Muncher

Fuss less, dine more

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User Testing

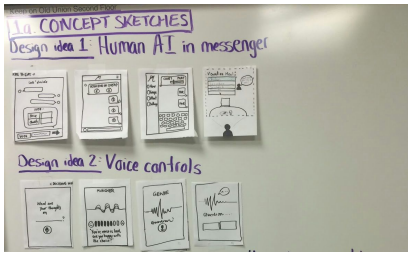
Introduction and Mission Statement

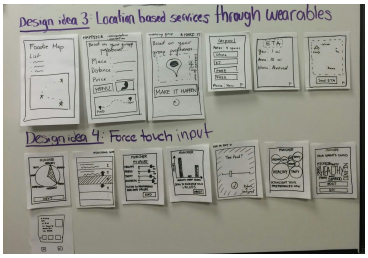
Have you ever found yourself among a group of friends trying to decide where to eat, but can't get everyone to agree on a place? Muncher is the solution to today's social-oriented food scene. With Muncher, you and your friends will "Fuss less, dine more" with the help of human-based artificial intelligence.

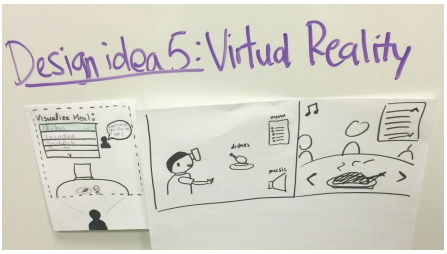
Sketches

Based on the insights from our needfinding and 3 tasks, the different design ideas (realizations) we chose to implement our application idea are as follows: human AI in a messaging platform, voice controls, location based services through wearables, force touch input, and virtual reality.

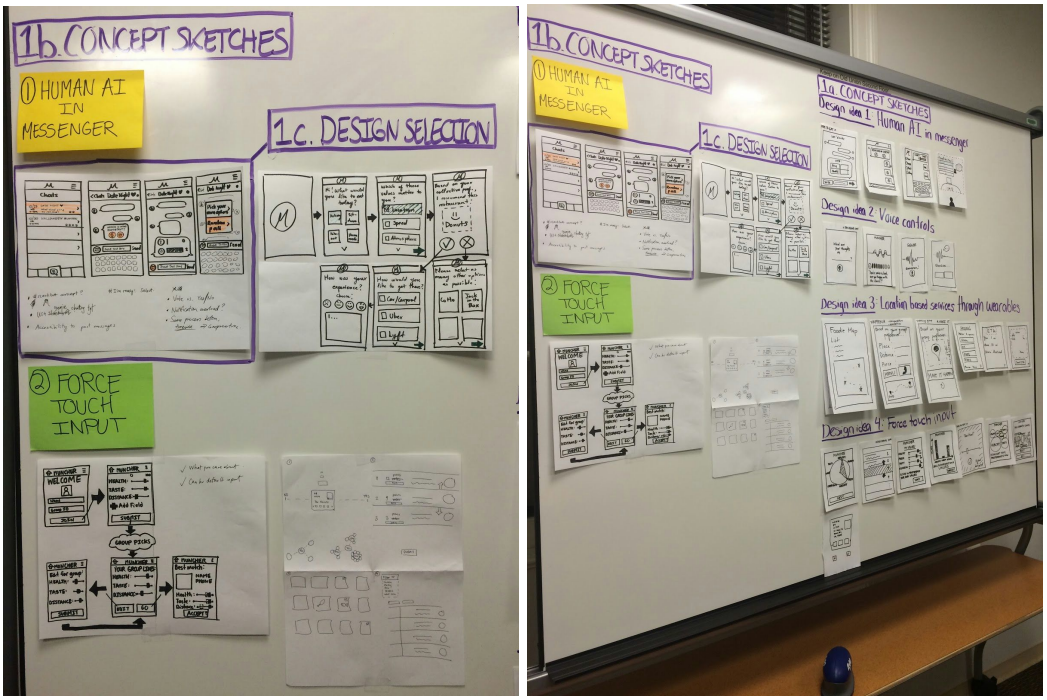
From this collection of 15-20 sketches, we decided to continue with storyboards for the human AI in messaging and the force touch input realizations.







