**Project Setting**

You will work on a project relevant to the accessibility topics discussed in class. You may work individually or collaborate with another 2-3 students in the class. The project has two paths. You and your team must pick one path.

You may choose a project from a list of sample project ideas or propose something else. If you have difficulty defining the project, feel free to come to my office hours. Try to be aggressive when proposing research ideas. A challenging project with unknown outcome is more interesting than an easier project with expected outcome. If the project goes well, let's publish it.

There are several milestone checkpoints for the course project, including project proposal, usability testing, and final report. Each milestone has its deadline and specific requirements. The final report will be about 10 pages containing sections of Abstract, Introduction, Literature review, Design, Evaluation, Discussion, Limitations and Future Work, Conclusion, and References.

The project should be maintained using Google drive and/or Github

**Deliverables**

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| --- | --- | --- | --- |
| **Deliverable** | **Path 1 (Human-Centered)** | **Path 2 (Programming Heavy)** | **Points** |
| **Proposal** | Write a 1-page proposal stating the problem you want to solve, the motivation, and the proposed solution. State the team’s name, members. Add link to your working space (google drive, github, etc.) | | **10** |
| **Requirements Plan** | Plan on collecting requirements using participatory design (PD) approach. You must be in contact with a representative of your target demographics, e.g., wheelchair user. Submission: A document specifying your contact’s information, planned meeting time and location, questions you plan on asking, and data you plan on collecting. | Plan on collecting requirements using literature review. Submission: A document contains a list of papers titles and links that you plan on reading and analyzing to extract requirements for your project. | **15** |
| **Requirements Findings** | A document that shows a description to the PD session (attendees, moderators, duration, steps), the data collected from the PD session, i.e. candidate designs with annotations, and the final design you plan on implementing with rationale. | A document that has a summary for each reviewed paper, the requirements you extracted, a rationale for each requirement. Explain how these requirements address the problem in your proposal. | **15** |
| **Prototype (R1)** | Convert the design to a high-fidelity prototype. Use wizard of oz if needed. Submit annotated screenshots and a zip file contains your prototype files, and a link to the prototype if it is hosted online. | Create MVP based on the requirements collected from your literature review. Submit a zip file with the source code, ReadMe file documenting the implemented features, and a link to the source code repo. | **25** |
| **Evaluation Plan** | Evaluate R1 with the target demographics. Consider options like case study, diary, or usability study. Submission: A document contains the evaluation method, rationale, participants information, tasks, measurements, questionnaires, etc. | Consider usability study if your software requires user interaction. Otherwise, prepare a testing plan, preferably automated testing, that covers different test cases for your software. | **15** |
| **Final Presentation and Demo** | Presentation should be ~8 minutes, and 2 minutes for Q&A. Submission: Slides showing the project since inception to its current status, **findings** from the evaluation, demo, and plans for R2. Record your presentation and demo and submit a video if you prefer a recorded presentation to a live one. If you record your presentation, you should still attend class for Q&A. | | **20** |
| **Final Report and R2 (Individual Submission)** | Write a comprehensive report on your project including abstract, introduction, related work, design, implementation, evaluation, results, discussion, limitations and future work, and conclusion. The discussion is where you reflect on your work, the findings, and how similar or different your findings are to previous work, and why.  R2 is an updated version of R1. Submission is similar to R1’s. The update can be extra features, or updated design, based on the evaluation findings. Make sure to update the prototype documentation, i.e., ReadMe. | | **100** |

**Final Report Sections**

1. Abstract
   1. Briefly describing problem definition, solution, and findings
2. Introduction
   1. Detailed explanation of problem definition, motivation, solution, contributions of the work
3. Literature review
   1. Detailed related work describing relevant research work and similar systems. You may use papers from the reading topics.
4. Design
   1. Explain in detail how the design was conceived (participatory design, or based of literature)
   2. Detailed explanation of solution design and its rationale
5. Evaluation
   1. Tasks,
   2. Report on the results, use charts and tables, when possible, to summarize data
6. Discussion
   1. Things you learn (pros and cons of current approach)
   2. How do you interpret the evaluation results?
7. Limitations and Future Work
   1. Describe any threats to the validity of the work
   2. Possible future directions for your project
8. Conclusion
   1. Reflection on the project and on the problem addressed
   2. Technical challenges already solved or should be solved
9. References
10. Appendices (when applicable)
    1. Annotated screenshots of the UI design
    2. System design (architecture, class diagrams, etc.)
    3. Questionnaires
    4. Raw data
    5. Link to the source code

**Grading**

* Project deliverables (200 points): 40% of final grade
  + G*roup* deliverables: 100 points
  + *Individual* deliverables (final report and R2): 100 points

**Recommended Projects**

* Indoor Navigation for Wheelchair Users
* Outdoor Navigation for Wheelchair Users
* Video Analysis
* Storytelling for Older Adults
* Inclusive Communication Tool for Students with and Without Learning Disabilities
* Mining Open-Source Software for Accessibility Pull Requests
* Accessible Web Accessibility Meter

**Previous Project Example**

* System: <https://collaball.github.io/>
* Paper: <https://doi.org/10.1145/3132525.3134800>

**Git Basics**

<https://education.github.com/git-cheat-sheet-education.pdf>

<https://enterprise.github.com/downloads/en/github-flow-cheatsheet.pdf>

<https://education.github.community/t/github-for-robotics-comic-book-soft-copy/6189>