# Flavr

Andrew Luo: design/development
Ben Ulmer: documentation/development
Alex Engel: user testing/development
Onkur Sen: manager/development

## Introduction and Mission Statement

The words "free food" have been the bait for students attending countless events and gatherings across college campuses for good reason. Food is often high on a college student's agenda. However, events advertising free food are often met with an unenthusiastic turnout, spawning a host of problems ranging from food waste to unnecessarily hungry students. Flavr's mission is to "instantly connect hungry students with food while reducing waste" through a more extensive food distribution network.

## Prototype description

Our prototype is built for a mobile phone where touch input is the main interaction. As seen from Figure 1, our low-fi prototype was draw on paper and given to users to simulate a touch experience. The user operates it starting at the home screen where two simple buttons to get food and give food are displayed, as shown in Figure 2a.
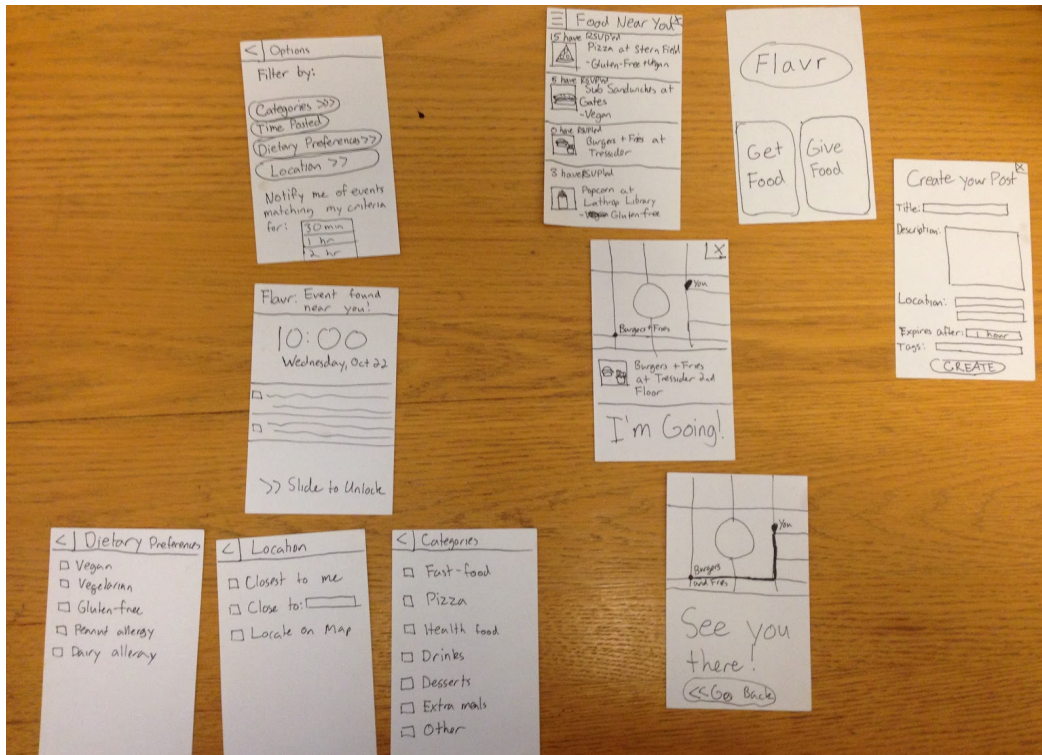


