

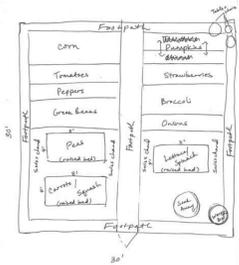


UC Berkeley
CS 160, Spring 2011
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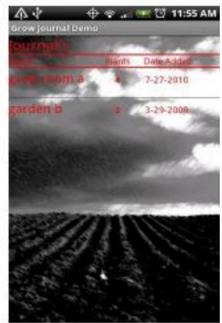
GardenGnome

Garden design for the digital age...

Problem: Garden planning is tedious



Gardens are still planned on paper today!



Existing apps are of poor quality.

- Gardening is "static," usually planned using pen and paper.
 - Designs on paper and scattered photos can be easily lost.
 - Carrying bulky guidebooks and journals not practical outdoors where the dirt can render the paper unreadable.
 - No direct manipulation of paper sketches, or editing tools.
- Untapped demographic: few software applications cater to gardeners or garden design.
- The mobile apps that do exist are limited in their functionality and have confusing interfaces.

Target Users: Gardeners familiar with touch screens



We conducted a low fidelity test at a garden.



We conducted a usability study at a coffee shop.

- Professional gardeners who need to plan out their gardens.
- Amateur gardeners who need a reference manual to look up plants.
- We went to actual community gardens to observe and interview our target users multiple times.
- User needs from interviews:
 - Method to design plots.
 - Record daily activity (germination times, rainfall).
 - Look up plant information (growing conditions).
 - Collaborating and sharing garden plans with others.

Solution: Mobile Application



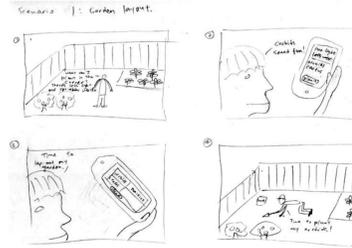
The app will be developed for the Android SDK platform.

- A mobile app that gardeners can use outdoors to assist with their gardening and planning.
- An all-in-one app consisting of a garden layout tool, a planting journal and a plant encyclopedia.

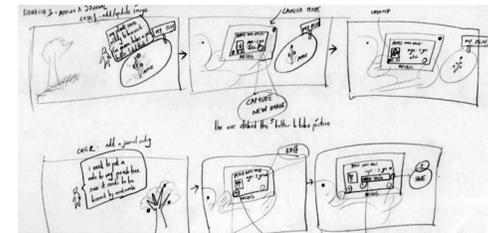
Design Evolution: Changes at each iterative cycle

1) Contextual Inquiry:

We learned the basic tasks of gardeners from observing them at a community garden. We then sketched hand-drawn storyboards of our high level user needs.



Gardeners need to design and map out plots in a garden.



Gardeners need to write journal entries about the status of their plants.

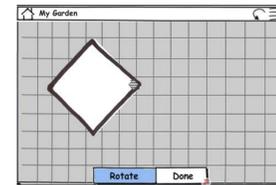


Gardeners need to look up plant information in the encyclopedia on the spot.

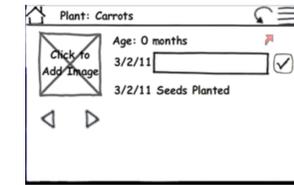
↓ (3 weeks)

2) Low-Fidelity Test:

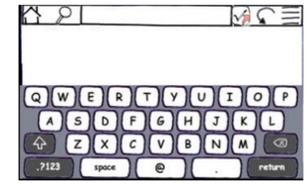
We designed our first fully interactive myBalsalmiq prototype. From user testing, we realized that gardeners needed hints since they are not familiar with conventions on how to rotate and resize shapes.



The Garden Screen allows gardeners to rotate and drag their new plots.



The Plant Screen allows gardeners to write journal entries and date them.

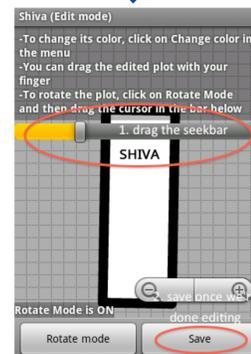


The Encyclopedia Screen allows gardeners to run plant queries. We chose an uncluttered interface.

