

ECE 303: Week 6 Lab Assignment

Introduction

This week's assignment has you develop the graphical user interface (GUI) for your Online Project, a test-bed for an electric vehicle. A GUI will allow you to read and display data in real time as your system operates, and includes data from all other parts of the project.

Assignment Requirements

Your interface should include the following:

- Distance to object (in meters)
- Distance LEDs indicating based on distance (Red, Yellow, and Green)
- Headlight status (Off/Dim/Bright)
- Motor speed (in percent)
- Low coolant alarm
- Temperature display and alarm

A couple notes when developing your interface:

- You may construct your interface in either MATLAB or Python
- Your interface should be designed in an organized layout. All components should be clearly labeled. Imagine you were providing this for a customer or some other secondary user.
- You may use whichever GUI components you choose (buttons, boxes, etc.) as long as they are appropriate for the function which they are intending to serve.
- At this time, it is not expected that you have completed all parts of the project related to all necessary components of the GUI. However, for those components, you should still verify that they can receive and respond to data. That way, when you have further developed your project, you only need to make slight modifications to their functionality.

Deliverables

In a single zip file, you should submit the following:

- A PDF of your lab report
 - Your report should include an image of your GUI which you will discuss
- Your MATLAB or Python file(s) for building the GUI
- A short video demonstrating the functionality of the GUI components related to the Collision Avoidance part of the Online Project (distance to object, distance LEDs)
 - This does require you to complete the Collision Avoidance portion of project (related to Week 5 Motors content)
- A short video demonstrating the other GUI components (headlight status, motor speed, coolant alarm, temp. display/alarm) are generally functional (i.e. not just static images)
 - In your report, briefly discuss how your GUI/code will likely need to be modified (if at all) to properly read and display the data required of these components.