

## EMERGING TECHNOLOGIES

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Tues, Feb 6, 2:15-3:45 PM - Room B

- I. Intro to No-contact measurement
  - a. Infrared
  - b. Laser triangulation
  - c. Time-of-flight (continuous)
  - d. TOF with Pulse Ranging Technology
  - e. Best Practices
- II. Single-point handheld units (laser distance finder, handheld Disto)
  - a. Operator must point the unit and select the point
  - b. Unit records the distance and, in some cases, direction, elevation, and camera
  - c. Points are recorded or exported
  - d. Quantity of point between 1 and a few hundred
  - e. Demonstration of data collection
    - i. DXF import from S910 into AutoCAD (live demo)
    - ii. Prepare rail plan and elevation for loading dock (Video)
- III. Single-point automated units (3D Disto, Total Station)
  - a. Operator can point the unit manually
  - b. Operator can also guide the unit electronically
  - c. Some units (robotic) can follow a prism/target
  - d. Unit records the distance, direction, elevation, and camera
  - e. Can include GPS, barometric altimeter, inclinometer data
  - f. Quantity of points between 1 and thousands
  - g. Demonstration of data collection
    - i. E-template integration with 3D Disto
    - ii. Demo to be determined by Paul
- IV. Multi-point automated units (laser scanners)
  - a. Unit captures all visible points in range
  - b. Combines distance, direction, elevation, and photo
  - c. Multiple locations are merged (registration) into combine datasets
  - d. Can include GPS, barometric altimeter, inclinometer data
  - e. Quantity of points is millions per scan
  - f. Demonstration
    - i. Data Collection
    - ii. Recap demo
      1. 3D photos
      2. Registration
    - iii. AutoCAD tools
      1. Elevation maps
      2. Section tools
      3. Edge/Corner extraction
- V. Single-point Projection
  - i. 3D Disto projection of stair layout on floor
- VI. Questions and Discussion