

SIMULATION PROGRAM FOR GENERATING 3D LIDAR DATA USING A VELODYNE MOBILE LASER SCANNING SYSTEM (HDL-32E)

Essam Hassan Hamza (1)

¹ Military Technical College, Kobry Elkobbah, Cairo, Egypt

Department of Electrical and Computer Engineering

Email: Hamzaesam@gmail.com

Abstract: Laser scanning, often also referred to as LiDAR (Light Detection And Ranging) at different platforms such as Terrestrial Laser Scanning (TLS), Terrestrial Mobile Laser Scanning (TMLS) and Airborne Laser Scanning (ALS) systems are considered as a well-accepted tool that can quickly acquire precise 3D point clouds of the terrain surfaces. Over the past few years, TMLS systems have become of the most dominant tools for performing many geomatics applications such as urban road survey, 3D city model, national mapping and infrastructure deformation monitoring. Several studies have been performed to develop more efficient algorithms to generate 3D spatial information using LiDAR data. Many algorithms have been developed for, segmentation, building/road reconstruction, forest management and others. These algorithms can be easily and reliably verified by using simulated LiDAR data with various properties in diverse environments. In other words, the data simulation of such a LiDAR system is significantly useful not only to design an optimal sensor for a specific application but also to assess data processing algorithms with various kinds of tested data. In this paper, a simulation program is developed for generating 3D LiDAR data such as a Velodyne-based mobile laser scanning system (HDL-32E).

Keywords: Velodyne, Lidar Simulation, Mobile Laser Scanner.