

ABSTRACT

Multi Robot Formation is one of interesting research in robotics world. Multi Robot Formation problems arise when the robot environment has enough space to change formations in exploration in the environment. In the absence of sufficient environmental information, the robot will not be able to determine the decision that will be used in forming the formation so that necessary sensors that support the data collection and communication module used to share information with other robots in the Multi-Robot system.

In this final project, the author will design and implement Communication System on formation formation in Multi-Robot system by utilizing distance data from a robot and sent by radio frequency. Distance information from the robot serves to detect objects in front and on the right side of the robot to walk. In addition, this distance information also determines the formation that will be used by the robot when it detects the distance on the left side of the robot.

The output of this research is between the robot can exchange information and make the formation in accordance with the environment faced by the robot so that the robot can determine the decision in accordance with the data transmitted or received using Radio Frequency with the level of accuracy of communication and navigation 90% when communicating formation .

Keywords: *Multi-Robot Systems, Robot Formation, Communication Robot, Radio Frequency, Path Planning*