ABSTRACT

Automatic car toys will be dangerous if only driven by child. Parents required to supervise children while playing automatic car toys. Based on these issues, will be designed and implemented a angular speed control system on the car toy which can be operated via smartphone applications based on Android. So that parents can participate to control the angular speed of the car.

Control Proportional Integrative Derivative (PID) *in this final project will be used as a controller of angular speed on the child car wheel the angular speed will remain constant. Due to the PID control method, the level of stability and time to achieve stability will be better. On this child car systems, will be used two angular speed measuring sensor that is a line tracking sensor, to get a reading of angular speed* (RPM). *After reading, then the system will regulate angular speed of motor DC in order the angular speed remained stable. There are three main features of the* Android *app that will be used in the design and implementation of this final project that it can go forward, backward and stop, while to turn still using the steering wheel on the the child car.*

The results that have been obtained from the experiments is the value of KP, KI and KD is best KP = 4.75, KP2 = 3.75, KI = 0.2, ki2 = 0:15, KD = 0.8 and KD2 = 0.75 with the difference in the load of 1 kg was not affecting the system and overshoot. When using the extra load of 8 kg-15 kg for 25 RPM and 50 RPM, settling time is quite enough difference and the maximum influence is ± 19 second and 31.5 second, although in the end the desired setpoint values can be achieved at 25 RPM and 50 RPM.

***Keyword**: Proportional Integrative Derivative* (PID)*, Child Car Wheel, RPM, Android.*