

## ABSTRACT

*The development of the world of robotics has developed very rapidly lately, it is important that autonomous driving is rapidly becoming a big challenge in the world of robotics technology, the problem of localization and mapping simultaneously is always the topic of conversation, not only in accordance with poses and development. This Final Project Package gives commitment to package implementation. Localization and Simultaneous Mapping (SLAM) on multi-robot systems equipped with Light and Start Detection (LIDAR) sensors and Single Board Computers (SBC) and architectures using the Robot Operating System (ROS) platform.*

*This thesis writer will discuss and discuss the SLAM Cartographer package which is supported by the ROS software platform in it related to the Rviz tool to perform parameters that support and assist in localizing and monitoring multi-robot space by processing LIDAR data input sensors such as odometry, Inertial Measurement Unit (IMU), and trajectories.*

*This design model is designed to produce localization and mapping in multi-robots, and this design is implemented to provide useful evidence to ensure SLAM charter packages can be used or one of the best packages because they can process LIDAR values to assess the IMU for localization and monitoring realtime using simultaneous so that the implementation of SLAM is effective and efficient with an object detection accuracy of 80% and 100% representation of space maps..*

**Keywords:** *autonomous driving, Simultaneous, SLAM, LIDAR, SBC, Multi-robot, Rviz, IMU, trajectories.*