*Figure 1: Overview of all Screens in Prototype*

There are three scenarios with three different flows through our prototype. Moving from screen to screen in the flow is done through tapping different buttons on the interface, and back buttons and x buttons are used to return to the home screen or previous screen. For example, modals like the create your post modal use the x button in Figures 2 b-c and screens like the options screen go back using the back button in the top-left as shown in Figure 3c and Figure 4a.
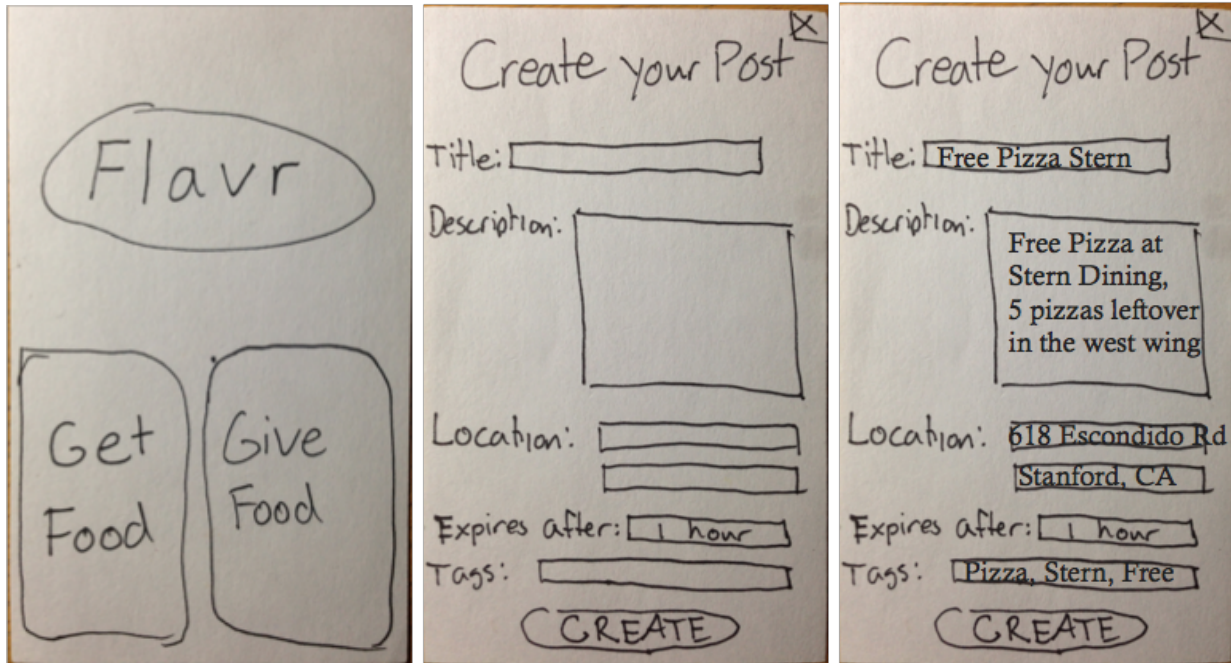


