

Smart, integrated mobility solutions: imagining the future of transportation

This project is intended to allow you to be as creative as you wish in proposing a design concept for mobility solutions that will hopefully improve how we travel, be in our cities or beyond. Below is a set of broad ideas that you will have the opportunity to refine and implement.

Imagine the ideal goal of transporting people (or goods) in the most efficient (time, cost), accessible, and comfortable way from point A to B. To what extent will AI help us figure that out, is the objective of this project.

I would like the teams to propose a concept that considers the following parameters:

1. Focus on mobility for individuals as well as larger groups, for example, a family or an organized group such as a sports team or a tour group. People for whom you are designing the system may have disabilities, for example mobility, vision, or other impairments.
2. Assume an environment of increasingly larger size. Specifically, a neighborhood (vicinity of your residence), city, state, and country (you can limit your scope to the USA).
3. Assume there is already an existing infrastructure in place (roads, airports, cars, trains, etc.) but do not limit yourselves to it. Think of what else could be part of your solution (Hyperloop, anyone?).

Your tasks are:

1. Define the requirements for your system (you can use a format you are familiar with from your senior project, or I can provide examples).
2. Define the overall architecture of the system (use UML or any object modeling specification you are familiar with. Some will be covered in class).
3. Describe the component interactions and behaviors and how they work together to transport people. The goal is to describe how your system would work for sample travel scenarios.
4. Select two key concepts that we (will) have discussed in class, for example, search, predicate logic, planning, etc., and apply them to a selected aspect of your overall design. Implement those two concepts in a simulation model to demonstrate the subsystems behavior.
5. Write a brief report and prepare a short presentation to be given in class.

Submission requirements

1. Report (typed, in PDF)
2. Presentation (PDF)
3. Code

To be uploaded as a zip file to Dropbox on D2L. **Deadline May 1, 2023 (11:59pm)**