

Robotics 204: Introduction to Human-Robot Systems
Winter 2025

Lab Title: Design ideation

Submission Type: Group Submission. Each team should copy this document and record their answers together. Only one member of the group needs to submit the final report. When you submit, make sure to list each group member. Check the rubric to make sure you have submitted all that is required.

Part 1: Design Ideation

Deliverable: Provide your problem statement, at least four functions selected, and process for each ideation type. A total of 15 concepts should be included.

Problem Statement

<Insert your problem statement here>

Functions

<Insert your selected (at least) 4 functions here>

Morphological Analysis

<Insert your morphological table here>

<Insert your 3 principal solutions here. Provide a sketch and description of each design.>

Heuristic ideation

<Insert the three heuristics you chose>

<Insert your 9 additional design ideas. Provide a sketch and description of each design.>

Mash-up brainstorming

<Insert your mash-up lists>

<Insert your 3 new design ideas from the mash-up. Provide a sketch and description of each design.>

Part 2: Downselecting from your design ideas

Deliverable: Provide the table summarizing the alignment of your design concepts with your requirements. State the design idea you will use for the next part.

Alignment with requirements

<Insert the requirements being used>

<Complete the table>

Design	Requirement 1	Requirement 2	Requirement 2	Requirement 4	Total
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

<State the design you will use based on the table>

Part 3: Storyboarding to build details

Deliverable: Provide your storyboard using the template provided.

Persona Definition

<Insert the definition of the persona you are using>

Key Moments of the Scenario

<Insert the key moments in the user's interactions that will be included in the storyboard>

Storyboard

<Insert the storyboard, one for each of the final two design concepts>

Part 4: Revisiting design ideation

Deliverable: Provide your critique and iteration of your concept. Provide additional conceptual design details.

Critique of your design

<Insert how well your design idea aligns with your needs and requirements.>

Design iteration

<Insert your design iteration and additional details>

<Insert your updated storyboard>

Grading Rubric

The following rubric will be used to grade your submission.

Required Deliverables	Points
Part 1: Problem statement provided At least four aligned functions provided Morphological analysis provided Heuristic method provided Mash-up brainstorm provided	1 pt for providing problem statement 2 pts for providing aligned functions 6 pts for Morphological analysis (3 pts for ideas within the functions, 1 pt for each of the 3 ideas) 6 pts for Heuristic (2 pts for each heuristic applied) 6 pts for Brainstorm (3 pts for the mash-up list, 1 pt for each of the 3 ideas)
Part 2: Requirements stated Table provided Final design idea stated	2 pts for requirements provided 5 pts for table (1 pt for each requirement included, 1 pt for totals for each design)
Part 3: Persona defined Key moments described Storyboard provided	2 pts for persona definition 2 pts for key moments described 5 pts for storyboard (2 pt sketches provided for the scenes, 1 pt includes key moments, 2 pts user interactions are described for each scene)
Part 4: Design critique provided Iteration provided	2 pts for design critique 6 pts for design iteration (2 pts for discussion of additional conceptual details, 2 pts for updated sketch, 2 pts for updated storyboard)
Total Points Available	45 pts