Controller tested was LQR with Q = diag(1, 1, 1, 10, 10, 10, 1, 1, 1, 1, 1, 1) and R = 0.00001\*eye(4). The resulting K was

-223.61 0 158.11 0 -1735.37 500.00 -359.32 0 307.67 0 -372.11 608.50

0 -223.61 158.11 -1745.72 0 -500.00 0 -359.98 307.67 -377.11 0 -608.50

223.61 0 158.11 0 1735.37 500.00 359.32 0 307.67 0 372.11 608.50

0 223.61 158.11 1745.72 0 -500.00 0 359.98 307.67 377.11 0 608.50

The controller went unstable in the roll mode. Next controller design will increase damping in the roll pitch yaw modes.

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