

Project Title: Driving Simulators as Educational Outreach for Freight Transportation

Project Abstract (Brief Description): The purpose of this project is to enhance outreach efforts for middle and high school student groups for freight career awareness by using truck driving simulators. There is a shortage of truck drivers across the US which contributes to inefficiency in the freight system. While there are many complex factors leading to the driver shortage, lack of awareness of the trucking profession is among them. Through engaging workforce outreach programs, it may be possible to attract a new generation to freight careers. Beneficially, commercial driving simulators are becoming increasingly affordable and thus more ubiquitous across university research programs and workforce training centers. This project seeks to leverage the popularity of driving simulators by using them as active and engaging learning and outreach tools for middle and high school students. The work will develop a complete learning module for a day-long outreach program (“camp”), implement the program, and make all lesson plans available for public dissemination. In this way, any university and/or workforce center with a driving simulator can use the lesson plans for their own outreach events.

Describe Implementation of Research Outcomes - The work will produce lesson plans, and through the implementation of the plans at a day-long outreach program, will generate increased awareness of freight transportation careers. All learning modules are to be made publicly available through the PI's website, the MarTREC website, and the University of Arkansas ScholarWorks research repository. The planned outreach programs will be conducted through the City of Fayetteville public library system and the MarTREC summer programs pending offering in 2022/23. The target audiences will be middle and high school students, with preference for participation of minority students. The partnership with the City of Fayetteville library has a strong history of providing services to the community and implementing educational programs for students. They have expressed an eagerness to adopt programs that would use the simulator.

Impacts/Benefits of Implementation - The goal of this project is to develop lesson plans targeting workforce development for multimodal freight transportation careers. This project aligns with the educational and outreach goals described in the MarTREC problem statement instructions. The stakeholders include the City of Fayetteville public library system and the US Army Corp of Engineers. The City of Fayetteville recently purchased a driving simulator and has expressed great interest in working with the research team on using the simulator for educational and vocational outreach. We would fulfill a critical need through this project for the City with broader impacts for faculty and other simulator owners who wish to expand the use of their simulators from research to education. The modules could also be extended to other types of simulators such as that used by the USACE to train navigation pilots in Vicksburg, MS. Through these efforts, the project would advance students awareness of careers in freight transportation as planners, engineers, and system operators.

Planned/Final Technology Transfer Activities: The final lesson plans will be posted to the PI's webpage and to the University of Arkansas ScholarWorks database for dissemination. The PI will also present on the work to the Arkansas Chapters for the Institute of Transportation Engineers (ITE) and Women's Transportation Seminar (WTS). These groups widely attract professional engineers and planners across

the full spectrum of transportation specialties. The research team will also work with the Center for Training Transportation Professionals, housed in the Civil Engineering department, to determine the feasibility of developing professional training curriculum with the driving simulator.

Web Links: martrec.uark.edu

Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): MarTREC 50,000 and UA 25,000 = 75,000

Project Start and End Dates: August 2021-July 2023. Complete

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