

ABSTRACT

Mobile robot is a robot which moves from one point to another with a specific mission. Simultaneous Localization and Mapping (SLAM) is a technique used by mobile robots to build maps, using visual sensors is expected to help multi robots in mapping areas because data taken from visual sensors is accurate.

Therefore, the realization of multi robots will be made with a leader-follower scheme that has the ability to explore environments that have not been known before with the mapping process and most importantly, multi robots can help other robots in exploring the environment. For this reason, the ORB SLAM method is used and it detects targets which will help the mobile robot to explore unknown environments.

With this exploration process, multi robots will navigate outonomically from the initial position to the location to be mapped. The entire design of this multi-robot realization will be designed using a framework that is the Robot Operating System (ROS) with the help of tools that are already available in it. For results in the realization of SLAM visuals using the ORB SLAM method can detect objects optimally with an object size of 31.5x56 cm at a distance of 70 cm and get an error value of 1.21% and an accuracy value of 98.79%, then for multi-robot system realization with the leader and follower scheme that has been made it can work in unknown environments and get a visualization map that comes from the camera sensor and the lidar sensor.

Keywords: *Robot Operating Sistem, ORB SLAM2, Mobile Robot, SLAM*