Another Man’s Treasure
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Introduction: Incorporation of Participatory Sensing

Participatory Sensing
• Data Gathering
  A practice of citizen science - the average citizen does the data collecting, rather than the scientists themselves.
• User Input
  Using an application on a phone is a practical form of data collection. The users are collecting data from their unique world, which is much more efficient than sending one technician to gather data from a range of locations.
• Phone Sensors (e.g. GPS, camera)
  One of the most used pieces of technology in our society – the smartphone – is equipped with sensors that can be utilized to collect data.

Practical Applications
• Location Tagging
  By simply taking a picture or completing a survey, a smartphone can tag your location and time. Prior to participatory sensing, the best mechanisms of data collection were pen and paper as well as complex instruments to measure latitude and longitude.

Simplifying Data Collection
• Ohmage
  Ohmage is a smartphone application that displays the surveys created.
• Mobilize
  Mobilize is a website that holds and collects data.

Problem Description: Preventing reusable items from being tossed into landfills

The Basic Idea
• Unwanted Items
  Leaving unwanted items (e.g. furniture, appliances) outside your own home is a practice that has become relatively common in American culture. If left on the curb too long, these items are often hauled away by a garbage truck and tossed into a landfill.
• Community-Wide Benefits
  Unwanted items are a great source of furnishings for those decorating on a budget. Instead of endlessly searching for these items, the process would be simplified if a description of the item and its quality would be tagged along with the item’s location.

Proposed Solution: An application that allows users to reuse unwanted items

User Experience
Add an Item/ Yard Sale
Users add items to our network by completing a survey that asks for the item's classification, condition, and an optional short description.
To add a yard sale, the user is asked to input the times of the sale and its predicted overall quality.

Find an Item/ Yard Sale
To find an item or yard sale that has been listed on our network, users can browse Google Maps to find pin-pointed items or sales.

Game-like Functionality
Points
By adding an item or yard sale, the user gains points which they can use to unlock items (e.g. background color, claiming an item).
Level-Up
The more surveys the user has completed, the higher his or her rank.
From Trash Collector to Metal Detector to Treasure Hunter all the way to Pirate, there is much motivation to maintain the continuous cycle of our application.

Phone Return
Location-Triggered Survey
When in the proximity of a specified item, a survey is available for the user to take in order to confirm whether they have taken the item or why they did not take it. Collecting confirmed accounts of taken or missing items will allow us to clean up our network and maintain its accuracy.

Step-by-Step Coding
1) XML Surveys
Language: XML
We programmed four surveys to perform the following functions: add an item, add a yard sale, select initial preferences, and alert the user of a nearby item. These surveys are all tied to Ohmage and Mobilize so we can test the surveys on our Android phones and collect data in an organized manner.

2) Android Application
Languages: Java, XML
Next, we created the skeleton of the Android application. At this step, we determined its layout and created icons.

3) Website Database
Languages: HTML, CSS, Python
Finally, we established our website, which stores all data collected on the surveys.