**EE 4953**

**Projects Plan**

1. Building your robot at home or ACE Lab (Before that go to adeep.com) and watch videos on Raspberry Pie, etc.

2. Prepare a mathematical model of the robot (Search the cyberspace). See also Corke’s book, chapter 4

3. Simulate the robot on Matlab or Python, Simulink or your favorite platform

4. Design a PD and PID controller for your robot (Search the cyberspace)

5. Study localization and navigation in Corke's book and its toolbox

6. Hardware design a PD and PID controller for your robot (Search the cyberspace, if needed)

7. Design a hardware controller based on a known navigating path

8. Implement it on hardware

9. Test and evaluate your design

10. Video the results

10. Write an IEEE conference style report. (see: <https://www.overleaf.com/latex/templates/ieee-conference-template-example/nsncsyjfmpxy> )

Links and relevant references (see PDF files)

Model of a crawling robot

<https://ieeexplore.ieee.org/document/6983473>

**Project’s Reports**

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| **Report** | **Date** | **Content** |
| 1 | 2/3/21 | Show assembles robot, inform about your reading materials |
| 2 | 2/10/21 | Models |
| 3 | 3/31/21 | Designs and simulations |
| 4 | 4/14/21 | Hardware design for several tracking episodes |
| Final | 5/5/21 | Turn in your conference papers and 5-slide 7-minute presentation |
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| **Final Exam** | **5/12/21** | **5:00 - 6:50 PM** |