Ferris State University

Mobile LiDAR: Field to Finish

SURVEYING ENGINEERING-CENG 499-SENIOR CAPSTONE PROJECT

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Mobile LiDAR: Field to Finish Capstone Project is a two-step project.

1) To complete an entire Mobile LiDAR survey of Campus Drive on the Campus of Ferris State University.
2) To conduct a comparative study of the data using two software's, TopoDOT and Global Mapper.

The project encompassed many different aspects of land surveying such as project management, utilizing Mobile Mapping laser scanning technology, establishing horizontal and vertical control, adjusting data, processing data, and then producing a deliverable product in the form of an AutoCAD drawing.

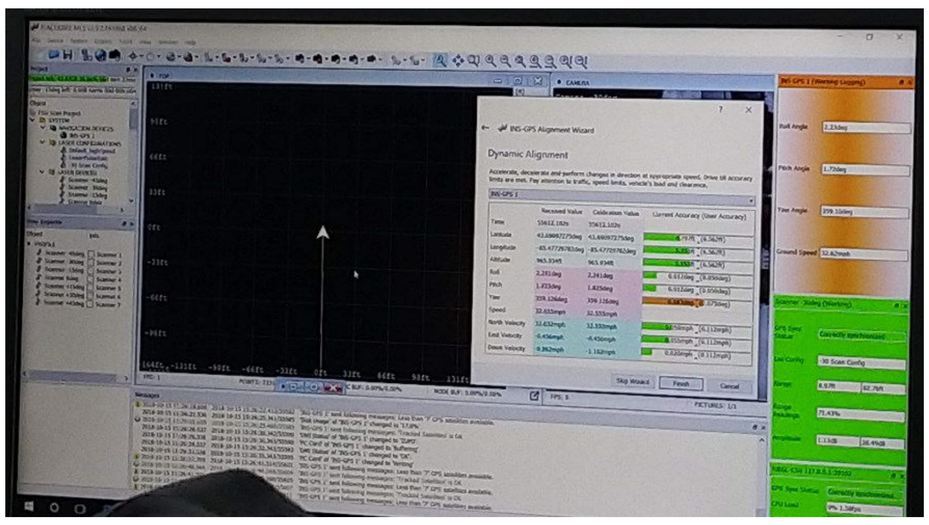
The software's used for this project are both industry leading software's, but for different reasons.

- TopoDOT is the main software currently being used for extracting ground-based LiDAR data in the industry.
- Global Mapper is the main software currently being used for extracting aerial-based LiDAR data in the industry.

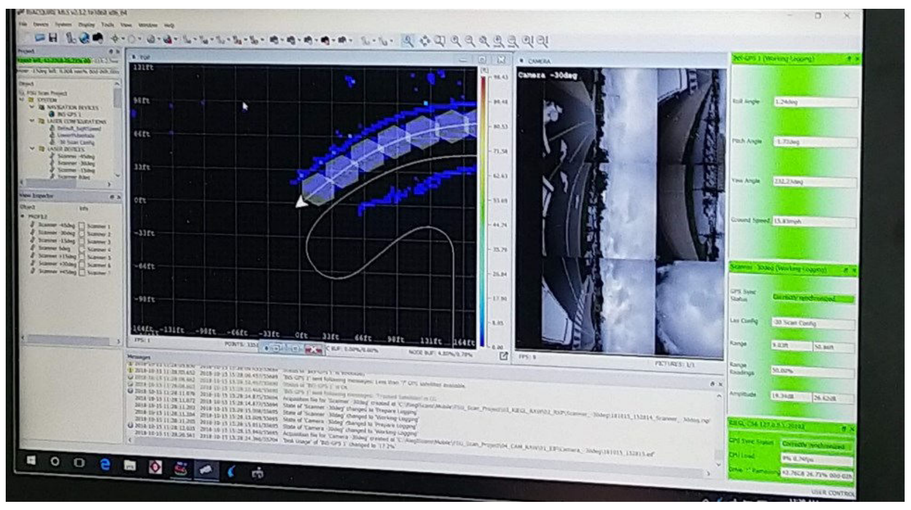
The main goal of the comparison is to see if the mobile mapping software is superior to the aerial-platform for extracting mobile mapping data. To compare the two, the center paint line of the road was extracted in both of the software's and the coordinates were compared.

