ABSTRACT

The problem with multi-robot systems is how to allocate tasks performed by robots. Assignments on multi-robots become more complex if placed on different arena coverage. The more complex the level of the arena, the more complex the assignment will be for the robots to finish. Because of this level of complexity, the complexity of creating a multi-robot assignment system is directly proportional to its complexity. The higher the complexity level, the more complicated the task allocation system is created.

Based on this, solving the problems that occur requires appropriate methods. The author implements several methods of allocation of tasks that the scope of the system arena is the maze. Decentralization has become a key point in its completion. And with the help of wall following as the maze settlement algorithm. The latter is heterogeneous, used for robots to have different personalities, initializing ID differences as a personality tool between robots.

By implementing these 3 methods. The result is that the robots must adjust the face first before the start of the system. The intended direction is true-North, with 97.95% robot 1 and 98.67% success for robot 2 can find true-North. Robot step marking gets 20% error for robot 1 and 30% for robot 2. Wall method can be done well by robot with proof is all robot can reach finish point assisted by communication between robot which have delay about 0,007 s.

Keywords: Multi-Robot Systems, Task Allocation, Communication Robot, Maze Slover, Path Finding