ABSTRACT

Multi-Robot System (MRS) is one of the most important research fields in the world of robotics. One of the research on multi-robot system (MRS) is a multi-robot tracking. Multi-Robot Tracking is tracking the defined target(s) using multi-robot. One of the application of multi- robot tracking is robot soccer. Soccer robot is one of the application of research in the field of robotics. Robot soccer game played using more than one robot. The main objective of this robot soccer game is tracking the ball and the robot can communicate between robots.

The main problem on the soccer robot is each robots can do the ball tracking and the robot can exchange information in order not to collide when heading towards the ball. In this study, to address the main problems of robots soccer. By using the webcam as a medium to do the ball tracking and goal tracking with color image processing on the ball and the goal as well as the use of communication systems via Bluetooth sensor as a medium of communication between robots.

Output generated on research using webcam on each robots is robots can track the position of the ball. The success rate of tracking the ball on the master robots 95.83 % with an average time of 1.4 seconds. In the slave robots 79.16% with an average time of 7.04 seconds detected. In addition, the average time required for the robots to communicate is 7.66 seconds..

Keyword : Multi-Robot Tracking, Mobile Robot, Image Processing, Bluetooth, Webcam.