ABSTRACT

The technology of transportation sector is currently growing very rapidly, indicated by the appearance of a sophisticated and practical vehicle, the self-balance scooter. Self balance scooter called balanced scooter because the ability to stand balanced, sustained by two wheels on the right and left. Self balance scooter controlled using PID control system, so that self-balance scooter can walk forward and backward.

In this thesis, the authors designed a Self Balance Scooter using a microcontroller as the central control system with a processing speed of the motor using PID method. The support sensor used include an angular acceleration sensor using the accelerometer and gyroscope as angle sensor, self balance scooter can run by using the body mass as a reference motion.

After receiving the value of sensor readings, the data will be processed by the PID controller to set direction and speed, so the system of self-balance scooter can walk forward and backward. With optimal of power output, so it was able to survive until a long time. PID of the experimental results, obtained optimal values of PID parameters, $Kp = 8.0$; $Ki = 3.0$ and $Kd = 6.0$.

Keywords *: PID, accelerometer, gyroscope, mikrokontroller, Self Balance Scooter.*