ABSTRACT

Human work in way of detecting objects in a room requires high accuracy and must be precision. Therefore, a sophisticated and accurate object detection system is needed to simplify the job. One of the technologies that can be used is Light Detecting and Ranging (LIDAR) sensor. LiDAR is a device that has function as an object detection tool by capturing the points x, y, and z or often known as the Cartesian coordinates.

In this final project, an object detection system using ground-based LiDAR is designed. The data that is used are data from the point cloud, generated from scanning by YDLiDAR G4 with 5 Hz and 12 Hz frequency. This data was taken in a closed room with a size of 5,76 x 4,95 m2 and then two objects placed at different distances. This Final Project uses Euclidean distance method which its function is to measure the distance between objects detected in the room.

In this final project, an analysis was done about the accuracy level, and the calculation of error rate which resulted the output of several object points that have been successfully detected and visualized in 2 Dimensions (2D). Furthermore, generated the comparison distance result at 5 Hz frequency get an error of 0,22 m and at 12 Hz frequency it reach error at 0,27 m. The result of the error rate system detection for 5 Hz frequency is 7,45%. While, the eror rate at 12 Hz frequency is 6,95%.

Keywords: *LiDAR, euclidean distance, point cloud.*