ABSTRACT

Micro Robot World Cup Soccer Tournament (MiroSot) is an offshoot of wheeled football competition organized by FIRA (Federation of International (Robot-Soccer Association). In the development of wheeled football there are many problems are found, like robots can not move with a stable and require precise movement.

Motor DC that drive MiroSot robots have different characteristics even though they are manufactured in the same factory. This final project will discuss a PID control method for controlling DC motores. The used Motor DC has an encoder that functions as a spedd sensor for feedback to be used in the MiroSot robot system. The system will read the movement of the encoder sensor. The information obtained is then processed with PID control. Every MiroSot robot movement will be observed and evaluated to obtain a table movement and evaluated to obtain a stable movement.

MiroSot Robot tested by trial and error method to get the stable movement of MiroSot robot. The obtained result of experiments are Kp = 3.5, Ki = 0.1 dan Kd = 5 for motor DC with minimum error presentation resulting in a liniers progression by 10% with a distance of 12 cm and angular movement of 30% at an angle of 30 and 60 degrees. The test results also showed that the effective range of the communication Xbee Series 1 between the robot MiroSot and ground station is between 1-25 meters condition with no obstacles

Keywords : MiroSot, FIRA, Motor DC, Encoder, PID.