

FIATECH

Capital Projects Industry Celebrates Engineering & Technology Innovations – 2011 Recipients

Wednesday, 20 April 2011

AUSTIN, Texas (April 20, 2011) - FIATECH, a member-led, industry consortium that provides global leadership in identifying and accelerating the development, demonstration and deployment of emerging and innovative technologies and practices, recognized and honored 13 organizations and individuals for their extraordinary work in developing and deploying innovative engineering and construction technologies last night at the 5th annual CETI Award Gala in Chandler, Arizona. FIATECH established the CETI (Celebration of Engineering & Technology Innovation) Award in 2006 to promote and showcase innovative construction-related technologies that benefit the capital projects industry. The CETI Award is given annually to organizations that have conducted new and emerging technology implementations as well as research and development.



The panel of jurors who reviewed and evaluated the nomination included John McQuary, vice president, knowledge management and technology strategies, Fluor, (CETI chair); John Fish, director of project support services, Ford, Bacon & Davis; Mani Golparvar-Fard, Ph.D., assistant professor, Virginia Tech; Lisa Grayson, program advisor, ExxonMobil; Kevin Hart, vice president and business information officer, Kaiser Permanente Information Technology; Tom Sawyer, information technology editor, Engineering News-Record; S. Shyam Sunder, Ph.D., director, Engineering Laboratory, NIST; Duane Toavs, director, Human Centered Design Institute, Emerson Process Management.



Ray Topping
(Director, FIATECH)

Dr. Jochen Teizer
(Georgia Tech)

Jerry N. Gibson, Jr.
(The Dow Chemical Company)

OUTSTANDING EARLY CAREER RESEARCHER CATEGORY

SmartHat: Self-Monitoring Alert and Reporting Technology for Hazard Avoidance and Training
Investigators: Jochen Teizer (Georgia Tech) and Matthew S. Reynolds (Duke University)

In the past two decades, more than 26,000 U.S. construction workers have died at work. That equates to approximately five construction worker deaths every working day. Of these fatalities, 25 percent involved heavy equipment, most being categorized as struck-by incidents. It is assumed that significant improvements can be gained in construction safety once technology is applied to existing safety management practices. The primary goal of the research team was to demonstrate how technology can be used to pro-actively warn and alert construction personnel of the presence of hazards in real time. The secondary objective was to explore how emerging technology can revolutionize safety by taking advantage of automated work site monitoring, data collection, visualization, and reporting practices that transfer data to information and information to knowledge. Knowledge is finally applied at all safety levels, including advanced work task planning and training best practices. The researchers first designed and built a novel UHF passive RFID SmartHat device that is intrinsically safe, can be calibrated for distance, and has a very low to zero worker nuisance alert ratio. The SmartHat device is battery free, can read distances up to 19.5m, is reliable to use, and maintenance free. Feedback of 143 workers, superintendents, foremen, and safety managers who tested it was 100 percent positive. Ninety-six percent of the workers would wear the device again if provided. The “learning curve” of a worker can be automatically calculated through the SmartHat devices and the proximity to an overhanging load can be visualized in a real-time 3D immersive tool. Effective and efficient learning and training is envisioned in the future to boost safety and productivity performance of workers. The proposed devices have the ability to record historical safety data.

