestions; for reliability and performance, the strategic focuses are operation and reliability improvements.

WHAT IS THE BENEFIT?

What has been envisioned is that by transforming current fixed route operation into dynamic focused transit services in suburban regions across California, transit service will become a faster and better transportation option for significantly more travelers, transit operation costs will be reduced, and transit systems will assume a greater role in the total solution to transportation congestion, safety, and improved air quality.

WHAT IS THE PROGRESS TO DATE?

The results for this research are were delayed due to COVID. All final deliverables will be made available on the DRISI website when needed data is gettable.

IMAGES

Image 1: Flowchart of the System Components

Image 2: Flowchart of IDTO System