*Figure 2 a-c (left to right): The give food flow for creating food*

Figure 2 shows the screens for the scenario where a user has too much excess food and needs to give away food. The example used in Figure 2 is a Stern Dining event with too much left-over pizza. Figure 3 shows the screens for the scenario where a gluten-free user tries Flavr for the first-time and filters the food results to only show Gluten-Free events. Then, the user chooses the burgers and fries event and is given directions and a map to attend. Finally, Figure 4 shows the use of the prototype though a scenario where a student has to go to class and wants to be notified for any food events within the filters that have happened in the 1 hour time-span.
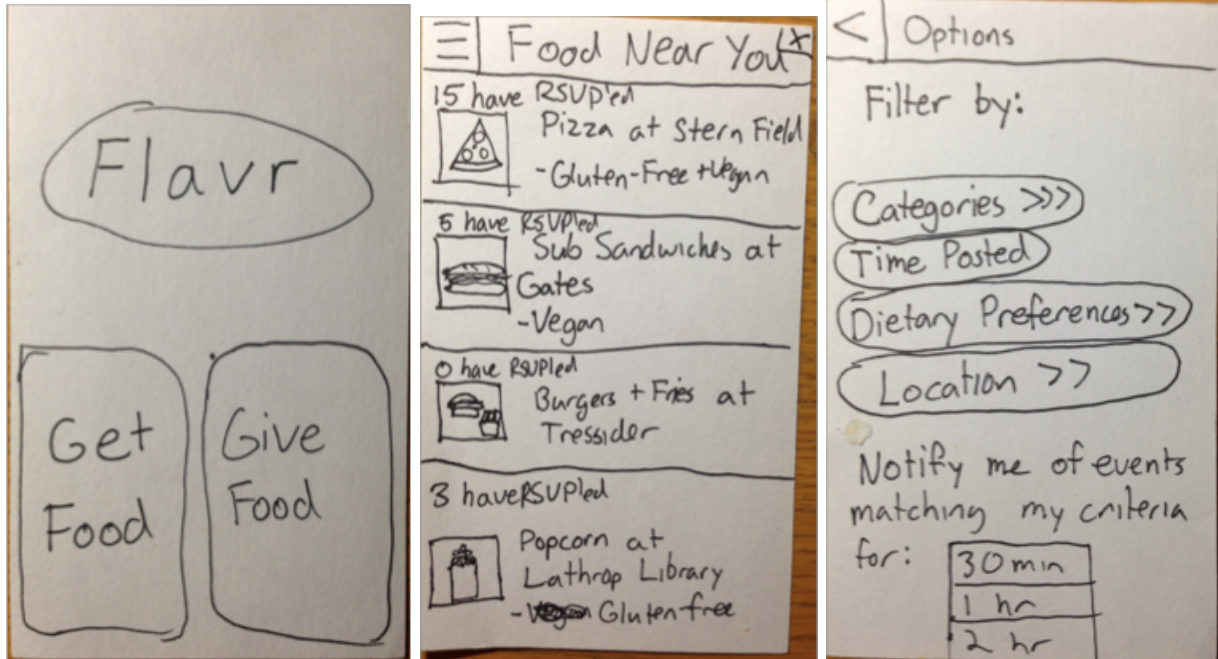
*Figure 3 a-g (left-right, top-bottom): The get food flow for filtering food and finding food*
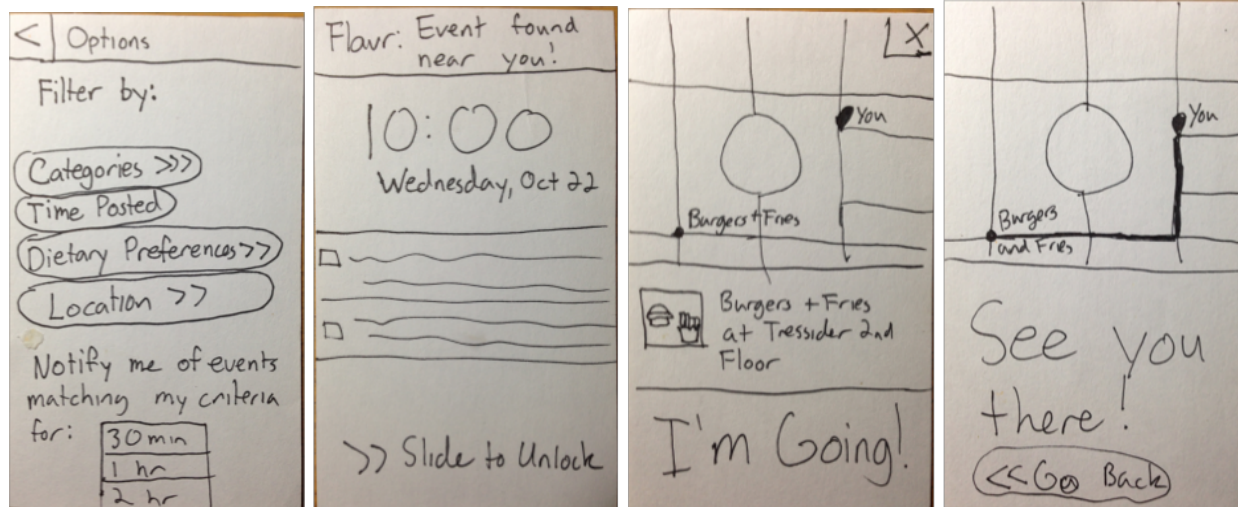
*Figure 4 a-d(left-right): The flow for setting Food Event notifications in the Flavr application*

## Method

We chose three random participants who were eating food at Arrillaga Dining Hall with a diverse set of genders (2 male, 1 female), ages (18-21), and technical background (1 highly technical, 1 moderately technical, 1 non-technical). To determine technical background, we asked our participants to rate themselves on a 1-10 scale where 1 is least technical and 10 is the most technical. Our participants were recruited simply by walking up to them while they were eating in the dining hall and asking if they would take a few minutes of their free time to participate in our study. The environment for our experiment was the dining hall itself; we usually had our participants interact with a prototype on a table.

