Session 2-C: Smart and Connected Jobsite

Room 204

Track: Technology
Facilitator and Chair: John Messner

Questions:

- How would you define a smart and connected jobsite?
- What technologies are being implemented in the field to improve safety, productivity, time, cost, quality and information management?
- How will the jobsite changes over the next 5 years?
- How will the jobsite changes over the next 20 years?
- What is impeding an increased use of technology in the field?
- Where are you gaining value from the implementation of technology on the jobsite? \
- How are you tracking and measuring the value?
- What new skills will the workforce need to be effective in a more technology enhanced jobsite?
- What skills should we be teaching in the University to prepare our students to be leaders in jobsite technology?

Notes:

The session focused on technologies that are, or could be, implemented on a jobsite to improve the delivery of a project.

Several technologies identified include:

- QR codes for linking areas to the current documents for the location that can be automatically retrieved from a mobile device
- QR codes for identifying punchlist items
- QR codes for daily report entry — set up to connect directly with a reporting app on a phone
- 360 photos for documenting progress and quality control
    - Example of the development of a custom rig to take the images
    - Quality control examples included fire caulking, window, and in wall items.
    - Images can be used to update the schedule
- AI photo software - example of SMARTVID.IO which will auto tag photos, along with identify safety violation (e.g., tag with lack of PPE)
- Unmanned Aerial Vehicle (UAV) Images for progress monitoring and photogrammetry
- Collaborative Project Management Systems

Some items that people would like to see:

- Improved methods to track materials
    - Some examples given were to shift from Excel spreadsheets to more intelligent spreadsheets (using Smartsheet) or database approaches
    - Include schedule tie with materials
    - Could include QR code or RFID
- Automatic schedule update, leveraging images or photogrammetry
- Improved labor tracking onsite - some devices / apps will track location of people on site (live location tracking)
- Automating mundane tasks, e.g., auto generating a submittal log from the text of the specification (already available) - concerns with accuracy. Also begs the question of 'why isn't the specification in a format to enable an automatic submittal log'.
- Sensor data to capture existing conditions, with example of a sensor that tracks water, humidity and temperature, and alarms if it is out of range for an area.

Some suggestions related to adoption:

- Aim to win over the biggest skeptic(s). They will be the best people to convince others.
- Set a goal to go paperless. Example of making a requirement that no paper is allowed.

Implementation Challenges Identified:

- Identifying accurate locations.
- Challenge with permissions for flying a UAV is certain location
- Challenge with getting buyin

Discussed the educational opportunities and needs for our AE students related to smart and connected jobsites:

- Important to not just teach tool, but instead, learn how to lean to use a tool
- General agreement that a construction modeling course could be valuable
    - Idea for an assignment to investigate how to find a tool to solve a problem, and then a student could present the tool / solution to the class
- Engage with vendors and project teams to show sites.