

NMD 430 – Interactive Systems Design and Development – Interactive Project (70%)

This project should be done with a partner. Final submission should include an interactive prototype and a project report. Submit all the source files in a .ZIP file. Please see below for project brief, deliverables, milestones, and deadlines. No late submissions will be accepted.

Purpose:

The purpose of the project in NMD 430 is to provide you with the opportunity to participate in a design thinking process and experience the ideation and implementation of an innovative design model and evaluation of a prototype in practice.

Project Brief:

Working with a partner of your choosing, you will identify a design challenge situated in a real-world context, this could be a challenge or problem anchored in one or both of your settings (e.g., a daily activity you are doing that can be augmented using sensors and/or actuators of the Circuit Playground), or that you have encountered in the literature and other sources through your journey in the program. You will negotiate and agree on one design challenge to work with for the process. Once a design challenge (small scale design opportunity with the Adafruit Circuit Playground) is identified, prototypes should be designed, developed, and evaluated as well as complete a draft research paper.

You and your partner will document your design thinking process and will iterate and share a possible way forward that addresses the identified design challenge. Upon completion of the design thinking process, you and your partner will share your work with your peers for constructive feedback.

Your shared synthesis should draw from your previous learning in the course, the literature, and other sources that support your rationale for your design decisions.

Milestones:

1. **Hands-on lab #03:** Week 07 (03/03) – idea generation with design thinking process 5%
2. **Assignment 1:** Week 08 (03/10) – Writing Introduction 10%
3. **Assignment 2:** Week 09 (03/24) – Writing Related works 10%
4. **Mid-Fi prototype:** Week 10 (03/31) – Demo Mid-Fi prototype 10%
5. **Assignment 3:** Week 11 (04/07) – Writing Method / System description 10%
6. **Assignment 4:** Week 12 (04/14) – Evaluation and discussion 10%
7. **Hi-Fi prototype demo:** Week 14 (04/27) – Mini conference style demo 10%
8. **Final deliverables:** Week 15 (05/01) - Final demo, presentation, and final paper 30%

Final deliverables:

An interactive prototype/demo:

- You are free to develop your prototype using Adafruit Circuit Playground and commonly available tools
- Getting continuous feedback from peers and potential users is essential

Final paper:

- Maximum 8 pages based on given format (not including the citations)
- Include graphs, images, citations and images (highlighting interactions) of the demo where necessary
- Structure of the report should follow the general format of a research paper (Introduction, Literature Review, System Design and Implementation, Results and Evaluation, Discussion and Conclusion).
- All the source files in a .zip file should be submitted for final grade

Grading criteria:

(Note: see next page for assessment criteria)

- Quality and creativity:
 - Has the team identified an interesting challenge to solve through the principles of IxD?
 - Novelty of the solution and quality of the implementation / interactions
 - User evaluation and discussion
 - Design of the demo and final presentation
- Craft:
 - Timeliness and professionalism of the uploaded materials and demos.
- Peer review
 - Feedback from the class and team members

Assessment Criteria	Excellent (A+ to A)	Proficient (A- to B+)	Satisfactory (B to B-)	Unsatisfactory (F)
Style, Grammar, Spelling	Writing is clear and effective for potential audiences with minimal errors in grammar, spelling, mechanics, and punctuation. Paragraphs are well-organized and adhere to proper academic paragraphing structure.	Writing is clear and effective for potential audiences, for the most part, with minor errors in grammar, spelling, mechanics, and punctuation. Paragraphs are fairly organized and mostly adhere to proper academic paragraphing structure.	Writing is somewhat unclear and/or ineffective for potential audiences with multiple errors in grammar, spelling, mechanics, and punctuation. Paragraphs somewhat adhere to proper academic paragraphing structure.	Writing is unclear and ineffective for potential audiences with significant and repeated patterns of errors in grammar, spelling, mechanics, and punctuation. Paragraphs do not adhere to proper academic paragraphing structure.
Documentation of the Design Thinking Process	Thoroughly describes the design thinking process, and provides an insightful discussion of the experience	Describes the design thinking process and a moderate discussion of the experience	Describes some elements of the design thinking process and provides a limited discussion of the experience	Inadequately describes the design thinking process and provides little to no discussion of the experience.
Design Thinking Solution	The solution is relevant, thoughtful and original and addresses the problem for the selected context. Thoughtful steps of interaction design.	The solution is somewhat original, relevant and addresses the problem for the selected context. It demonstrates adequate development of ideas but would benefit from further development.	The solution is somewhat relevant and somewhat addresses the problem for the selected context. It is minimally developed and requires further discussion and clarity.	The solution is unclear and may not address the problem for the selected context. It requires details on every level and/or lacks relevance or originality.
Evaluation and discussion	The description demonstrates an in-depth analysis and evaluation of the problem. Reflections are thorough, insightful and demonstrate critical thinking and connected learning.	The description demonstrates a sufficient analysis and evaluation of the problem. Reflections are present and support evidence of critical thinking and connected learning.	The description demonstrates basic analysis and evaluation of the problem. Reflections are partially present but superficially demonstrate limited evidence of critical thinking and connected learning.	The description demonstrates a limited analysis and evaluation of the problem. Reflections are inadequate to demonstrate critical thinking and connected learning.