The Teach Pendant
ECE 470 Lab 1 Intro

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UIUC

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Welcome to ECE 470: Introduction to Robotics

- Ben Walt - walt@illinois.edu
- Office Hours:
    - Monday 11-11:30 (After Lab)
    - Tuesday 11-11:30 (After Lab)
    - Friday 9-10AM (Zoom only)
- Lab Rules: No Food or Drink!!!

Covid Concerns

- Wear your mask properly when you are in the lab
- Don't come to lab if you are sick
- Don't come to lab if you might have been exposed
- Clean your station before and after use

Lab Overview

There are 5 Labs:

- Lab 1 – Teach Pendant
- Lab 2 – Towers of Hanoi with ROS
- Lab 3 – Forward Kinematics
- Lab 4 – Inverse Kinematics
- Lab 5 – Pick and Place

Make sure you have the latest code and Lab Manual as they may be updated frequently.

Lab Overview

Most of these labs have been in use for some time and are well tested, but doing them with a simulator is new to all of us. There will likely be issues and changes as the semester progresses.

How Labs Work

- You will attend lab every other week (generally...) with Group A or B. Please pay close attention to the schedule.
- You will be working alone, but are encouraged to discuss the lab with your lab mates
    - Feel free to talk about places you are stuck or errors you are getting
    - Please don't share code or the solutions to the key aspects of the lab
- It will be unlikely that you can finish most of the labs in a single session, so you will need to continue working with the simulation from home.
- **The better prepared you are for lab time, the more effectively you can make use of the in-person time.**

Lab Attendance

- Lab is not optional, but given the circumstances there is little I can do about attendance.
- If you don't come to class, you will have to work on your simulation on your own
- I can't let everyone Zoom into lab as this is already a system that is going to be a challenge to manage
- If you choose not to attend lab, you can still use office hours, but I don't take kindly to students who want me to spend time helping them 'catch up'.
- I, of course, will work with students who are sick, quarantined or have excused absences!

Lab Grading and Due Dates

- There are 5 Labs – each worth 100 points
- Labs 2 through 5 include a 20 point Lab Report
- Due dates have not been set. We will have to see how the new lab style works.
- My initial guess for Lab 2 due dates:
  - Group A: Week of October 12
  - Group B: Week of October 19
- Remember that lab keeps going, so you need to keep up with the new lab even if you have not finished the old one.

Lab 1: The Teach Pendant

Lab 1 Goal

- Our goal is to use the teach pendant to move blocks around the desktop
- The robot should search three locations for two blocks and stack them neatly in a fourth location
- How you accomplish this is up to you
- Prep for Next Week:
    - Do the prelab and reading for Lab 2 (look at the end of Lab 1 for info)
    - Try to set up the VM and simulation on your computer
    - Solve the Towers of Hanoi yourself or read about the solution.

Demonstration

- There is no lab report this week – only a demo
- Show me your working program
- Make sure it stacks neatly!

- There is no demo
- Complete the report as described in the lab manual
- Report will be due one week after your Lab session.

- Do the prelab and reading for Lab 2 (look at the end of Lab 1 for info)
- Try to set up the VM and simulation on your computer
- Solve the Towers of Hanoi yourself or read about the solution.