From Left to Right: Tony Bartol, Brett Dankenbring, Andrew Newland, Christian Johnson, Mitchell Hoeksema, Tim Platz. In the background is the mobile LiDAR unit including the scanner and lady bug camera.

Brett Dankenbring establishing horizontal control while Andrew Newland and Christian Johnson prepare the next target



Calibrating all the equipment before the scan

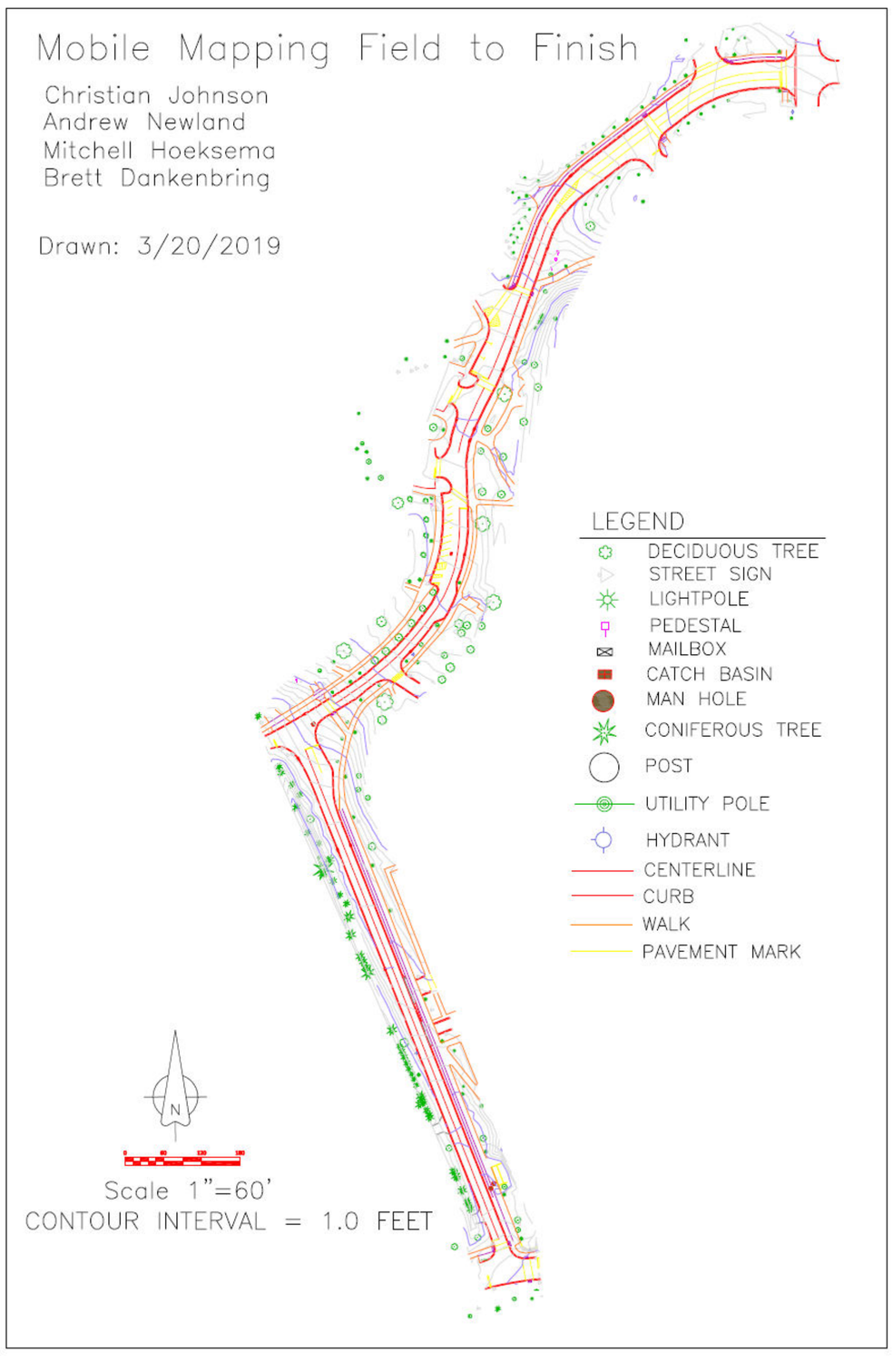


The window on the left shows the path that has been driven while the blue octagons show where pictures were taken. The window in the middle shows the images being taken in real time. The window on the right shows the scanner and camera parameters

