

UTC Project Information	
Project Title	Enhancing Driver Safety During Severe Weather Conditions
University	The University of Oklahoma
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Funding Source(s) and Amounts Provided (by each agency or organization)	SPTC: \$187,998 The University of Oklahoma: \$157,999 Oklahoma Department of Transportation: \$30,000
Total Project Cost	\$375,997
Agency ID or Contract Number	DTRT13-G-UTC36 SPTC14.1-03
Start and End Dates	August 1, 2014 – July 31, 2016
Brief Description of Research Project	<p>PROBLEM: Vehicle crashes on the roads and highways cost loss of life and damage to property. The per-person cost of traffic fatalities is \$3.2M and \$68,170 for injuries. According to statistics published by the National Highway Traffic Safety Administration, almost a quarter of the crashes happen during severe weather conditions. The weather-related crashes arise from wet pavements, rainfall, snow or sleet, icy pavement, and snowy or slushy pavement. Previous efforts on increasing safety have primarily focused on better weather prediction, better pavements, helping people survive crashes. There has not been much effort in increasing safety by helping drivers to avoid crashes by providing the drivers with real-time road weather conditions in the neighborhood during inclement weather conditions.</p> <p>PROPOSED SOLUTION: Modern vehicles are equipped with lots of sensors for measurement of vehicle operating conditions and the surrounding weather conditions. The sensors collect information about the vehicle, such as location, speed, braking intensity, road traction, etc., some of which can represent road weather conditions. The objective of this project is to reduce vehicle crashes, fatalities and injuries due to adverse weather conditions, by alerting drivers in real-time of potentially hazardous road conditions in the region based on information from neighboring vehicles. The dissemination of vehicle and road condition</p>

	<p>information will be carried out in this project by an Ad Hoc network which will connect the vehicles in the neighborhood. An experimental test bed will be constructed using vehicles outfitted with communication capability to wirelessly communicate with neighboring vehicles using the industry-standard communication protocol for vehicular communications. A safety application will analyze the information from neighboring vehicles and develop a threat map to alert the driver of potentially hazardous road conditions. The objective of this project is to reduce vehicle crashes, fatalities and injuries due to adverse weather conditions, by alerting drivers in real-time of potentially hazardous road conditions in the immediate region, based on information from neighboring vehicles. The dissemination of vehicle and road condition information will be carried out by an Ad Hoc network connecting the vehicles in the neighborhood. The data measured by vehicle sensors will also be transmitted to road side units for transmission to servers for road condition prediction and control of road side infrastructure, such as traffic lights, work zones, dynamic message signs, pedestrian signals, and curve speed warning.</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 	