Designing Within a Virtual World to Streamline Construction

Data collection technology, such as 3D laser scanning and handheld GPS devices, has brought new and exciting capabilities to drafting and modeling of complex engineering projects. EN Engineering will present a real-world example of these approaches, explaining the process of 3D scanning in the field, 3D modeling from the point cloud, and creating a model that allows project managers to take a virtual site visit prior to construction.

About the Speaker

Ryan Hagensee is a Design Technology Manager with EN Engineering. Hagensee is responsible for the implementation and configuration of design, drafting and analysis technology across all engineering disciplines. His approach is utilizing technology to drive engineering as a process and not limiting it as only a drafting tool.

In his nine years at ENE, Hagensee has implemented the 3D modeling process with software such as AutoCAD Plant 3D, Advance Steel, CADWorx and Autodesk Civil 3D. He implemented the use of data collection technology such as 3D laser scanning and GPS handhelds for field noting. Hagensee is currently working on incorporating Virtual and Augmented Reality into the design process.
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• Engineering Analysis Software
• 3D Modelling
• Reality Capture – 3D Scanning
• Virtual Reality for Design Visualization
Today’s Learning Objectives

• 3D Scanning Overview
  • Technology Used
  • Field Process
  • Modeling Process

• Project Examples
  • 3D Scan for Fabrication
  • 3D Scan and Proposed Model
  • Proposed Model and Analysis

• Project Visualization
  • Photorealistic Rendering
  • Virtual Reality
Scanning Goal:

To create a digital representation of the existing site conditions, and give our design engineers virtual access to the site after the initial site visit.
• +/- 2mm accuracy @ 10m and 25m
• 60m/165m radius range
• Collect 976,000 points per second
175 DRONE PHOTOS
Project Visualization
Live VR Demo