HCI Project Milestone 2

Team ED
Eric Prologo
Daniel Kim

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Recitation 101

Step 1:

Welcome to our project. For this user test you will be working with our product, an application that has the ability to track and manage inventory for a store by controlling a robot. We created this application with the following goals in mind: to allow employees (the users) to have more time with customers by avoiding tedious tasks pertaining to inventory, to give users efficient and convenient use of our app, to have our app have a quick learning curve for users, and give users complete control over their robot assisting them with inventory management. Overall the purpose of this test is to gather feedback on our application in order to make it more effective and cater the app for our intended users.

During the user test, you will be asked to add and fetch items from the stores inventory, you will be asked to navigate to the robot control screen and properly read the data from this screen and power on/off the robot, and finally you will be asked to navigate to the settings of the app and enter your employee id, assigned robot id, your desired font size, and your desired background color for the application.

Once you have performed these three tasks, we will ask you a series of questions to get a better understanding of how you felt working with our application. These questions include, was it easy to navigate our app? Did our buttons map to their intended outcomes? Were there any points in the application where you felt stuck or confused? Was it easy to fix any incorrect input (if there was any)? Do you feel that you had sufficient feedback on the robot and control of the robot once on the robot screen? Did any tasks in our application feel tedious or feel like there were too many screens/clicks to navigate to the desired outcome? Are there any features you would like to see more of or elements on our app pages you would have liked to have more of? These questions will target specific unknowns we are looking to understand better within our application.

Step 2:

Participant #1:

- Time it took to go through three tasks
  - 2 minutes 32 seconds

- Notes
  - The user had to click different places to see what it does. (Maybe more description of what each icons do)
  - During the fetch the robot inventory task, the user was confused about putting in the number, since we didn't have the feature where you can actually type in a number to add or fetch.
  - Some of the actions in the robot control setting didn't have any action or output result, so the user wasn't clear if the user finished the task or not.

- High level feedback
  - On the main screen, it would be great if there were some description of the icons.
  - Some of the instructions in the application weren't clear especially when it says "How many you want to add or remove inventory?" The task instruction (Fetch robot inventory) and the application instruction did not match.

Participant #2:

- Time it took to go through three tasks
  - 1 minute 13 seconds

- Notes
  - The user was pretty familiar with technology in general so the user completed the tasks faster than we originally thought.
  - Seemed like the user didn't struggle much
  - The user was able to complete the tasks smoothly so we are on a right track of making the application easy to use.

- High level feedback
  - Main menu looks pretty empty.
  - Need more work on inventory list after clicking + or - icon
  - In the robot control section, maybe add 1 more action to fit the page. It looks off with 3 actions in a square format.
  - The user liked the big icons so it was easy to see and navigate

Participant #3:

- Time it took to go through three tasks
  - 2 minutes 47 seconds
- Notes
  - The user was a bit slow at the start/was confused on the home page
  - Once moving to the inventory list the user correctly clicked items and then entered their desired amount of the item to be added or fetched.
  - When navigating the the robot information screen, the user was confused due to lack of direction and took longer than we wanted for them to find the screen
  - Once the user found the robot information screen they seemed to effectively and quickly read the icons giving feedback on the robot
  - Finally for the settings screen the user quickly navigated to this screen and modified the settings
    - We were content with the speed at which the user performed this task
- High level feedback
  - Main menu is lacking in text directions (difficult to navigate without prior knowledge of the app)
  - Felt that there could have been more variety in the inventory list
  - Felt like the buttons such as power, settings, and back buttons mapped well to their functions and were appropriately located in the app

Step 3:

Our app for this project is an inventory control app that links to a robot in order to help users manage inventory in store without actually having to perform the managing tasks themselves. Our app has the ability to give users full control over their assigned robot. Users will be able to command this robot to fetch from the inventory and add items to the inventory. Our app also gives users customizability through our settings page as well as real-time information on their robot to ensure that it is functioning properly. The overall purpose of this application is to allow users to have more time to spend interacting with customers and selling products rather than being stuck wasting time with tedious tasks that pertain to organizing and managing inventory.