We had the participants undergo three tasks using our prototype:

1. Create an event to share food with others.
2. Find and attend a food event that interests you.
3. Set a time window to be notified of food events near you that match certain criteria (e.g., dietary restrictions), and then respond to an event that matches said criteria within the designated span of time.

The procedure for conducting the experiment was to do a quick demo of the prototype where we showed participants a few key screens and how to find out what free food is available and where it is. Then, we asked them to perform each task and provide live

commentary on their thoughts so we could better understand their perspectives. In particular, we looked for:

- Signs of confusion
- Speed of use
- Number of errors
- Number of questions asked
- Overall joy of use

## Results

One of our main design goals was to allow quick navigation; hungry students want to complete tasks in the least amount of time possible. Thankfully, we found that all our participants were able to finish each task in less than 45 seconds, with many trials being far shorter (no one took longer than 10 seconds to find out how to create an event). Similarly, participants only had to ask 2 or 3 questions each to figure out some errors.

However, some features, notably the options screen, ran into issues. Users' main bottleneck was this screen, whether it was trying to figure out that notifications were part of options, how to save their selection, and or trying to parse the general clutter.

There were also comments about the back button, the icon for the options button, questions about distance of events, and questions about how to know when a task had been completed. However, all users completed the giving food without needing any questions for guidance, and all tasks were completed with no errors and less than 5 questions or signs of confusion. The most non-technical user, predictably had more trouble than the technical user.

## Discussion

Our design was met with generally positive feedback and good results. That being said, there are some changes we can make. Users suggested some aesthetic changes which would better highlight the transitions in the app. For example, one user suggested that we change our "back" button to look more like an arrow instead of an angle bracket. Our non-technical user pointed out that our icon for options (resembling that of a drawer) is one that is intuitive for technical users but is unclear for non-technical users. Thus, we might replace that with something like a gear that is more universally attributed to "settings".

We were also told by our participants that it would be nice to separate the notifications options from the filtering options in our options menu because it is cluttered and confusing. Splitting the two features out into two different screens was feedback we got from multiple users. The result of our idea for this UI change is shown in Figure 6.

In addition, we received feedback that the information regarding food results on the main menu after clicking "Get Food" could be supplemented with knowledge of how they were found (for a technical user) or their distance from the user's location (for a non-technical user). This UI change is demonstrated from Figure 5a to 5b.

Lastly, we received some feedback directly related to the "Options" screen. In correlation with the earlier feedback regarding confirmation, our users noted that there was no indication that preferences had been saved for a particular criterion (e.g., dietary preferences). This problem can be remedied easily by adding a "Save" button or with some type of alert after modifying settings indicating that the action was successful. The result of this suggested UI change is demonstrated from Figure 5c to 5d.

