Project Harmony Concept Video Report

Team

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Problem and Solution Overview

Every time we have a social interaction, we observe a prime rule of social etiquette: be considerate of others. Unfortunately, when someone is inconsiderate or ignorant of another's emotions, people can become uncomfortable, upset, or hurt. We envision an application that can help customers be more aware of the emotions of other people. We intend that our application be deployed on a wearable computing device similar to Google Glass. With such a device, our application can observe and analyze the emotions of people nearby and discretely display the results (ie. whether the person is 'friendly', 'distracted', 'annoyed', etc). Armed with this information, the customer can be more considerate when socializing with the people around them.
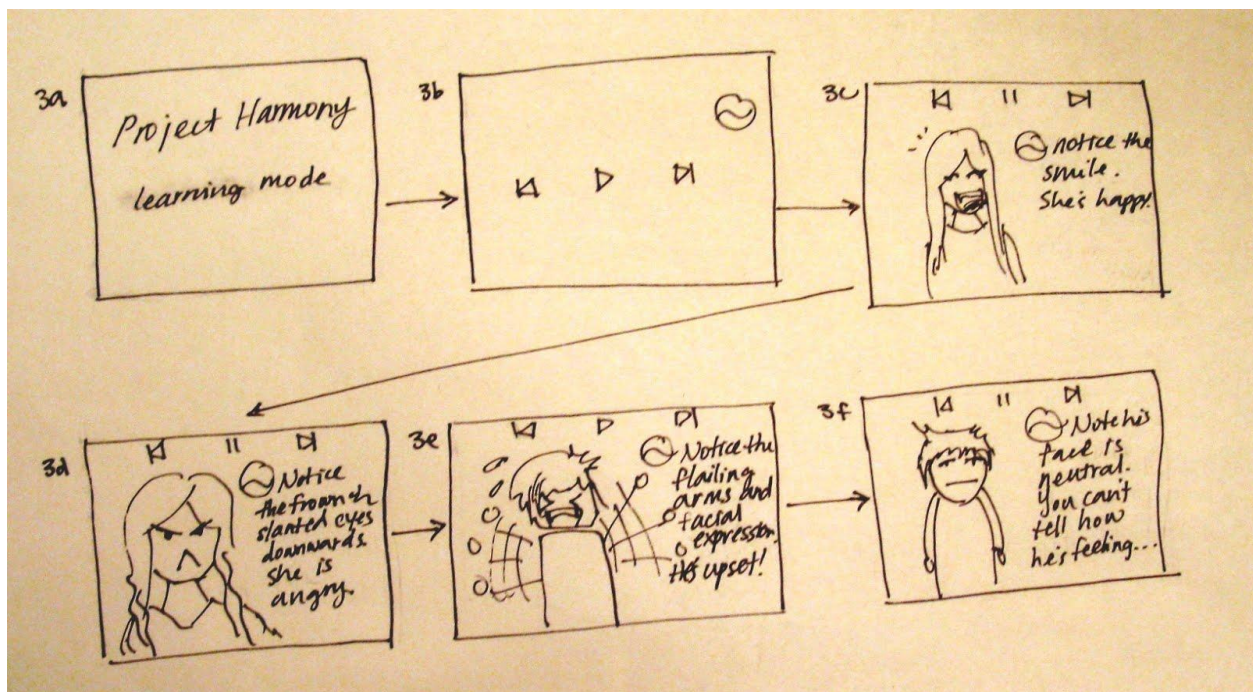
Storyboards