Figures 1a, 1b, 1c: Design ideas implemented as sketches



Figures 2 & 3: Concept sketches and storyboards for top two ideas

Selected Interface Design

From the top two selected design ideas we storyboarded, we chose the human AI in messaging for continued exploration. We arrived at this decision based on our prior needfinding. Our users wanted to keep the human touch in deciding a place to eat while removing the confusion of choosing from their own list of responsibilities. The human AI accomplishes this because the genie acts as a mediator in helping to make decisions. Additionally, the genie AI is more personable and friendly to interact with than a standalone user interface. By implementing it in the form of a group messaging service, it appeals to the user's' desire to stay social and on-the-go.

Prototype Description

Our low-fi prototype is simulated as an iphone app on a series of outlined screens. All input is based on "touch or type" input to move through the different steps. The experiment is split into three tasks: 1) Decide a place to eat, 2) Deal with user discontent, 3) Coordinate the actual plans.

Task #1: Decide a place to eat

In this task, the user along with a group of friends carry out the actions necessary in order to get the Muncher genie to pick a place to eat. The user enters the app and

lands on their homepage (Diagram 1). At this point, the user has two options, continue with an existing group or start a new food outing. Clicking the “+” icon in the top right allows the user to create a new food outing and input the details of the event (Diagram 2). Once the information is confirmed, the user clicks the “OK” button to proceed to the initial food profile setup for the group (Diagram 3 and 4). Once this is complete, the user lands on the general chat window for the food outing (Diagram 5). The other option is to select a current group in diagram 1 which would bring the user to the same chat window (Diagram 5). At this point, any user in the group can click the “+” button on the keyboard which brings them to diagram 6. At this point, the person can click “Start poll” to tell the Muncher genie to poll the group (Diagram 7 to Diagram 8), or the “Decide place” button to tell the Muncher genie to select a new restaurant from its current data set. Initiating a new poll (Diagram 8) will present the group chat with a new question that everyone will answer (Diagram 9) and the genie will update the group’s food profile. This process of initiating a new poll can be repeated as many times as the group wants in order to expand the genie’s dataset. Selecting “Decide place” at any point tells the genie to pick the most suitable match and give the group results (Diagram 10).

