

LQR control of a Nonlinear Quadcopter System

Project Group F

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Abstract

The purpose of the project is to simulate the control and stable flight of an unmanned four rotor flying vehicle known as a quadcopter. The problem is set into three goals. The first is to have the quadcopter hover in a stable configuration. The second goal is to introduce a drone in flight and to have the quadcopter intercept that flight without knowing it's path. The third goal is to simulate the capture of the drone with a randomized disturbance force and maintain stable flight while returning to base.

Approaching the General Problem

To simulate the quadcopter's flight, we have to simulate its physical flight dynamics.

Quadcopter Hovering

Quadcopter Interception of Target

Quadcopter Return to Base with a Disturbance Force

References

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