Storyboard 1: Phone Interface (*Figure 1*)
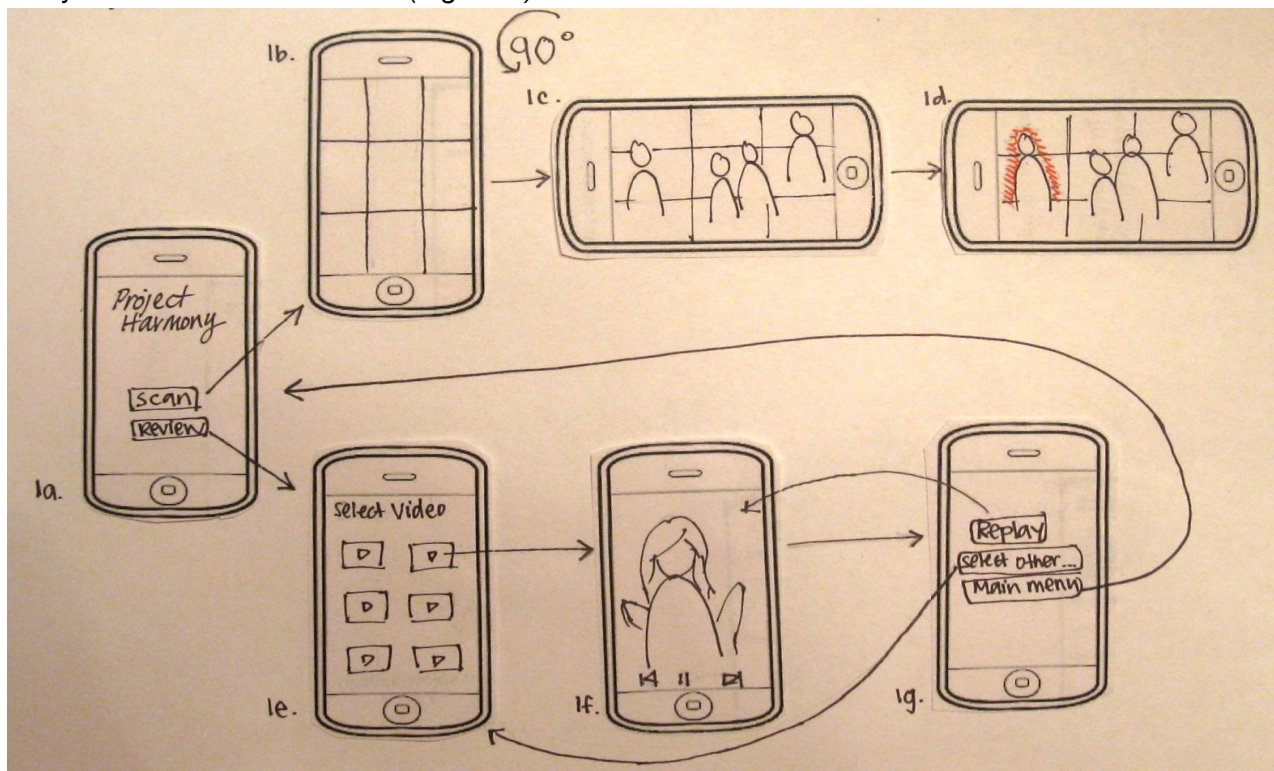
Storyboard 2: Real Time Focused Interface (*Figure 2*)
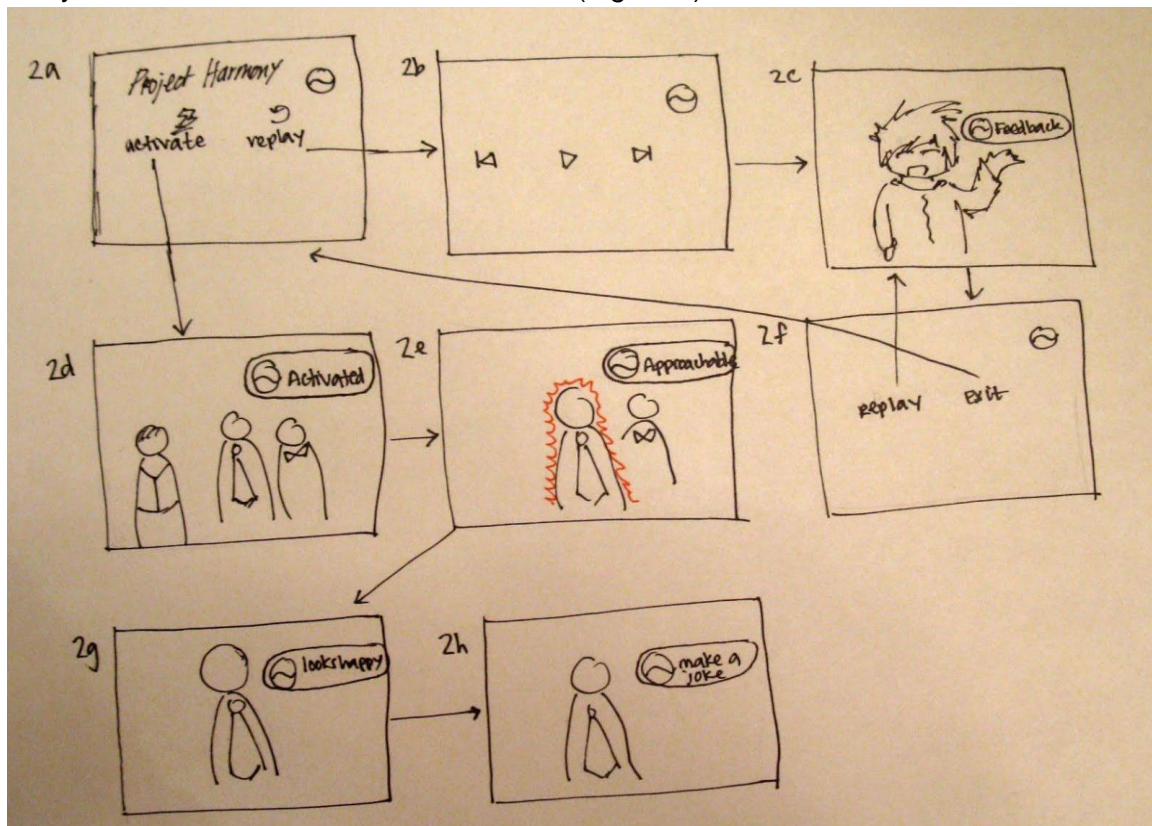
Storyboard 3: Informational Interface (*Figure 3*)

