Integrated Wireless Sensor Technology for Truck Sail Products
Engineering Technology

KEY STATS:
Data from the American Trucking Associations indicates that there were about 11.7 million semi-trailers in 2012 and the sector has grown since that time.

Context: The trucking industry has been moving toward gaining efficiencies through asset-tracking sensors and software and a move to "assisted driving" technology. Given the importance of safety due to the operation of transport trailers on public highways, safety sensors are an additional feature that can increase road safety.

Industry Challenge: The Industry Partner manufactured truck sail and boat tail products and wished to incorporate wireless embedded sensors technology, and better understand vehicle-to-everything (V2X) communication performance and mobile deployment to improve safety conditions. This would enable transmission to close entities to avoid fatalities.

Solution: Mohawk College provided a new technical engineering solution using wireless embedded sensors technology and LED lights for truck sails. The research team determined the technical and general commercial viability of using semi-tractor trailer sails manufactured by the industry partner as housing for wireless sensors that will help autonomous vehicles, cyclists and pedestrians navigate safely on roadways. The project investigated V2X communication performance for car crash warning and avoidance.

Impact of the project: The Industry Partner is actively pursuing opportunities to continue the work accomplished in this project so that the products, once commercially available, can fully utilize embedded sensors. The technology can be upscaled to stay relevant with current advances to meet the needs of the trucking industry and improve transportation infrastructure. They are also planning on establishing a sensor division in their company.

Mohawk's role: A full-time faculty member experienced with the development of embedded systems and wireless sensor networks along with Software and Computer Engineering students provided a new technical engineering solution. Mohawk College determined the technical and general commercial viability of using semi-tractor trailer sails as housing for wireless sensors.

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