ABSTRACT

Mapping in an enclosed space where it is not known whether or not there are hazardous substances in it without the right tools and instruments is very dangerous. Especially if humans do the checking without additional tools. Therefore, a space mapping and exploration tool was created using the turtlebot3 burger to make it easier for humans to map space.

Detection and mapping simulations in an enclosed space were carried out using a virtual turtlebot3 burger on ROS. Simulation is done by determining the location of the map that has not been previously known. Then after the simulation is done, the next step is to make it happen by using the turtlebot3 burger in an enclosed space to generate a mapping.

This simulation and research aims to find out the unknown locations and perform mapping in closed spaces using frontier and openSLAM techniques. The results of the location mapping with a duration of 208.98 ROS Time, from the initial position of the robot (x,y)=(-1.5,-1.35) to the final position of the robot (x,y)=(5.7,-2.9).

Kata Kunci: *frontier exploration, gazebo, openSLAM*