



# CENTER FOR CONNECTED AND AUTOMATED TRANSPORTATION

Project Title	Promoting Inclusive Design and Deployment of Connected and Automated Vehicles for Older Adults Through Education and Training of Engineering Students and Older Drivers	
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Most relevant CCAT research thrusts (choose all applicable)	<input checked="" type="checkbox"/> Control & Operations <input checked="" type="checkbox"/> Enabling Technology <input checked="" type="checkbox"/> Human Factors <input type="checkbox"/> Infrastructure Design & Management <input type="checkbox"/> Modeling & Implementation <input type="checkbox"/> Policy & Planning	





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Funding Request	\$188,592 (for UMTRI portion of project)
Matching Funds and Source (if any)	In-kind contributions \$74,101 (University of Akron). The industry champion for this proposed project is providing in-kind matching funds through his active involvement in the project without pay.
Total Project Cost	\$263,592 (\$188,592 for UMTRI portion and \$75,000 for University of Akron portion)
Contract Number	69A3551747105
Project start/end dates	April 1, 2022 – March 31, 2023
Project Abstract	The development of connected and automated vehicles (CAVs), poised to be one of the most transformative transportation advances in recent history, holds promise for reducing traffic crashes and maintaining mobility among older adults. At the current time however, challenges remain in ensuring that CAVs are accessible, acceptable, affordable, and otherwise inclusive for older adults. There is a tremendous opportunity to build sensitivity among students studying engineering and other automotive-related fields to the issues of older adults and CAVs, as an explicit part of their education. There is also an opportunity to train older adults themselves to improve their knowledge about CAVs, potentially leading to greater acceptance of these technologies. This proposed project has two objectives. The first is to increase students’ awareness of and sensitivity to issues of older adult accessibility, acceptability, affordability, and other aspects of inclusion related to CAVs, using a framework of experiential learning (implemented in a student classroom project). This objective directly addresses two of the Center for Connected and Automated Transportation’s designated topics of interest in the areas of connected and automotive transportation – equity and education. The second objective is to increase older drivers’ awareness and understanding of CAV technologies so that they are better prepared to take advantage of the safety features of these technologies. This objective will be met by providing training about CAV technologies directly to older drivers.





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The student classroom component (Objective 1) will allow students to be involved in all four aspects of experiential learning – exploring, engaging, reflecting, and communicating – as part of six primary aims intended to meet the project objective: 1) help students explore issues of older adult accessibility, acceptability, affordability, and other aspects of inclusion related to CAVs through participation in a workshop put on by University of Michigan faculty and others; 2) provide an opportunity for students to directly engage with these issues through a class project implemented in the College of Engineering graduate course CEE 554, taught by Dr. Neda Masoud, an Assistant Professor in Civil Engineering, and a Co-PI on this proposal; 3) encourage students to reflect on what they have learned from the class project, including how their potentially new thinking about older adults and CAVs fits within the university’s experiential learning core competencies; 4) provide an opportunity for students to communicate what they have learned through a poster session held at the University of Michigan Transportation Research Institute, with the posters displayed in the Patricia F. Waller Gallery; 5) evaluate the effectiveness of the proposed project through the administration of pre- and post-surveys to students intended to assess changes in students’ knowledge and perceptions around the issues of accessibility, acceptability, affordability, and inclusivity of CAVs for older adults; and 6) develop recommendations for future efforts to train and educate students in this area.

The full project (Objectives 1 and 2) will result in several important outputs that can be used by other transportation professionals and educators to increase knowledge and awareness of older adult issues that may impact design and deployment of CAVs. These outputs include: techniques and recommendations that integrate experiential learning with Diversity, Equity and Inclusion awareness and knowledge that can be used in an educational setting for engineering and other students; student posters highlighting lessons learned about older adult needs, preferences, and perceptions relative to CAVs that came out of the classroom project; training materials for older drivers to increase knowledge about CAVs;





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	survey instruments to evaluate effectiveness of the classroom project and the older driver training; and future presentations at conferences and symposia to disseminate results of the project and other relevant information.
High-level implementation plan	The major components of the implementation plan for this proposed project include: implementation of a workshop and follow up student classroom project in the CoE graduate course CEE 554, taught by Dr. Neda Masoud, an Assistant Professor in Civil Engineering and a Co-PI on this proposal; a poster session by students to communicate what they learned from the classroom project; development of recommendations for future educational efforts; and implementation of training for older drivers on CAV technologies.
Project Metrics	Project metrics include: changes in knowledge about issues of CAV inclusion for older adults as measured by before and after surveys of students participating in classroom project; participation in poster session and engagement between students and faculty and CCAT members; changes in knowledge about CAV technologies as measured by before and after surveys of older drivers participating in training.
Web Links: [leave blank until project approval]	<a href="http://ccat.umtri.umich.edu">ccat.umtri.umich.edu</a>