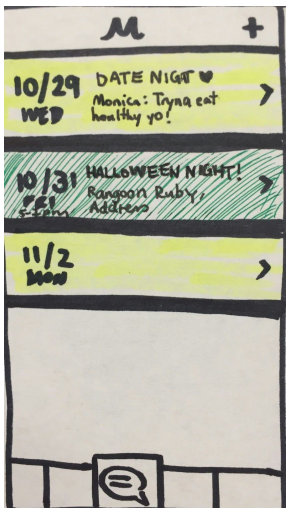


Diagram 1

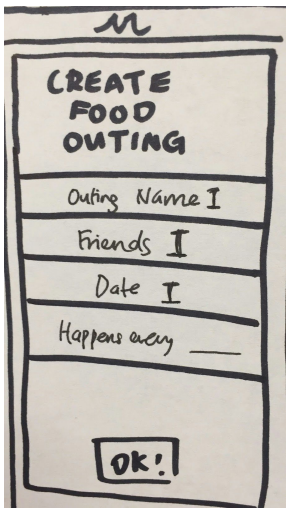


Diagram 2

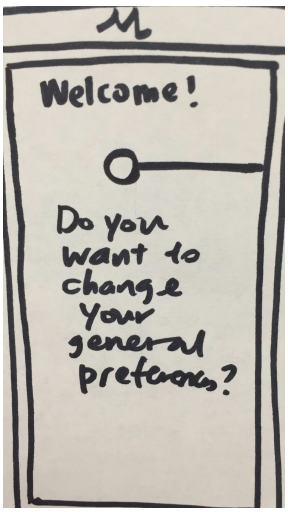


Diagram 3

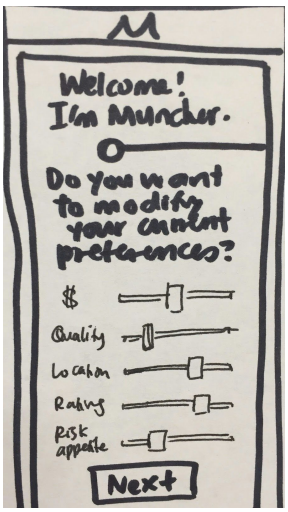


Diagram 4

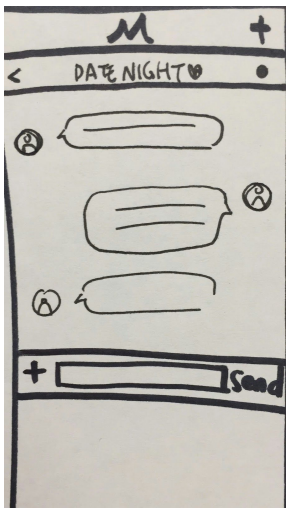


Diagram 5

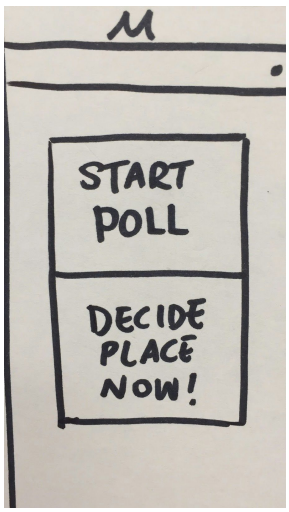


Diagram 6

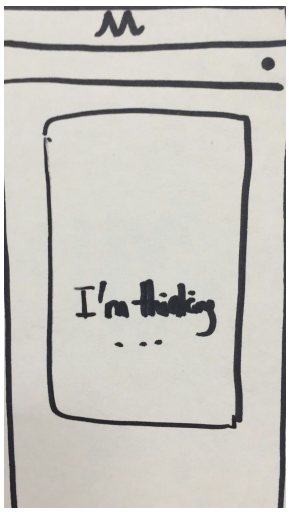


Diagram 7

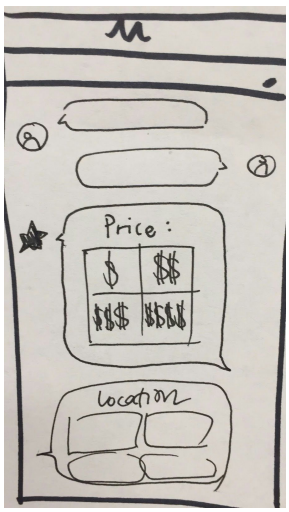


Diagram 8

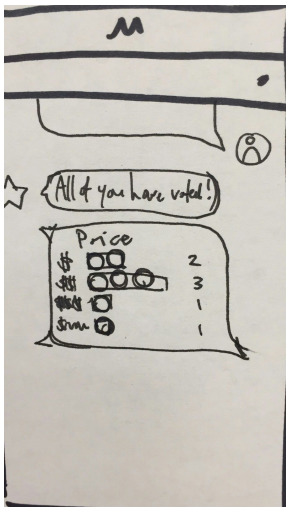


Diagram 9

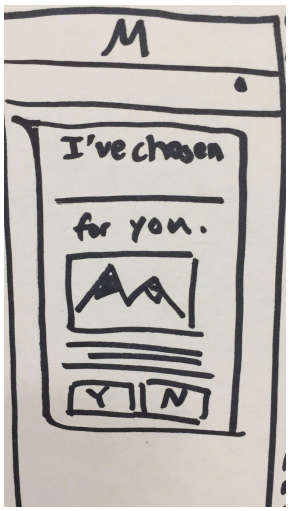


Diagram 10

Task #2: Deal with user discontent

In this task, one person in the user's group of friends is unhappy with the place that was selected for the group. Once again, the user enters the app through their homepage (Diagram 1) and selects his or her group. The app will notify the user that a place to eat was chosen for the group (Diagram 11) and ask if he or she is happy with the choice. The user selects the "Yes" or "No" option which brings the user back to the group chat window. Once everyone votes, the Muncher genie displays the results and asks if the group would like to add more data by adding a new poll, choosing a new place using the current data, or overruling the vote and going anyway (Diagram 12). Choosing the "add poll" option repeats the process of the Muncher genie asking the group a question (Diagram 13). Selecting "Choose new place" brings you back to diagram 11, but outputs a new restaurant from the