For our current prototype, we are using Figma to produce an electronic and interactive prototype design. At the moment we have three tasks that can be performed in our prototype. First, users can choose whether to fetch (take out) or add items from REI from or to the store's inventory. Next we have the task of navigating to the robot management screen and effectively reading the data output on the users assigned robot. Third we have the task of navigating to the app settings and assigning the user id to the app (for login), assigning the robot id to the app, and then customizing the users preferred background color and font size. Throughout all of these tasks the user also has the option to turn off the app and also turn on the app. Our prototype has some connections to the interviews we conducted previously because we were trying to develop a prototype that would meet the needs of our intended users. Some new features we are testing for this assignment include, the readability of the app (adding some text instructions to our prototype), the task of adjusting robot settings, and the task linking users to the same robot/handling traffic when more than one command comes in for the robot at the same time.

Participant Feedback	Influence on Design
Inventory: ● Have to check inventory frequently ● Sometimes there is inaccurate inventory count	● Have the inventory count easily accessible with not many button clicks on our app ● Link the inventory count to the robots to avoid human error
Robots: ● Lack of trust with robots ● Could need maintenance without people knowing	● Give the user full control over the robots and their settings ● Can turn off the robot at any moment ● Have alerts on the app so user knows when robots need maintenance

Software/Inventory Management App: - App is complex at times - Sometimes the software displays inaccurate inventory - The mapping of the app seems hard to navigate	- The app has few button clicks so it is easy to navigate different tasks - Again link the inventory counting to the robots to avoid human error (also inventory will update in real-time) - Make sure that our buttons map well to the tasks they perform to help with the learning curve of our app

For our study, we mainly looked for if our current prototype was efficient for users to complete tasks. Since we're doing digital prototype testing, we were able to depict the problems that most people had. We recruited three participants, and they're all from our friends/family group since it was hard to find unplanned/random participants during quarantine. To add on, it was fairly easy to find the participants, since we only needed to send them text/email. Two of the participants were students who are attending college, and the last participant is a college professor. We made sure they had to think aloud as they were doing the prototype testing. We believe that the fact that we did high-fidelity digital prototyping, made this experiment unique especially for the participants. They mentioned that they did not expect anything like a digital prototype since they thought they were going to take surveys or written tests.

Overall, the participants were able to complete all three tasks but we noticed a couple of problems as they were doing the tasks. Two out of the three participants struggled a lot since they were confused about the main page. We noticed that they had to click different places to see what each icon does. In addition, the participants were not able to complete the robot information task smoothly. To exemplify, one of the participants got confused and had to ask us questions when one got to the robot information screen, and it took longer than we wanted for them to find the robot screen. We observed that they were struggling to complete the robot information task since there weren't any actions going on when they clicked the icons.

We received high level feedback from the participants that made us realize we had to get them fixed for our next prototype. We got some criticisms about our main page. They mentioned that we simply need more descriptions in the main page. To exemplify, the main screen is too empty and there were only icons, which made them confused about the actions that each icon did (See Appendix 2B). However, one participant, who completed the task pretty smoothly liked how the icons were big and easy to see. One of the participants mentioned that while doing fetch robot inventory task, some of the instructions in the application weren't clear especially when it asks

"How many you want to add or remove inventory?." One claimed that the question from that section and the task instructions did not match. Lastly, the participants implied that the robot control section needs more control actions to fit the page, and it looked off with just 3 actions in a square format (See Appendix 3C).

For our next revision design, we clearly need to work on the main page with more instructions. We also need to make sure every page of the prototype is giving clear instructions and designs. Based on observing participants doing the robot control task, we also require more actions so that people won't get confused if the button worked or not. Next, we will make sure that the users will have more items to pick from the inventory list.(See Appendix 5E) Overall, we believe that we need to make sure the users can do the tasks smoothly. Because of the current design, many users struggled with using the app efficiently.

From our user tests we learned many things. One main takeaway and surprise from these tests was that features and tasks that may seem obvious to see or perform to us, the creators, are not always so easily seen by participants. We also learned how to professionally conduct user tests where we do not walk the user through different tasks but rather let them fail so we can gather meaningful data. Something that we think we could do differently next time is encourage more think aloud walkthrough when participants are using our prototype. Even though we told the participants to do this in the beginning they were not always consistent with talking through their thought processes while doing tasks in our prototype.

