Project 17, Team 1(LQR)

Cycle Bot Day 3

12 May 2020

Team Members

Shreya Rastogi, Jai Garg, Chinmay Palaye

Daily Report

Important points

- **3d model** of the Reaction Wheel inverted pendulum was created on V-Rep.
- K- matrix of the system was found out using LQR code in Octave.
- Lua Script for the working and balancing of the system was written and attempts were made to implement it.

Resources

- 3D Model of Reaction wheel Inverted Pendulum on V-rep.
- Paper Referred for Mathematical Modelling.
- Lua Scripting videos for V-Rep.

Tasks Done by each teammate

Shreya Rastogi

- Wrote the code for finding the K matrix in Octave.
- Watched video tutorials on Lua scripting in V-Rep and performed some test implementations to understand the same.
- Read and understood the code in Lua for balancing the inverted pendulum reaction wheel.

Jai Garg

- Watch tutorials and Videos to learn more about Lua scripting in V-rep.
- Calculated Moment of inertia of the Reaction wheel and pendulum using Fusion 360.
- Wrote Code in V-rep to control the reaction Wheel torque in the Simulation
- Helped write code to control the Bot in V-rep.

Chinmay Palaye

- Created VREP model of the robot using stl files
- Wrote a script to control the robot

Tomorrow's Agenda

1. Tuning of LQR to balance the inverted pendulum reaction wheel.
2. Improvisation of the algorithm to balance the system.