current dataset. Finally, choosing “Go anyway” brings you to the decision made screen (Diagram 14).

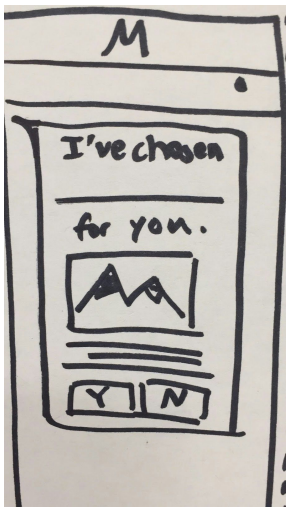


Diagram 11

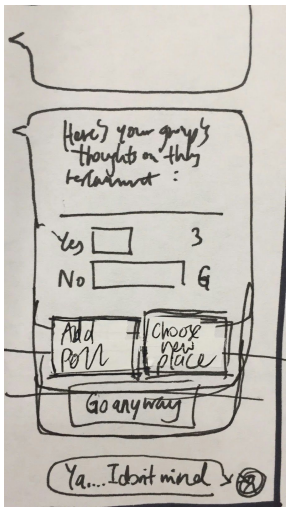


Diagram 12

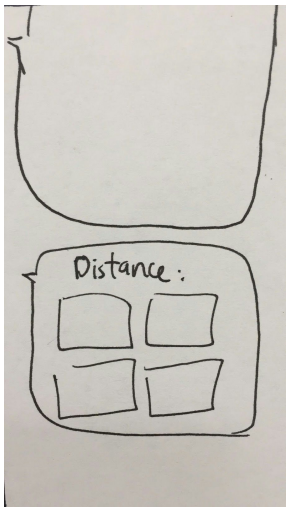


Diagram 13

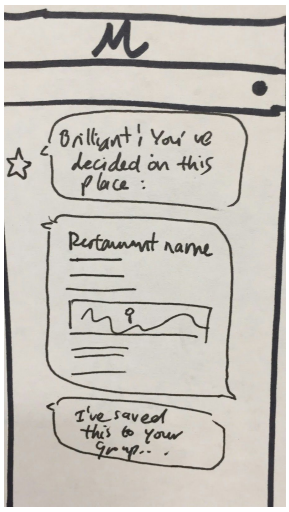


Diagram 14

Task #3: Coordinate the actual plans

In this task, the users figure out the logistics relating to any auxiliary action related to eating, such as figuring out transportation, getting directions, or making reservations. Following the same workflow as before to enter the group chat window, the user will now land on a screen that begins the coordination process. The Muncher genie first prompts the group owner regarding reservations (Diagram 15). Clicking “Yes” will bring the user to the restaurant’s reservation system while clicking “No” advances to the next screen. At this point, everyone will be prompted to select a mode of transportation (Diagram 16). The Muncher genie will tabulate the results and display them to the group (Diagram 17). For users that click the “Car” option, the Muncher Genie will provide them with directions that can be saved to their favorite maps app by clicking “Add to Maps” (Diagram 18). Finally, the app manages the reminders for this planned event by pushing notifications to the group outing chat prior to the scheduled time (Diagram 19). At any point in time, swiping left on the screen will bring the user to diagram 20, where the user can see everything at the group, the event, and the most current food profile.

