

Grant Deliverables and Reporting Requirements for UTC Grants

UTC Project Information	
Project Title	Bus network design and operations under emerging vehicle technologies
University	University of California Davis
Principal Investigator	Michael Zhang
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$151,257 UCD: \$77,042
Total Project Cost	\$228,299
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	■ Start date: 10/01/2021 ■ End date: 03/31/2023
Brief Description of Research Project	<p>The bus system, a sustainable transportation mode, has changed little over the past few decades. The emerging technology of connected autonomous vehicles (CAV) has vast implications for bus network design and operations. Currently, transit agencies typically shy away from running buses more frequently in lower density neighborhoods because there would not be very many riders per trip. By making operating vehicles cheaper, transit agencies can potentially run higher frequency, lower capacity vehicles through lower density areas to help resolve the last mile problem.</p> <p>In this research, we seek to understand the bottlenecks facing the current form of bus operations, and explore how CAV technology, particularly smaller CAVs that can form bus platoons, can be used to design and operate bus systems that provide large and reliable service capacity to trunk lines while offering flexible last-mile service to branching service areas. We'll propose novel models for route selection, dispatching, and speed control of all buses in a bus network, and assess the performance of such models as compared to conventional bus system operations. We'll work closely with local transit</p>

	<p>agencies, such as Unitrans in Davis and Regional Transit in Sacramento, during model development and share with them the research results to facilitate their transit system planning that aims to take full advantage of CAV technology.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project Website 	<p>http://ctech.cee.cornell.edu/final-project-reports/</p>