ABSTRACT

Soccer Robot is a field that combines artificial intelligence and robotics with popular sports from football. In essence is to learn how mobile robots can be built and trained to play the game of football. MiroSot (Micro Robot Soccer Robot World Cup Soccer Tournament) is one of the game branches for soccer robots. This robot system consists of several devices namely the Host (PC), visual, RF communications, and machines. RF communication system is integrated with robot navigation system consisting of several electronic components, communication module and microcontroller that will receive commands that can move a certain robot with a certain direction. MiroSot is one branch of a game called Micro Robot Soccer Robot World Cup Soccer Tournament. The system used in this MiroSot consists of several devices, namely the host (PC), visual, RF communications, and machinery. Special on this project will discuss the RF communication section.

This robosoccer communication system starts from sending data from GUI the host to the robot client via the Xbee RF module connected to the host. The data from that sent is then received by the robot client via Xbee, then processed by microcontroller which will then be ordered to be displayed or executed.

Star topology implementation capable to broadcast data from host to client. The system created, capable of sending data from the GUI, can be received by the client to be displayed on the LCD, and can give motion commands to the actual MiroSot robot. Accuracy in sending and receiving data of 32 bytes has a percentage of 100%. The input data from the host GUI corresponds to the client output data. Average Throughput in data transmission of 32 bytes within 60 seconds is 0.802 kbps with the average amount of data sent is 8812.55 bytes in 281.44 packets. At a distance of 0 to 10 m, the system can transmit data stably. The data transmitted can be received by the client and can reach all areas of the field.

Keywords: robosoccer, MiroSot, RF communications, microcontroller, Xbee module.