

**MarTREC UTC Project Information Form**  
 USDOT Tier 1 University Transportation Center  
 Agency ID or Contract Number 69A3551747130

Project Title: Interdisciplinary Educational Outreach with Traffic Sensor Build Kits
Project Abstract (Brief Description): This project seeks to design and implement freight oriented educational outreach activities centered on traffic sensing technologies for middle, high school, and first-year college students. In MarTrec Project 5011 (Evaluating the Performance of Intermodal Connectors), the research team designed a low-cost, easily implementable LiDAR and Bluetooth sensor bundle that was capable of detecting, characterizing, and tracking freight trucks as they traveled to and from inland waterway port areas. The sensor provided data necessary to measure port performance and roadway usage by industry. The proposed work will re-design the sensor bundle as an educational outreach activity by creating sensor "build kits" and associated lesson plans for three grade levels (middle school, high school, and first year university students). The concept borrows from the Boy Scouts' Pinewood Derby car kits in which all necessary materials are provided in a single kit. The build kits will engage students in an interdisciplinary learning activity that introduces tools and skills from civil, computer science, and industrial engineering while building students' knowledge of maritime transportation issues. The lesson plans will guide instructors and students on building the sensor bundle, tweaking computer code to capture critical data, using the sensor bundle to collect real traffic data, and translating the data into meaningful planning applications.
Describe Implementation of Research Outcomes (or why not implemented) - Place any photos here <i>To be determined upon conclusion of the project:</i>
Impacts/Benefits of Implementation (actual, not anticipated) <i>To be determined upon conclusion of the project:</i>
Web Links: <a href="http://martrec.uark.edu">martrec.uark.edu</a>
Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): \$25,100 MarTREC funding and \$12,500 match funding. Total funding \$37,650
Project Start and End Dates: May 13, 2019 – July 30, 2020. Project complete.
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Principal Investigator Institution (University): University of Arkansas