ABSTRACT

When on the air, plane own six degree of freedom which consist of three on the longitudinal direction and the other three on the lateral direction. Six degree of freedom cause the flight traffic have never stabilized. Without controller, plane disposed to flight to fluctuate. So that plane can straight flight at certain level flight, require to control it continually.

This final project propose the PID controller to control the motion roll of unmanned aerial vehicle using Linear Quadratic Regulator (LQR). Furthermore the PID controller tested by simulation using MATLAB and SIMULINK.

Result from simulation indicate the PID controller own the good performance. At this final project we get the value of PID parameters Kp= 0,0887, Ki=0,1762 and Kd=0,0016. System response result show the good result, with ts=0,226 s, ts=0,93 s and Mp= 6,8%. Besides that, test result for inputt using random signal indicate good performance.

Keywords: PID controller, roll movement, linear quadratic regulator (LQR).