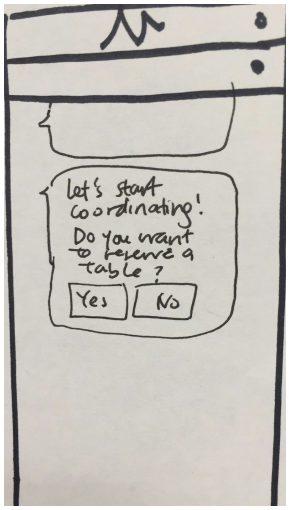


Diagram 15

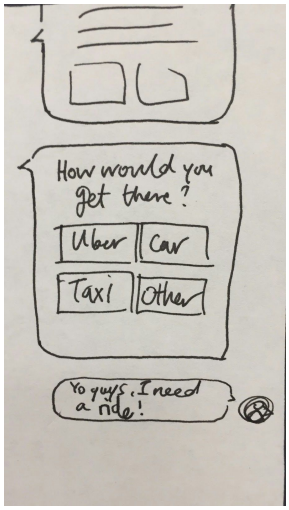


Diagram 16

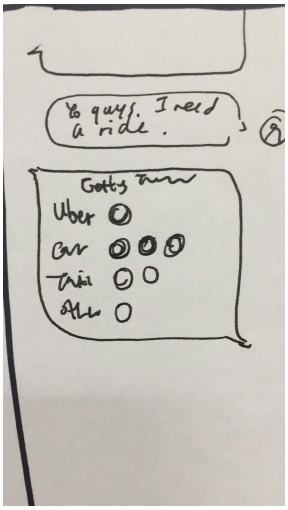


Diagram 17

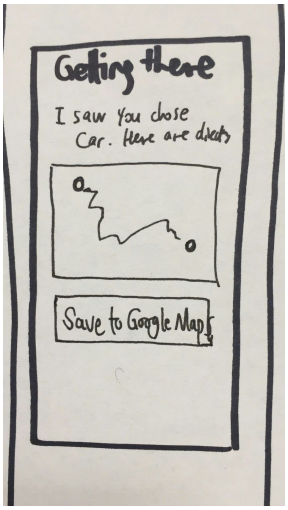


Diagram 18

Diagram 19

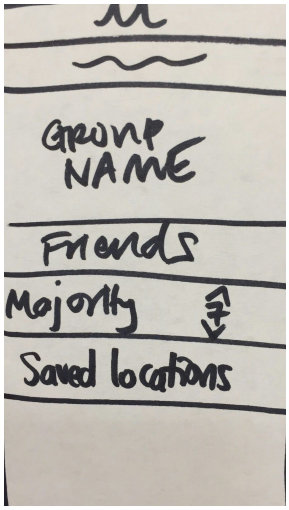
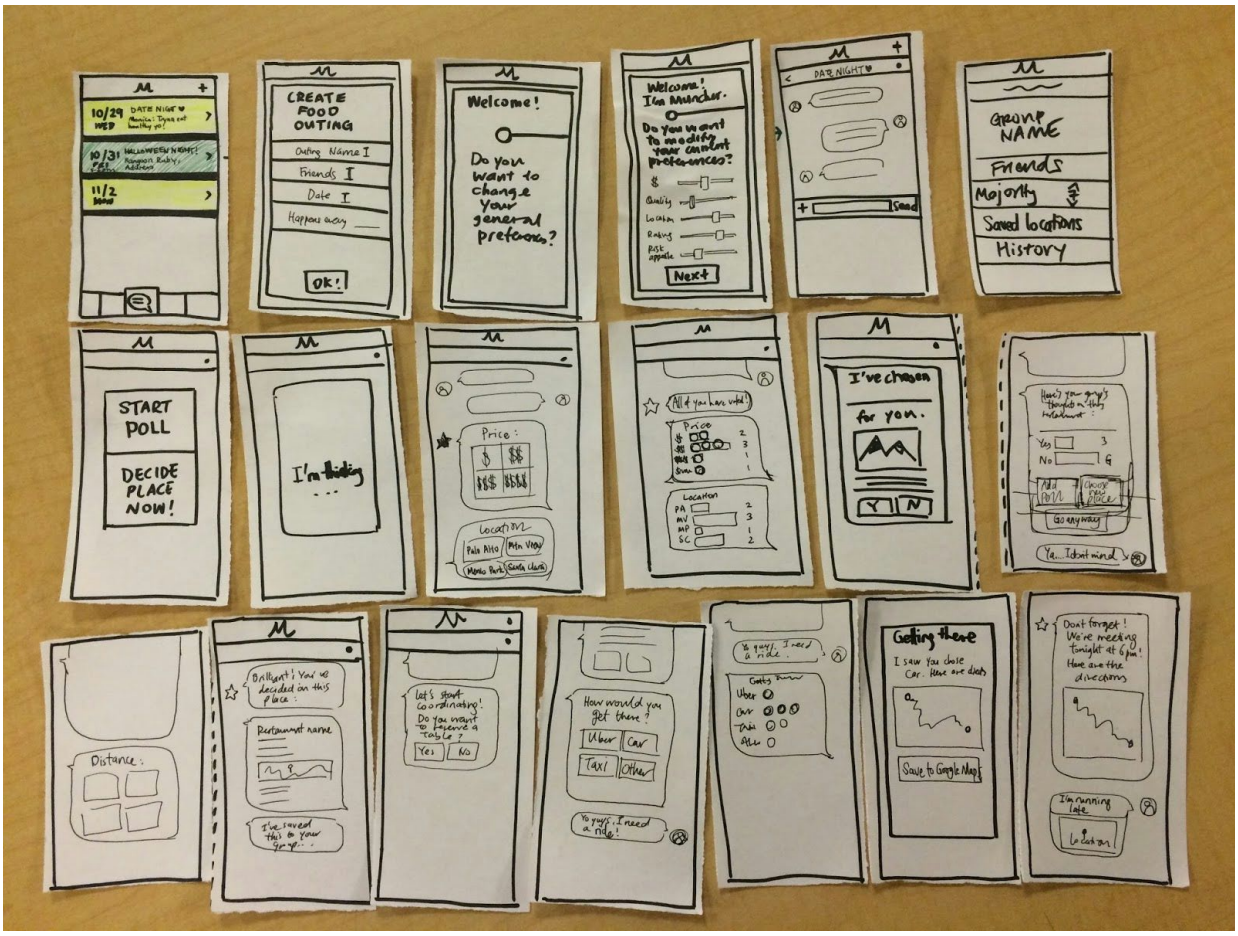


Diagram 20

Low-Fi Prototype Entire System



Method

For this stage of the project, we interviewed people from 3 sets of demographics: working adults, college students, and high school students. We believe this captures the target audience of our app, across the 15 to 40 years old age group. To capture this user demographic, we went to places where we can find them. We did not compensate any of the participants. Participant 1 was a college student we met working in Old Union late at night with dorm mates. Participant 2 was a high school student walking around downtown Palo Alto with his group of friends. Participant 3 was found in downtown Menlo Park during dinner time. All three participants were interviewed near a food destination since the process of choosing a place to eat was fresh in their minds.

We introduced ourselves as students from Stanford University working on an app that helps ease the group dining process, and explained to them the 3 tasks our app helps to accomplish. An emphasis was placed on how our app would be used

in conjunction with other friends on their own mobile phones, so they can start the user testing with a basic understanding of the type of interaction and flow they should expect. We based this greeting on the script we crafted prior to meeting the participants in order to maintain consistency. During each interview, we told the participant the task they had to accomplish but refrained from giving too many details unless it was requested. We took turns to take on the roles of facilitator, computer and observer.

Using our paper prototype, we asked the user to press buttons or swipe the screen with a finger. Depending on the action taken, we generated a new screen for the user. If the user ever got stuck and needed help, we would provide clues and note this as a pressure point in the design.

During these trials, we measured the following:

- Time user spent to input preferences (task 1) and user reaction, facial expression, and emotions
- Time user spent on yes/no of restaurants (task 2) and user reaction, facial expression, and emotions
- Level of interaction with friends within the app
- Moments of surprise
- Moments of confusion and looking lost
- Number of times they had to ask us what to do on that frame

At the conclusion of the test, we asked for general input and feedback along with suggestions for improvement or areas of confusion.