Unfortunately, our test could not gather data on how users might respond if things went wrong without our assistance. Similarly, we were unable to know if the options would make sense when transcribed onto an electronic document, for example, whether people would be able to navigate a world that was less constrained than the one we presented (for example, we didn't present the case on what to do if there was no food available).
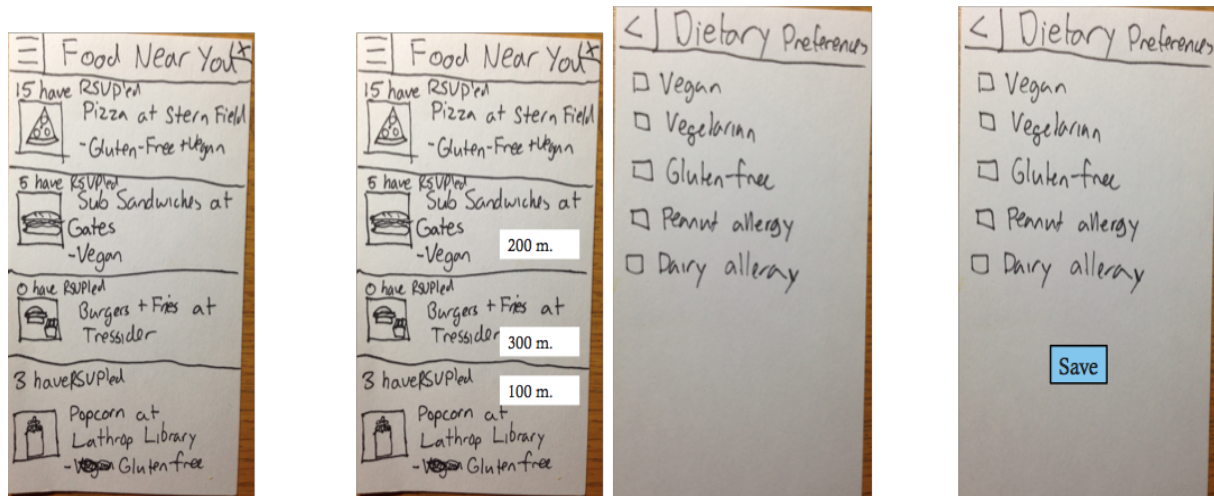


*Figure 5 a-d(left-right): Potentially new UI with distance-specific results and a save button for filtering options*
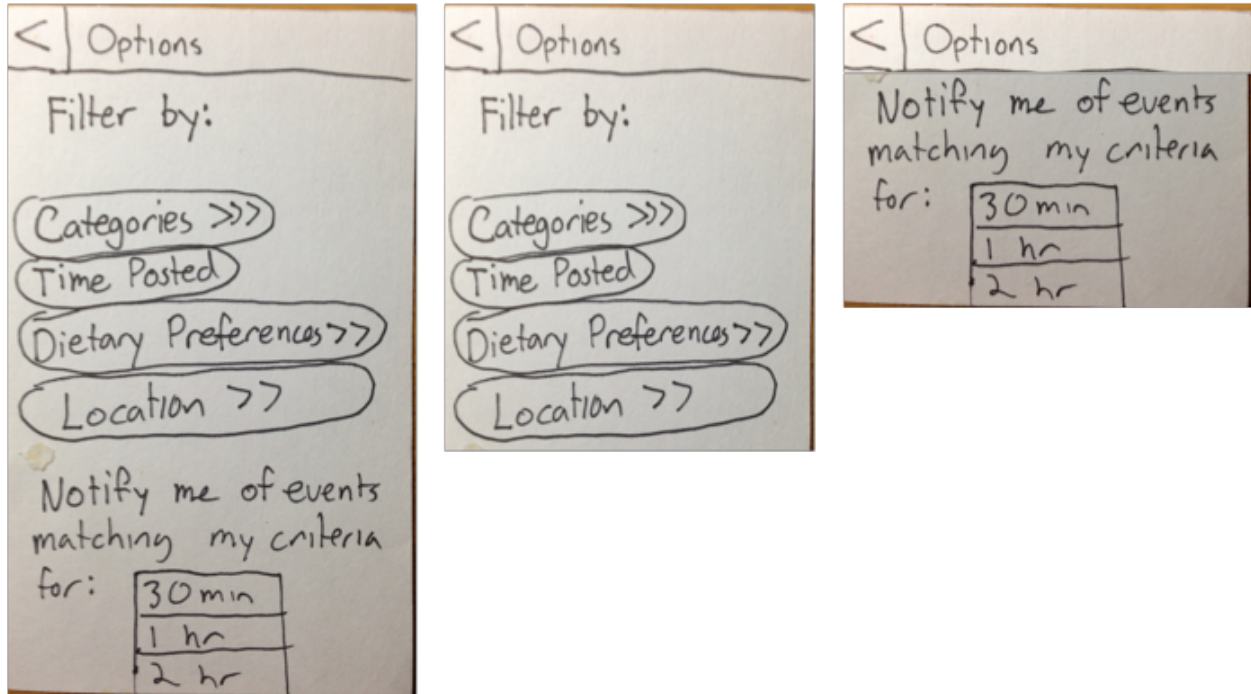
*Figure 6: The filtering and notification screens separated out in the suggested UI*

## Appendix:

**Script**

    I'm going to demonstrate the Flavr app for you before I give you the chance to play with it. I'm going to try to find out what free food is available and where it is.

