ABSTRACT

Robot two wheeled balancer is developed for human transportation. The focus of the final task that will make a robot two wheels that can regulate balance. To maintain balance, two-wheeled robots need a control system. In the this project will make the same tool with same principle, but in different sizes. There are several control methods that can be used to adjust the balance of a two-wheeled robot. The control method used in this final project is the linear quadratic egulator (LQR) *method. The main problem in this final project is how to make a robot two wheels that stable on the flat plane. The purpose of this final project as well as learning and apply of the* LQR *method on two-wheeled robot systems. The two-wheel balancing robot that will be built uses* 2 *DC motors for* 2 *wheels as an actuator from the robot. This robot uses the Arduino as controller board which has integrated on an accelerometer and gyroscope sensor.*

Keywords: two wheel balancer, balance, control, LQR*, accelerometer, gyroscope ,controller*