Lab 0x06: Term Project and Romi Time-trials

1 Time-trials and Demonstrations

The project demonstration is supposed to be a fun and low stress way of showing off your term project to your instructor and your fellow classmates. Each team will demonstrate functionality of their robot by talking about it for a few minutes and then running a time-trial on the printed line "track" in lab. Teams will be able to run their robot up to three times so that both speed and reliability can be observed.

In your brief discussion before the time-trial aim to include the following:

1. Describe your mechanical and electrical design with a bit of detail. What sensors did you use? Did you do anything special with the placement or orientation of your sensors?
2. Talk briefly about your manufacturing techniques, challenges, and outcomes. In hindsight, would you do anything differently?
3. Tell us a little about the ups and downs of the project; which parts were easier than you thought and which parts ended up being surprisingly challenging?

The success of your robot on the track is one of many aspects of the project and will not be a significant source of points on the final submission. Well functioning robots, especially ones with robust design - those that are reliable and repeatable - will score higher; however, if your design and programming are done well you can still score very high on the report without winning any time-trials.

Each team will have approximately 10 to 12 minutes split between the brief introduction/discussion and the time-trial performance.

2 Project Website / Portfolio

Your final deliverable for the term will be to create a web page to archive your project forever in the annals of the internet! That is, you will use a service called GitHub, or one of its competitors such as BitBucket, to host your project files online along with documentation and a write-up of your project.

You will have until 11:59 PM on Friday 12/15 to submit your portfolio on Canvas.

2.1 Requirements

The following requirements must be observed:

1. Your project documentation, report, and source files must be hosted online through a git repository or on your own personal website if you happen to have one. You may choose what git service to use, but GitHub is the nominal recommendation.

- Your repository must include well documented and organized Python code sufficient to reproduce your project.
- Design files for the mechanical and electrical design should also be present so that someone could re-implement your design if desired.

2. You must provide a landing page with detailed information about your project in a loose "report" format. This can be accomplished in two ways:
   - Use a tool such as Doxygen or Sphinx to create a clickable web page that documents your code and provides report content all in one. This option will more easily earn full credit as it will present things in a user-friendly way and will be quite organized if done correctly. Refer to the documentation on Dr. Ridgely's GitHub page for an example of what this might look like when you're finished. Include some photographs, code snippets, pertinent math, and any other nuances or aspects of the proejct you think would be interesting to your instructor or to anyone viewing the portfolio.
   - Write a detailed Markdown file to use as your repository's readme file. These are always called `readme.md` and located in the root of your repository. This option will be more straight forward but will only produce one "flat" page that the reader must scroll through to see all of your work. If you choose this option you still must include photos and information about your project in addition to the traditional requirements for a readme file on a repository.

   While this project does not require a formal report, you will need to highlight the features and design of your term project. Highlight any features, demonstrations, calculations, analysis, plots, or results of any kind that do not fit well in any of the source code documentation. A good example would be the high-level task diagram that shows the inter-relation between all aspects of your program and any finite-state machines used to design individual tasks.

   The page should include links to pertinent sections of your documentation for specific files. Be as thorough as possible and make sure to write about and reflect upon the procedure and results instead of just describing them.

3. Include a video demonstration of your robot working at the best of its abilities. The video should ideally be embedded in your web page; otherwise a URL to the video should be included on the web page.

2.2 Deliverables

You will submit, on Canvas, a single URL to your git repository. The URL should provide access to the landing page with your report content and all source files must be easily found by navigating through the landing page.