<u>**Selected Interface Design**</u>
Design and Reasoning for Choice
Subjects from our Contextual Inquiry research repeatedly voiced concern over others' perceptions of them. They wanted to avoid appearing creepy or like they were invading people's privacy. With this in mind, we choose to use the Real Time Focused Interface (figure 2). This interface design is best suited for discreet use in real-time social situations, but still offers our core functionality of reviewing social performance.

Our other two interface designs include more interaction by the customer with the UI. The first of these alternate interfaces was designed for a smartphone. After considering our Contextual Interview research and our optimal tasks from our Task Analysis, it was clear that our interface needed to be applicable in real-time situations. Our interview subjects consistently cited situations where real-time advice was critical. A phone interface would support performance recording and playback, but would not be ideal or discreet when a customer is engaged in a social situation.

Our second alternate design was for a wearable computing device. Its purpose emphasizes information available to the customer about their social interactions. However, our Contextual Inquiries revealed that receiving too much social information from the software would feel weird and unnatural.

The design we ended up choosing has a non-intrusive and simplistic user interface, ideal for wearable computing platforms. We also designed this interface to be discreet in real-time social situations. Customers would have access to extended social information about other people, and they would potentially be making recordings of social interactions. Since we want the customer to be focusing primarily on their social interactions, the interface is highly automated, demanding very little attention.

Functionality Summary
The interface allows for three types of interaction. The initial type of interaction is performance review. This part of our interface allows the user to look through previously recorded interactions and play through these clips. The interface will give feedback on what the user's actions, giving the customer a chance to become aware of how they act around other people. This interface also detects people who are friendly; this allows the individual using the device a better opportunity to have a better social interaction. This part of the user interface is very unobtrusive to the user's view, adding a slight glow around the given individuals. The third component of our interface is real-time feedback, which aims to help improve the user's social performance in real time. This is similar to the playback feature, but the advice and information is given to the user as the event is taking place.

User Interface Description
Main Menu
When a customer launches Project Harmony, they see two types of actions they can take (figure 2a): activating the real time focused interface or replaying a scene from the past. From

this view, the customer can choose either action, depending on if they want Project Harmony activated and running as the customer interacts with others or if the customer wants to review his performance. The customer can always trigger the logo to exit out of the application.

Playback Menus
When the user clicks "replay" from the main menu, they are brought to the playback menu. This menu (figure 2b) is a clean view that prompts the customer to choose one of several options; play the current video, navigate to a different video, or "go back." By playing a video, the customer is taken to the playback screen (figure 2c). Otherwise, they can choose to go back to the main menu or navigate through other videos, which do not change the current view.

Playback Screen
The playback screen (figure 2c) displays a video of a customer's previous interaction that was recorded. Project Harmony gives commentary as the video plays, helping the customer determine actions that garnered a positive or negative feedback from the person the customer was interacting with. In our Contextual Inquiries, we found that many of our customers highly valued this task; they were willing to put the time into improving their social skills. This was one of the tasks for which we wanted to keep the UI clean and simple. By looking at the Informational Interface (figure 3), it is easy to see how large amounts of text (figures 3c, 3d, 3e, 3f) can become overwhelming.

Scanning for Approachableness
When the user clicks "activate" from the main menu, Project Harmony automatically starts to work for the customer. The first thing it does is scans for approachable people in view of the customer (figure 2d). When someone looks friendly or welcoming, a faint glow appears around him and a notification shows up on the view (fig 2e). This is similar to the UI we created for a phone application (figure 1), but by deploying Project Harmony on a wearable device, the customer doesn't need to use their smartphone's camera (figure 1b, 1c) to find amiable people (figure 1d).

From our Contextual Inquiries, we found that our customers wanted a subtle indicator for friendly people; they may not want to *always* know who in a crowd is the friendliest, but it was good knowledge to know at the back of their mind.

