ATP

For the Subject:

SIMULATION OF ROBOTICS SYSTEMS

Project Title

Double Pully Tendon-driven Arm

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Project aims:

In this project, we aim to design, analyze, and build a tendon-driven robotic arm using MuJoCo for simulation. The arm will employ a double pulley system to drive its tendons, which will control its joints. The objective is to simulate and execute controlled movements to achieve precise and reliable operation for tasks that require high flexibility and precision.

Project targets:

Our project must accomplish the following objectives:

- Develop a detailed model of the tendon-driven robotic arm.
- Implement forward and inverse kinematics.
- Create and simulate the arm's movements.
- Trying to integrate control algorithms for real-time motion.
- Validate the arm's performance through testing.
- Optimize tendon actuation dynamics.

Project plan:

- Design the robotic arm structure (to 21.11).
- Calculate kinematics (to 22.11)
- Develop the XML model in MuJoCo (to 24.11)
- Write the control code (to 29.11)
- Write the final report (to 01.12)