

ABSTRACT

As technology advances, various methods have been carried out to design 3-dimensional scanners but at relatively expensive prices. In this final project, an alternative method will be used as initial research using the Lidar Sensor to scan objects at close range. The process in the tool system uses time of flight. This method is used to determine the outer surface of the object used in the scanning process.

The purpose of this final project is to design a 3-dimensional scanner using a VL53L0X sensor equipped with a mechanical and motor system. As well as obtaining a 3D scanner system with an output error of less than 20%. After doing the scanning process, the results with motor motion per 4 cm/step have the lowest error with an error range 0% to 1.67%. Objects that have better 3D plot results are pipes because the shape of the pipe has a convex shape so that it is easier to be captured by the sensor.

The tool designed is expected to help those who want to scan with a different method and the data can be used as replotting material. This research is expected to be used as the first and prime research in the world of technology to obtain 3-dimensional data at lower and economical prices.

Keywords: *3D Scanner, Sensor Lidar, Time of Flight*