

LAB 7-8

TOPOGRAPHICAL MAPPING WITH 3D LASER SCANNING

In this lab, we are going to follow the traditional survey flow to scan part of the Montgomery Hill and create contour map using RealWorks Survey™.

Here is a summary of the lab (refer to the attached sketch for the site):

1. Equipment and accessories needs:
 - Trimble GX Scanner
 - Laptop computer
 - Trimble battery kit (2 batteries and a cable)
 - Three tripods and three tribraches
 - Two Trimble targets and two Trimble tribrach adapters for the targets.
 - Ethernet Cable
 - Trimble tape-measure
 - Pins or sticks to mark the stations

2. Setup the scanner at Station 1 with (0.00, 0.00, 0.00) coordinates (no Backsight at Station 1 at this time). With the scanner facing the hill, perform an Object Scan using the default coordinate system of the scanner. This is our global coordinate system and will be used by all stations. Setup a target at Station 2, perform a Foresight scan and export the target coordinates . The Foresight point becomes the second known point.

3. Now we have two known points. Follow the process described in the lecture handout to extend the survey to Stations 2 through 5.

4. Create a contour map from the point clouds in the lab using RealWorks Survey™ (Procedure will be provided separately.)

Lab 7-8 Report

This is a group report. Each team only needs to submit one copy. The format of the report is as follows;

1. Title page including: a) title of the lab; b) course name and lab number; c) team members; and d) date.
2. Objectives
3. Procedures including a) equipment and accessories; b) setup and scanning procedures; and c) contour creation process.
4. Results and discussion
5. Conclusion