Results

The results for the measures described in the previous section can be found in the Appendix. In this section, we will summarize some key insights instead.

Pleasure points

1. *Users particularly liked being reminded about the outing close to the event*

This implied that the third task of coordinating the actual plans was important to the user. When probed further, one mentioned “I like how this leads us from start to finish”.

Pain points (for more details, refer to the Appendix - User Testing Heuristics)

1. *Users found some of the navigation buttons confusing*

One example is the '+' logo which allows users to either start a new poll, or decide on a place to eat. Many were confused about what it stood for, bringing up a salient point that it resembled the 'Add Photo' feature in many existing messaging apps.

2. *Users found redundancy in expressing preferences*

The app requires users to input their preferences when the group is first started, then the genie asks for preferences again during the poll.

3. *When the genie decides on a place for the users, users wanted multiple options instead of just one.*

Users found it a hassle to keep going back to vote or decide on a new place to eat. They prefer spending more time looking at food pictures and restaurants than inputting preferences.

4. *Users only had the patience for up to 3 restaurant suggestions.*

After 3 different suggestions, most just wanted to finalize a location. After that point, the app felt repetitive.

Discussion of Results

The main result we gathered was that the 'Muncher genie' was well-received but not immediately apparent to users. Users noticed the genie presence the most in the group chat, but not when they were presented with the restaurant suggestion screen. For future prototype iterations, we need to make sure that the genie's presence is noticed whenever the user feels that (s)he is faced with a decision.

When using Muncher, users had no problems with task 1 (diagrams 1 to 10), got frustrated with task 2 (diagrams 11 to 14) at times, and were surprised by the functions we have for task 3 (diagrams 15 to 20). Task 1 took an average of 36 seconds with a delta of 8 seconds. Users spent broadly different times on task 2,

from 5 seconds to 32 seconds, depending on how particular they were about their food choices when we spoke to them after the testing. Task 3 was described as a nice touch by our users, and many of them introduced their creativity into our prototypes, by imagining functions that we did not intend to initially.

We noticed that users had the most trouble with figuring out the prototype flow when they did not agree with the first restaurant suggestion. They suggested more restaurant options up-front and less back-and-forth (between adding more polls to improve the relevance of suggestions and then going back to the restaurant suggestion screen). Another issue they had is the redundancy of overlapping functions when they were asked to input their preferences while starting a new group, then having to poll again within the chat.

Overall, the interviews helped us realize that Muncher needs to stick to a simple interface flow to avoid user frustration and decrease time spent deciding where to eat. We are interested to see how nailing down a more efficient way of suggesting restaurants and beautifying the prototype will affect users' interactions with our prototype.

(2055 words)

APPENDIX

User Testing Heuristics

Problem	Severity	Possible Fix	Task #
No option to not go eat at all	3	Add this option to the final restaurant suggestion screen	1, 2
No mute conversation function	0	Feature fix - we can add this option under user settings	2
Wanted more restaurant options	3	Provide more screens with restaurant suggestions to click ‘yes’ or ‘no’ on	1, 2
Inputting preferences was too repetitive	3	Make polling optional as a secondary button within the chat interface	1
The pictures for the restaurant were uninformative	1	More relevant pictures (e.g. food), and pulling in Yelp reviews	1
Navigation buttons are confusing and vague	1	More representative logos (e.g. icons instead of ‘+’)	1
Too repetitive when it comes to the restaurant suggestion screen if a user does not	4	Replace with an improved restaurant picking method - another option is to	2

like the first suggestion		provide more suggestions at the same time	
Did not find the human aspect of the AI particularly personable or obvious	3	More personal and humorous messages by the AI instead of just functional ones	1, 2

Table 1: Log of problems noted during user testing

Severity Rating

0 - I don't agree that this is a usability problem at all
1 - Cosmetic problem only: need not be fixed unless extra time is available on project
2 - Minor usability problem: fixing this should be given low priority
3 - Major usability problem: important to fix, so should be given high priority
4 - Usability catastrophe: imperative to fix this before product can be released

Consent Form

Template

The Muncher application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of Muncher. Data will be collected by interview, observation and questionnaire. Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Gloria Chua,Kai Jian Chua, Peter Farejowicz, Monica Yupa) or with Professor James Landay, the instructor of CS 147:

James A. Landay
CS Department
Stanford University
650-498-8215
landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student/researchers and their supervisors/teaching staff. I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the Muncher experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time.

