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## ECC Conference 2007 - Technology Forum New ideas and ideas whose time has come

### Group 1 - Safety & Training

- 1.1 **Zachry (John Kennemer, Ken Smith) – Crane Simulator** – Zachry Construction Corporation is using computer based simulator programs to select and train heavy equipment operators. Three modules are available ; mobile cranes, excavators, and tower cranes. The module here today is the mobile crane training simulator. The training simulators are used to screen new employees and cross train employees to higher paying jobs. Many benefits are observed including not tying up valuable construction equipment for training, improved safety and reduced risk to heavy equipment and construction workers and more productive and skilled equipment operators.
- 1.2 **CURT Safety Blueprints** - The Construction User's Roundtable (CURT) is heavily focused on safety. The group of 55 owner companies carry out over 155 billion dollars of projects each year and all aspects of safety are important. CURT developed and introduced the Owner's Safety Blueprint and annually selects award winners who demonstrate superior safety practices and performance. The safety blueprint sets expectations, defines a safety culture and defines how to monitor performance. Last years award winners were Air Products and Chemicals, ConocoPhillips, ExxonMobil, Merck, PSEG Fossil, and Dupont. CURT companies demonstrated safety performance 11 times better than industry.
- 1.3 **Hazid Technologies (John De Brugha)** - Knowledge-based software substantially improves efficiency of PHAs (Process Hazard Analysis), for the same or better safety, by largely automating the time-consuming task of hazard identification. Management of Change is made safer through comparison reports showing the effect of changes from a safety perspective and a comprehensive, structured safety record is produced for client handover.

### Group 2 - Engineering

- 2.1 **Intergraph (Steve Holdaway)** – innovative 3D technology to provide field-proven, highly-integrated isometric value-chain solutions for Owners and EPC's:
- Detailing automation technology for Pipespool fabricators
  - Automated isometric generation technology to engineers using 3D modeling
  - Specification-based isometric editing / creation technology for small-projects and constructors
- 2.2 **Veco (Mark Christenson)** – Alaskan engineering contractor, Veco, has been using 3D modeling and engineering data management technology from Bentley Systems for many years. Taking a repeatable approach to engineering design and construction for ConocoPhillips drill sites in Alaska, Veco have cut engineering hours by 30% and overall project delivery by 20%.
- 2.3 **VRcontext (Francois Lagae)** - Real-time visualization software that links live operational data to a virtual 3D asset model, providing improved decision support for operations, maintenance, and safety process optimization. Used across the oil and gas, process, energy, and homeland security markets by clients such as BP, Petrobras, and Chiyoda.





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### Group 3 - Wireless & RFID

- 3.1 **Engius & Fluor (Gary Chanko, Fluor)** - Fluor is working with FIATECH on a project that uses sensors to detect the strength of concrete after it's poured. The system is named intelliRock and comes from Engius LLC. It works by placing a sensor where the concrete will be laid, with a wire running to a reader that takes the measurements at various intervals. It was first used at a new facility in Puerto Rico for pharmaceutical manufacturer Amgen Inc and the technology already shows significant potential for speeding up projects.
- 3.2 **Savi (Fran Rabuck, Bentley & Nicole Testa, Fiatech)** – Savi Technology is a leader in active RFID technology. They are the largest player in the supply chain visibility in tracking and logistics for material - most notably all of the DoD material tracking for the Iraq war. Savi's active RFID tags and systems have been implemented in the harshest global supply chain environments including the arctic, deserts and maritime environments. Their system of software, readers and both passive and active RFID tags is also used by Dow to deliver real-time chemical chain of custody.
- 3.3 **Motorola (Jack Lewis)** - Motorola is known around the world for innovation and leadership in wireless communications, including RFID, Radio Frequency IDentification systems. High-performance RFID solutions can track and monitor high value construction equipment on site for increased asset efficiency and visibility. Low-cost RFID tags on static installed equipment can provide critical location, status, performance and maintenance information to improve operations and maintenance efficiency.
- 3.4 **Crossbow (Ralph Kling)** - Wireless sensor networks represent an entirely new way of looking at computing. Dozens, hundreds or thousands of tiny computers measure, monitor and evaluate their environments - evaluating environmental, process and maintenance factors - while forming meshed communication networks which are self-healing and always available. WSNs can improve safety and reliability on plants - from precision labs to chemical processing to heavy equipment.
- 3.5 **3M Dynatel (Fran Rabuck, Bentley & Nicole Testa, Fiatech)** - Simple systems using passive and active RFID technology for the identification of facilities buried in the ground. Integrating with industry standard GPS/GIS mapping systems for locating, subsurface marking and relocating buried facilities to ensure safety, restore outages, and efficiently manage assets.

### Group 4 - Construction Planning

- 4.1 **Hilti (Bill Gould)** - Hilti supplies the worldwide construction industry with innovative products designed to help increase productivity. Our powder-actuated fastening products enable construction professionals to work more safely and productively, significantly reducing time on the jobsite. In addition Hilti has innovative solutions for drilling and demolition, diamond coring and cutting, measuring, firestopping, screw fastening, adhesive and mechanical anchoring, and strut and hanger systems.
- 4.2 **Alcan Gove Project (Max Taylor, Bentley Systems)** – Global metals company, Alcan, has reached new heights of innovation with 3D modeling technology and changed the way their projects are carried out. Alcan split their massive Gove refinery project into 600 separate modules, all prefabricated offsite around the world, before being shipped to site for final assembly. This process took 6 months off the schedule, reducing the delivery time of this \$2b project to 27 months.





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- 4.3 **Quantapoint (John Rothermel, John Shipley)** - Laser Models and related services have changed how clients execute projects particularly on brownfield/existing sites, saving millions of dollars by eliminating construction rework, ensuring facilities start-up on schedule, and improving overall safety. Laser Models integrate laser scan data directly with 3D model on the computer to quickly and easily provide a complete “solid” representation of the facility.
- 4.4 **Trimble (Brian Aherne)** - Technical advances in positioning and 3D Imaging technology have led to major improvements and efficiencies in the engineering and construction industry. These advances include the integration of corrected GPS into survey, measuring and machine control, and the ability to rapidly capture, view and manage dense point clouds with laser scanners.
- 4.5 **CommonPoint (Theodore Blackmon)** - Commonpoint simulation models in 3D provide advanced visual planning solutions for engineering and construction industry. The system optimizes your project through planning, sequencing, execution and monitoring data from within a data rich virtual plant model.





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