    *Pick up the iPhone cutout.*

    So this happens to be a touch screen, and I see a button on the page that says Get food. That seems to be what I want to do, so I touch it.

    *Touch get food icon. Get food page appears.*

    Oh cool, I see another screen has loaded. I see what appears to be a list of food events. Lets say I feel in the mood for a hamburger, so I click on that.

    *Touch an item. See where it is on the map.*

    Hmm, ok. I'd like to see where it is. Alright, now I know where this event is. I was just checking it out, so now I'm going to exit back to the main screen.

    *Touch the x icon on the map. Map goes away.*

    *Touch x icon on the list window. It is removed, and the we return to the main screen.*

    Any questions?

# Consent Forms

## Consent Form

The    Flavr    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    Flavr   . 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 Andrew Luo, Ben Ullman, Onkur, sen, Alex Engel / 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 studentresearchers 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 Flavr 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    Isis Grant

Participant Number    2

Date    10 / 23 / 14

Signature    _Isis Grant_

Witness name    Andrew Luo

Witness signature    _Andrew Luo_

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Name _____ Jerry Teyno _____

Participant Number _____ 1 _____

Date _____ 10/23/14 _____

Signature_____

Witness name _____ Andrew Luo _____

Witness signature_____

**Data**

Sophomore, considering CS
Male - around 20,
Technical Level : (7-10)

Create food:
Comments: Location would be cool to use a map API, about it
No Back button for the create your own food
Very easy to do
Time taken: 10 seconds
Confusion: 1
Questions asked: 0

Get Food:
Seemed to know how the flow worked
went through flow and didn't see anything
Very straightforward
Options to refine a search assumed
Interested in what metric is used to display food closest to you
Time taken : 15 seconds
Confusion: 1
Questions asked: 0

Filtering:
Time taken: 10 seconds
Would move the notification into a different field from the filter modal

Notifications:
Went through the flow very smoothly
Reminder seemed a bit hidden
User doesn't necessarily know an iphone interface
Time taken: 30 seconds
Confusion: 1
Questions asked: 0

Freshman - around 18, female, undeclared
Technical Level: Medium (4-6)

Give Food:
Understood the flow really well
Looks good, and was intuitive
Time taken: 5 seconds
Questions asked: 0
Confusions: 0

Find Food (Look for Vegan):
Do I have to filter by all of thing?
Do I have to fill out a time?
Confusing as for what needs to be filled out
Once I do one, will it be saved when I go out of that screen?
Will these settings have to be saved?
Choose a vegan issue
Other than that pretty straight forward
Time taken: 45 seconds
Questions asked: 4
Confusions: 2

Notify yourself for free food:
Get Food
Go back to the options
Click the notify for however many hours
Separate the notify and the filter screens, so that if wants one but not the other, can do that.
Sounds like a good idea
Time taken: 15 seconds
Questions asked: 0
Confusions: 1

## User 3: Wille S. Hercule

Member of Stanford Talisman,
Technical Level: Low (1-3)

Give Food:
Seems pretty straightforward
Time taken: 10 seconds
Questions asked: 0
Confusions: 0

Get Food:
Is I'm Going a button? Could you make that clear?
Stern was having pizza, and where am I supposed to go?

Seems ok
Took a lot of time reading all of the options
Time taken: 30 seconds
Questions asked: 3
Confusions: 2

Get Food (Vegan) and Notifications:
Confused as to where to click to go look for vegan options
Is the --- a tab thing?
Click Dietary preferances
Click the Vegan checkbox
Hesitated after
Clicked the back tab - asked if it was back
Clicked the 2 hours notification
Is it automatically saved?? Wanted to know - confused
Confusing to know if my preferences would be updated (needs save button)
An arrow ← instead of <
For the people who are new on campus, would be nice to know how far each thing is
Time taken: 40 seconds
Questions asked: 4
Confusions: 3

Straightforward overall