

Control of a 3D Quadrotor

C++

Since the python portion is removed . I am resubmitting my project only with C++ section.

1. Implementation & Testing

Scenario 1

Changing Mass from 0.4 to 0.5 resulted the expected souldtion.

PASS: ABS(Quad.PosFollowErr) was less than 0.500000 for at least 0.800000 seconds

Scenario 2

After setting $kpPQR = 60, 60, 10$ and $kpBank = 15$ and implementing the methods as suggested order I got the folowing result.

PASS: ABS(Quad.Omega.X) was less than 2.500000 for at least 0.750000 seconds

Scenario 3

Tuned $kpPosXY, kpPosZ, KiPosZ, kpVelXY$ and $kpVelZ$ and changed $kpPQR$ and $kpBank$ to get the following output

PASS: ABS(Quad1.Pos.X) was less than 0.100000 for at least 1.250000 seconds

PASS: ABS(Quad2.Pos.X) was less than 0.100000 for at least 1.250000 seconds

PASS: ABS(Quad2.Yaw) was less than 0.100000 for at least 1.000000 seconds

Scenario 4

Tuned $kpPosXY$ again to pass this scnerio

PASS: ABS(Quad1.PosFollowErr) was less than 0.100000 for at least 1.500000 seconds

PASS: ABS(Quad2.PosFollowErr) was less than 0.100000 for at least 1.500000 seconds

PASS: ABS(Quad3.PosFollowErr) was less than 0.100000 for at least 1.500000 seconds

Optional Scnerios

I haven't tuned my parameters for the optional scnerios because I have to complete two other projects.