

<b>UTC Project Information</b>	
Project Title	A Holistic Work Zone Safety Alert System through Automated Video and Smartphone Sensor Data Analysis
University	San Diego State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	Safe-D (Federal): \$72,000 SDSU (Non-Federal): \$60,000
Total Project Cost	\$132,000
Agency ID or Contract Number	Grant No: 69A3551747115 Project: 05-089
Start and End Dates	11/1/2020 - 2/1/2022
Brief Description of Research Project	This project is inspired by major gaps identified in the literature pertaining to the work zone safety monitoring systems that leverage advanced technologies for tracking workers, identifying hazardous situations, and alerting individuals in danger. The existing systems have two key shortcomings. First, they either target safety hazards external to the work zone (e.g., only vehicular accidents) or workers' state internally and related to their physical/physiological state (e.g., only human-factor ergonomics or fatigue). Second, previous work fails to address the lack of trust as an adoption barrier of such technologically advanced systems. This project presents a hybrid approach in which visual- and wearable-sensor data are used for safety monitoring and alert generation to offer a practical mitigation strategy to both external and internal safety risks. It leverages smartphones as a pervasive and standalone resource for collecting data and communicating safety-related instructions to workers. The project also uses information systems and behavioral science theories (i.e., technology acceptance model and Diffusion of Innovation theory) to build end-users trust toward scalable adoption of the developed systems.
Describe Implementation of Research Outcomes (or why not implemented)	1) Final project report and data 2) EWD activities including course modules, research modules, an MS thesis, and a presentation at Explore SDSU 3) T2 activities including a webinar to present project findings to industry groups (AGC, CPWR, or Safe-D), a journal and a conference
Place Any Photos Here	

	article, and a presentation at the 2nd Caltrans Annual Statewide Innovation Expo
Impacts/Benefits of Implementation (actual, not anticipated)	TBD
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project website</li></ul>	<a href="https://safed.vtti.vt.edu/projects/a-holistic-work-zone-safety-alert-system-through-automated-video-and-smartphone-sensor-data-analysis/">https://safed.vtti.vt.edu/projects/a-holistic-work-zone-safety-alert-system-through-automated-video-and-smartphone-sensor-data-analysis/</a>