Robotic Knee Joint PE

IMT2018523
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Progress update

1. Confirmed validity of planned setup - selected equipment has the best chance of success.
2. Traced down open source repositories of:

a. MIT Mini Cheetah/TI BLDC motor driver, code and PCB design

b. Planetary Gear system by Gabrael Levine

3. Videos demonstrating operation of selected hardware.(Skyentific YouTube channel)

Learning progress

1. Workflow with selected motors, including CAN communication protocol concepts.
2. Some generic properties of planetary gear systems(gear ratio, design, structure)
3. Placement and use of motor encoder to run a BLDC motor.
4. Validation that chosen components have worked for others

Upcoming work

1. Learn control theory associated with motor control (need sources)
2. Start modifying/designing basic 10:1 planetary gearbox(nylon 3D print)
3. Select MCU for entire workflow(voltage/CAN bus issue, speed, features)
4. Go through Ben Katz’s code for the motor driver(couldn’t understand some things at all).

Problems

1. Forgot to add encoder to purchase list. (CAN bus units might be redundant/unusable).
2. Campus return slot - End of March! (Sol: test MCU code and all at home?)
3. PSU trouble with Vijay Kumar sir. (Further discussion needed)