Let's get started with these projects!

The goals for this assignment are to:
- Perform a review of related academic research
- Perform a review of competing technologies and businesses
- Propose initial designs and ideas

Part 1: Related Research

Academic research is the leading edge of most fields, including Computer Science. Because academia is free to think about problems beyond those with near-term market impact

Your team will need to write up at least 5 (ideally more) most-related pieces of research. These may not all be an exact fit, but they should all be clearly related to some aspect of your project.

Include: a link to the paper itself, a couple-sentence description of the work, and a description of how the work relates/informs/supports/motivates your project.

Google Scholar (https://scholar.google.com) has become one of the easiest and most comprehensive resources for skimming research articles and patents. I suggest using this as your main tool for part one, though you are free to use other methods if you choose to.

While certainly not the only measure of importance, there are a few cues that you should considering when searching through literature indexed by scrapers such as Google Scholar (instead of directly checking top conferences or journals in a given area):
- Publication date: how recent was this work? There is a lot of important foundational work out there, but if the publication is more than a couple years old, it’s likely there is more recent work done in this area.
- Citation count: how many pieces of work cite this paper/patent? Often, if a publication is a few years old and only has a handful of citations, the venue that it appeared in may be less established, and thus the peer review of the paper may be less rigorous. Citations alone are NOT a fatal indicator, but may be a signal to look into the venue before relying
heavily on the results shown. This step is largely a consideration because Scholar is, in the end, still just a web scraper, not a validator of content.

- Authors: who are the authors? Have they done a lot of work in this space? This may lead you to other useful articles.

Part 2: Related Products and Services

Similar to Part 1, you will do a review of related products, services, product announcements, and demos that are most relevant to your project. Because industry has the resources to develop more polished, deployable tools than academia, these systems can provide insight at scale. Also unlike academia, there is not a good single place to scrape together all of the most related ideas to a given concept. In addition to knowledge you already have, drawn on tech press articles, conventions (e.g., CES), and company announcements.

**Include:** a link to the product you are describing; a couple-sentence description of it; and a few sentences about how it relates to your project and how it is clearly different (if it is similar).

Part 3: Project Designs

Finally, you will propose some ideas for what you will build. This **MUST** contain:

- A clear, detailed description of each idea, and why/how it would address your problem
- Justification for why you chose the specific set of design ideas (informed by what we have covered in class, as well as the work you did in Parts 1 and 2 of this assignment)
- Sketches of the system / interface / device you plan to build. Multiple per idea is strongly recommended

The specific approaches / types of descriptions and mockups are intentionally left unspecified here to allow your team maximum freedom to present what you think it most important.

Similar to Project Part A, I will be giving you feedback on these designs, so making everything clear and sufficiently detailed is not only good for your grade on this assignment, but will help me help you iterate towards a more awesome final project result.

**IMPORTANT:** You should sketch up no less than **THREE (3)** ideas for how to design your system, so that I can give feedback on more variations than a single ‘favorite’ design. You may rank the designs if you have a preference.
Tools

For the sketches, hand-drawn + phone picture is fine, but you can also use prototyping tools such as Balsamiq (https://balsamiq.com/), or even simple drawing tools, such as Google Drawings (part of Google Docs).

For future paper prototyping, slideshow software (e.g., Powerpoint, Google Slides, Keynote) can be a great way to create digital versions of ‘paper’ prototypes. If you’d like to use these to mockup your ideas in a manner that will quickly convert to a low-fi prototype, you are welcome to, but you must include screenshots in your document.

>> Next Up (Part C): Prototypes

The next project phase will be to create initial prototypes, and a plan for how to use them to get useful feedback from users.

Grading

This written report is limited to a maximum of 2000 words (~4 pages) plus figures, but will be graded on your ability to clearly address the goals of the project. This increase in page limit from Part A is meant to make it easier to finish within the given time, not harder. Making related work and new ideas all fit into a more concise form is very hard -- hopefully this eases that restriction. I suggest dividing the space roughly according to the below grading breakdown (approximately one page for Pt. 1, one page for Pt. 2, and two pages for Pt. 3).

This assignment will be evaluated based on the 3 core parts:

- Related research (25%)
  - Clarity of distinction from your project
  - Clarity of research summary
  - Discussion of how this work helps inform yours

- Related products and services (25%)
  - Clarity of distinction from your project
  - Discussion of how this work helps inform yours

- Designs (50%)
  - Thoughtfulness / insight
  - Details
  - Clarity of description of the system