Name _____

Participant Number _____

Date _____

Signature _____

Witness name _____

Witness signature _____

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Name Kelvin Do

Participant Number 1

Date 10/21/15

Signature

Witness name Peter F.

Witness signature

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Name Mike Anderson

Participant Number 2

Date 10-21-15

Signature Mike Anderson

Witness name KJ Chua

Witness signature

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Name Andrew Han

Participant Number _____

Date Oct 21 2015

Signature _____

Witness name KJ Chua

Witness signature _____

Test Script

Introduction

We are conducting a short experiment to evaluate a prototype designed to help groups choose a place to eat and get there. It is called Muncher and its unique feature is a Muncher 'genie' that appears to take care of organizing logistics for a group meal outing. Here are some we will consider with our testers:

- Do you eat out with your friends? (on or off campus)
- You are going to decide what to eat with your friends. Walk me through how you are going to do it.

Confidentiality

The interview is confidential and we will not publicize any real names, but instead use a number to identify each participant.

Introduction of Muncher

What you are about to see is an early stage prototype. It is not a finished version of the app, but rather think of it as a sketch and please tell us if you are struggling to read or understand anything. We are looking to evaluate how easy Muncher is to work with, so we would really appreciate if you shared any thoughts about the interaction.

Raw Data

Notes for Subject 1: Kelvin Do

Task #1: Decide a place to eat

- Found the (+) option confusing and similar to other options
- Did not understand what the circle button on the top right was for
- Wondered if he had to go through the entire process again with a different group of friends

Task #2: Deal with user discontent

- Found it weird to have to vote again afterward - he did not expect it
- Liked having the pictures of his friends displayed in the poll results, as well as having aggregate results in a bar graph

Task #3: Coordinate the actual plans

- Did not particularly find it helpful to know how his friends were also getting there

General Feedback and Results

- Did not recognize the human aspect of the AI - thought it was just a bunch of random prompts
- Did not understand why he had to input his preferences twice, in the profile settings and then in the polls

Possible Changes for Next Test

- Clearer navigation buttons (e.g. to start a new poll, to view group profile etc.)
- More personal messages by the genie

Total time: 12 min

Notes for Subject 2: Mike Anderson

Task #1: Decide a place to eat

- Sped through the polling screens
- Got frustrated when it kept going back to the “mountain” screen with the restaurant

Task #2: Deal with user discontent

- After a few “no”s he decided to go with it anyway

Task #3: Coordinate the actual plans

- Selected the uber option but assumed that the app automatically called an uber for him
    - Did not realize that this was just to let other group members know that he would be taking an Uber

General Feedback and Results

- Would definitely use this app to help coordinate with indecisive group
- Would like more clarity with mobilization options (is the app or the user calling an Uber?)
- Would like restaurant info to focus more on the food options and pictures of food instead of other general information

Possible Changes for Next Test

- Improve icons and menu/button placement

Total time: 10 min

Notes for Subject 3: Andrew Han

Task #1: Decide a place to eat

- Very straightforward, user knows exactly what to do, where to tap
- Everything was smooth for navigation

Task #2: Deal with user discontent

- User chose “no” 5 times before selecting “go anyway”
- “Suck it up, or not go at all”

Task #3: Coordinate the actual plans

- Open in Google Maps
- Reminder when it is time to leave
- On the day of, he would also want to see where his friends’ locations are

General Feedback and Results

- What do you think should be the majority for a consensus?
    - 3 out of 5: 60%

Possible Changes for Next Test

- Add in more poll options to improve realisticness
- Add in “History” to bring up previous food cards

Total time: 8 min