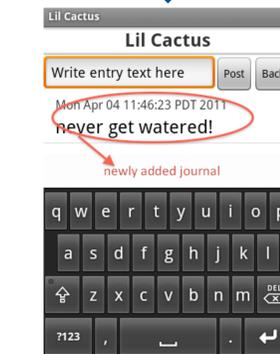
↓ (5 weeks)

3) Pilot Usability Study:

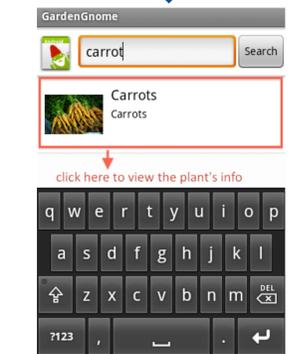
We developed an interactive prototype for the actual Android device, accounting for technical limitations. We found out that people were overwhelmed by the long hints and tended to ignore them. Gardeners also had trouble with using the soft keyboard to input text, saying that it was too small. Users also wanted a way to share their plots to the public.



We combined rotation and dragging in one screen, included zoom-in feature and added hints after user feedback.



The date and time will be automatically recorded with the entries..

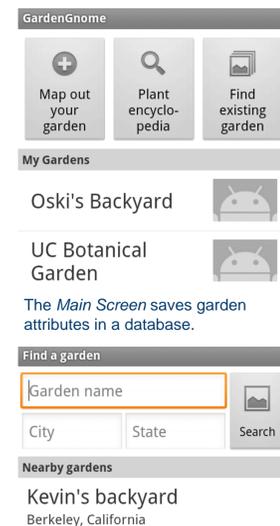


After the user enters text, the app will return suggested plant entries from the encyclopedia.

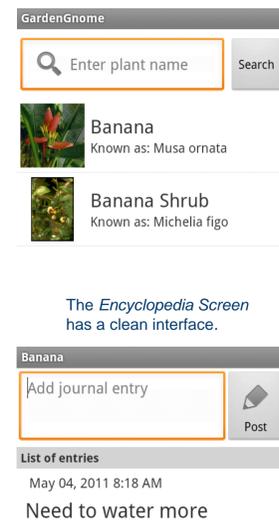
↓ (2 weeks)

4) Final Prototype (next section)!

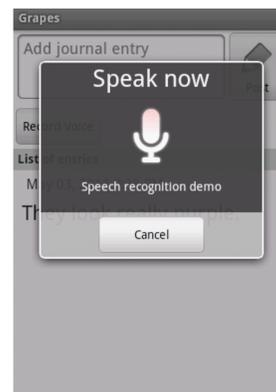
Final Prototype: Direct manipulation, custom shapes, voice input, share online



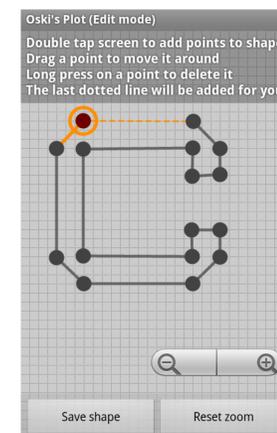
The Main Screen saves garden attributes in a database.



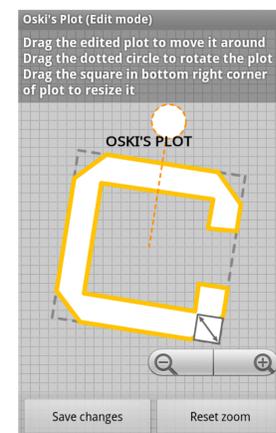
The Encyclopedia Screen has a clean interface.



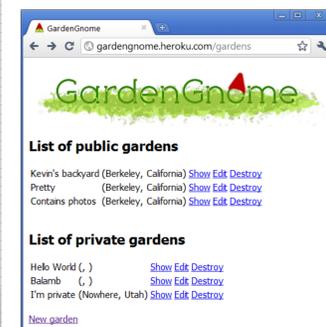
Voice recognition helps gardeners that have trouble with the soft keyboard, have their hands full with tools or are wearing gloves.



The Garden Screen now allows arbitrary shaped plots. Visual feedback is given to the user with a red highlighted point. Hints were shortened.



Plots can be dragged, rotated, resized and recolored. The current action (rotation) is highlighted orange. Direct manipulation of plots is used, which is intuitive.



Web server allows gardens to be shared to the public! There are options for public and private gardens. Photos can be viewed for each garden.