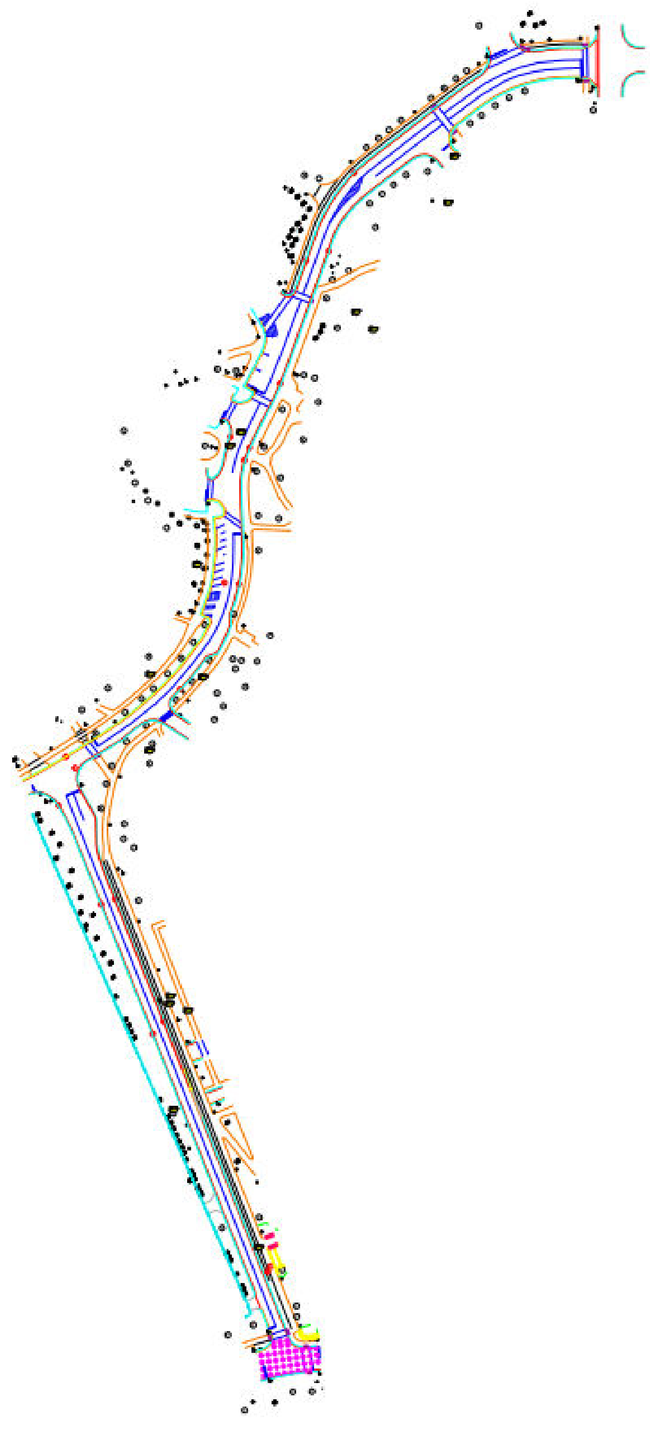
Thank You:

- Tim Platz & Tony Bartol from Fishbeck for the use of their equipment and expertise
- Dr. Sagar Deshpande for guiding us throughout the project
- Mark TenHove for providing us with Trimble equipment

Point cloud showing RGB values in Global Mapper



Mobile Mapping AutoCAD Deliverable



The features as seen in TopoDOT