Previous Prototype Link:

https://www.figma.com/proto/hLgP85UlyUfxbNNnm892xE/HCI-Project?node-id=1%3A2&scaling=contain&page-id=0%3A1

Updated Prototype Link:

https://www.figma.com/proto/k08N0roQ8t7eY9Q3s0BaSf/HCI-Updated-Prototype?node-id=1%3A2&scaling=min-zoom&page-id=0%3A1

Appendices

1A. Study Script

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2B. Main page (how it's too empty with no description)
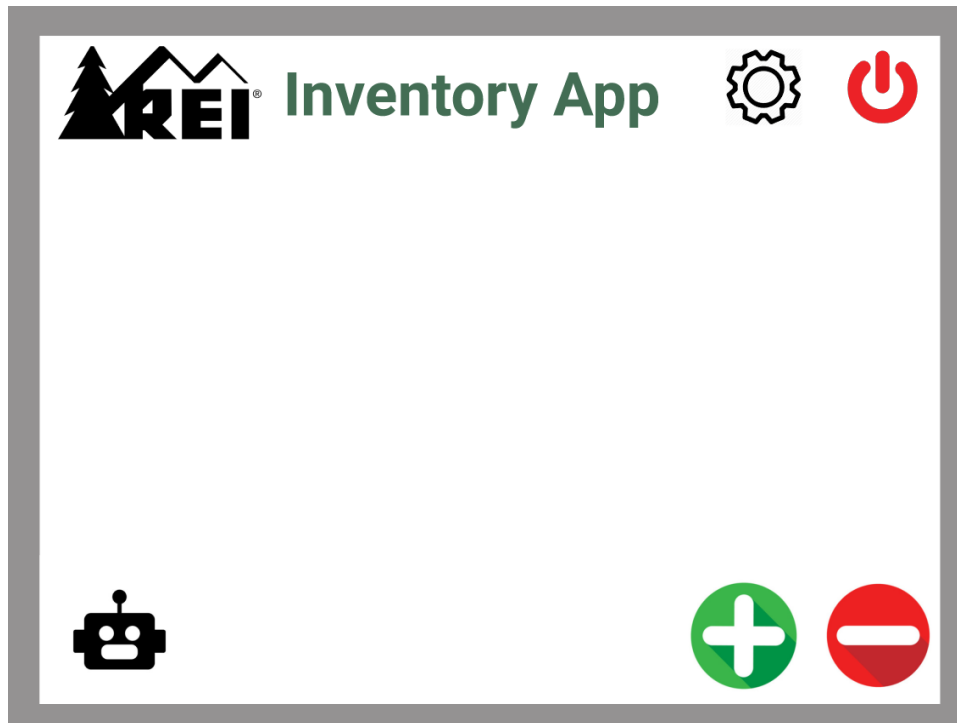
3C. Robot control page (Incompleteness)
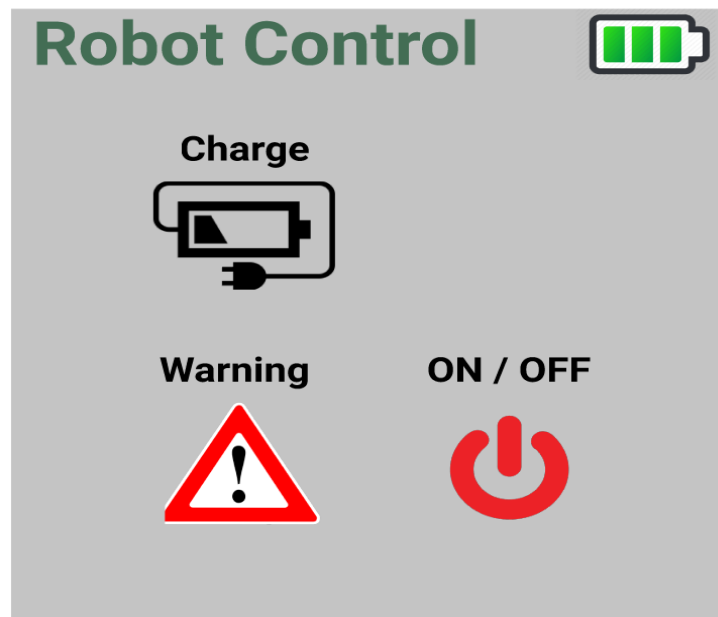
4D. Unclear instructions (not matching with task instructions)

How many you want
to add or remove
inventory?

5E. Inventory list (more items)

Inventory List

Hiking Boots

Backpacks

Rock Climbing Shoes

Camelbak Backpacks

Settings

Employee ID

Assigned Robot Number

Text Font Size

Background Color