Real-time Feedback
After Project Harmony scans for approachable people (figure 2d, 2e), it automatically shifts to the real-time feedback mode (figures 2g, 2h). As we stated earlier, our customers that we conducted Contextual Inquiries with wanted an interface that was sleek and clean. Since real-time feedback is an important task, we decided to keep it uncluttered; notifications would appear in the top right portion of the screen when there is something notable to know about the current interaction.

<u>**Refined Storyboards**</u>
Scenario One: Find the most approachable person from a group of people
Christina is a freshman international student at the University of Washington (UW). As one of only a few people from her city to go to UW, she realizes that she doesn't know anyone at her orientation. However, she wants to meet her peers and hopefully make new friends. As she looks around the room where students are milling around after checking in, she decides she wants to strike a conversation with another student.

Christina launches the Project Harmony application on her Google Glass. From the Project Harmony main menu, Christina selects "Scan Surroundings." Here, Christina's Google Glass camera is activated and after she looks around the room, Project Harmony highlights the students who seem most attentive, are smiling, and seem confident in a bluish aura. Christina chooses to approach the student with the friendliest "aura," Atanas.

After conversing with Atanas, Christina gives feedback to Project Harmony; she uses facial gestures to tell Project Harmony if the predictions for approachableness were correct for more personalized suggestions in the future.

Scenario Two: Learn from past mistakes
Christina is looking back at her unpleasant day meeting new people. She puts on her Google Glass, activates Project Harmony. She then navigates to the playback feature. She selects the videos from the interactions from the day before and using a head gesture, activates the playback feature.

Christina watches select interactions with Atanas, another student, from the previous day through her Glass display. For each part of her interaction with Atanas, she receives feedback in form of a text bubble; this includes suggestions and feedback, such as "you lost eye contact." When she is done with the playback, she shelves the video to watch later if she wishes to do so.

By watching the playback with feedback, Christina is now aware of some of her actions that may be off putting or seem convey that she isn't interested in talking to Atanas, which was not the case at all. She aims to be more conscious of her actions when conversing with others in the future.

Scenario Three: Teach someone how to react in social situations in real time
Christina nervously enters the social scene again; she wants to meet someone new without being cast aside for being rude or immature. She activates Project Harmony on her Google Glass and navigates for "real time help."

After running into Atanas again, Christina sits down and chats with him. As they talk, Christina starts getting real time feedback on her Google Glass display. As she cracks a joke, Atanas starts laughing; the real time feedback tells Christina that Atanas is enjoying her company. This positively reinforces her actions, which makes their conversation all the happier.

Concept Video Description
How did you make it?
We first created storyboards of the different scenarios that highlighted each of the primary tasks of Project Harmony. We then prepared for the filming session by figuring out where we would be filming and gathering props and actors. We filmed in various rooms of the CSE building as well as one of the dorms.

We didn't have a formal script, but we prepped each actor with the actions we were trying to convey as well as them practicing taking cues from us before each shooting take. We ended up filming twice because our first set of footage did not form a very understandable video. After brainstorming ways to best convey our thoughts, we picked a different storyboard and produced our video from it instead.

New Techniques
We built and used a camera stabilizer rig for the second round of shooting, which dramatically increased the quality of our footage by both removing shaking and enabling us to film from more angles.

PVC Camera Stabilizer Rig [frugalfilmmaker]

We also used Adobe After Effects in our post processing video. We initially stitched the clips together and then composite video and images to show a mockup of our user interface in action.

What was difficult?
The most difficult part of making the video was all of the design and planning. Since our application is an augmented reality product, we were split between showing first or third person.

Most of the team stood their ground on their individual ideas when we were trying to determine what to show in our video. With all of our different ideas, we had to compromise on many decisions on scenes or UI. We also had some setbacks regarding time; it took us longer than it should have to admit that we needed to refilm our first set of footage. This left us with less time than we would have liked to film and produce the final video prototype.

Another difficult part of making the video prototype was making decisions while filming. For most of our scenes, we had over 5 or 6 takes; we had a total of over 110 clips. Since none of us had any filming experience, we conducted research specifically on filming, including watching many behind the scenes videos from YouTube filmmakers for inspiration.

What worked well?
Our team prepared for filming very well. We had a list of scenes that we wanted to shoot, as well as all of our actors and props ready to go. Once we brought all of our actors on location, it was easy to direct and tell them exactly what to do. This greatly reduced our filming time because we were very efficient in shooting scenes and determining how to maximize the use of our actors' limited time.

How long did it take?
The entire process took about 16 hours, with a breakdown of: design/storyboarding (3 hours), make camera stabilizer rig (1 hour), scouting locations and gathering props (1 hour), shooting (4 hours), and editing (7 hours).