Project 17, Team 1(LQR)

Cycle Bot Day 2

11 May 2020

Team Members

Shreya Rastogi, Jai Garg, Chinmay Palaye

Daily Report

Important points

- **Mathematical modelling** of the Reaction Wheel Inverted pendulum was derived.
- Some Test **V-rep simulations** were tested using Lua Script.
- **3d model** of the Reaction Wheel inverted pendulum was created on Fusion 360.
- Understood the theory behind the **placement of the reaction wheel** on our robot.
- A report on finding the moment of inertia a body in Fusion 360 was made.

Resources

- 3D Model of Reaction wheel Inverted Pendulum.
- Paper Referred for Mathematical Modelling.
- V-rep Tutorials Followed.
- Videos watched for understanding the design Video1, Video2.

Tasks Done by each teammate

Shreya Rastogi

- Mathematical modelling of the Reaction wheel inverted pendulum.
- Study on how to connect Octave and V-rep for simulation purposes.

Jai Garg

- 3D Model of reaction wheel inverted pendulum in Fusion 360.
- Report on finding the moment of inertia of a body in Fusion 360.
- Read Papers to understand Mathematical Modeling the system.

Chinmay Palaye

- Study on scripting in VREP (Lua).
- Tried importing .stl files from fusion 360 to VREP as mesh.
- Read papers to catch up with other teammates.

Tomorrow's Agenda

1. Find out the K matrix for balancing the Reaction wheel
2. To simulate the reaction wheel in V-Rep
3. To balance it with the help of LQR control.