

Team Saon Requirements and Execution Plan

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1. Introduction

Hermes Commerce Inc. is a mobile payment system that facilitates peer-to-peer payments and consumer-merchant transactions. Our task is to develop a graphical user interface for the Hermes Commerce iPhone application, and evolve it into a seamless user experience through extensive user testing.

2. Problem Statement

Put simply, our current card-based transaction system is broken. Rather than implement strong security, Visa and other card issuers simply distribute the cost of fraud across the system by charging merchants per-transaction percentage fees. The result of this is that merchants have to raise prices to continue to make ends meet and consumers not only have to pay these higher prices, but often times find themselves in having to navigate a Kafkaesque bureaucratic maze when they find a fraudulent entry on a bank statement or credit report.

Hermes Commerce (HCI) aims to provide a simple, secure transaction system to drastically reduce fraud and eliminate point of sale charges; in short, to make getting money quick, easy and reliable.

Momentum - or lack thereof - is the enemy of anyone looking to change how business is done, and it's certainly a concern for HCI. In order to convince merchants to switch their current point of sale systems to HCI, consumers must be willing to use the system. To overcome this lack of consumer momentum, the new system must be easier to use than the current one. Thus, an intuitive graphical interface is vital to convincing consumer to use the HCI payment system, which will drive merchants to adopt the system as well.

2.1 Challenges

- Translating product functionality into an a simple and intuitive workflow for the user.
- Designing a user interface that enhances user experience and encourages future patronage.
- Implementing a user interface that performs all of the desired functions required by the specifications.
- Testing and improving the user interface to make the product easier to use.

3. Solution

Based off the discussion with Joshua Cross of HCI, and the user stories he sent us, we developed a workflow for the consumer iPhone application and produced wireframes (see Appendix) of the iPhone application that meet his requirements.

4. Functional Specifications

i. Login

1. Users with an HCI account (hereafter referred to as "users" or "the user" if singular) should be able to log in with their HCI username and password.
2. If the user has elected to enable sign-in by PIN, they can also log-in with their PIN number.
3. After logging in, users are redirected to the main view for the application.

ii. Application main view

1. The main application view will display the HCI logo.
2. From the main view, the user can tap on areas to get to views allowing them to send money, request money, view completed and pending transactions, access their settings, view local coupons, or logout.

iii. Sending money

1. Clicking on "send money" from the application main view will redirect them to the "send money view".
2. The send money view will have a search box, a list of contacts and four tabs at the bottom to allow them to sort their contacts: favorites, recent, nearby, and all contacts. The default view will be "all contacts" (?)
3. By typing into the search box, the list of contacts below the search box will be filtered such that only contacts matching the text typed into the search box will be visible.
4. "All Contacts" Tab
 - a. When this tab is selected, the list of contacts will contain all of the user's phone contacts plus any HCI contacts they have.
5. "Favorites" tab
 - a. When this tab is selected, the list of contacts will contain only the contacts the users has defined as a favorite by clicking the star next to their name in their contact entry.
 - b. If the user has no favorites, this view will display information about how to add a favorite.
6. "Nearby" tab
 - a. When this tab is selected, the list of contacts will contain users/merchants using the HCI app that are within 1 mile of the user.
7. "Recent" tab
 - a. When this tab is selected, the list of contacts will contain up to 20 most recent users and merchants using the HCI app that the user has sent money to

8. Contacts

- a. Each contact in the list will display a star - which will be transparent if the contact is not a favorite and yellow if the contact is a favorite (?) - and the contact's name.
 - i. Clicking on the star will toggle the star between yellow and transparent. If the star is yellow, the user will also show up in the "favorites" tab.
 - ii. Clicking on a contact
 1. If the contact has more than one email address and/or phone number associated with it clicking on the contact will bring up a modal dialog asking the user to select which email address or phone number to send money to. When the user has selected which email address or phone number, they will be redirected to the "Amount to send" view.
 2. If the contact only has one email address and/or phone number associated with it, they will be redirected to the "Amount to send" view.

1. "Amount to send" view

- a. This view will display the name and chosen email/phone number of the contact the user is sending money to, a number-entry text box where the user can specify how much money to send, a description text field, a drop-down list allowing them to select which account to fund with, a back button, and a "send" button.
 - i. The dropdown list will contain their HCI account and any other accounts they have associated with their HCI account.
 - ii. If the user hits the back button, they are taken back to the view they were just in.
 - iii. When the user has entered a dollar amount, chosen an account and hit "send" they are redirected to the "confirm" view.

2. "Confirm" view

- a. This view will display the name and chosen email/phone number of the contact the user is sending money to, the amount they have chosen to send to the contact, the description if there is one, the account they have chosen to fund with, a back button, and a send button.
 - i. If the user hits the back button, they are taken back to the "amount to send" view, populated with the values from this view.

- ii. If the user hits the send button, they are redirected to their transaction log view, where they can see the transaction they just approved at the top of the list.

i. **Requesting money**

1. Clicking on "request money" from the application main view will redirect them to the "request money view".
2. The request money view will have a search box, a list of contacts and four tabs at the bottom to allow them to sort their contacts: favorites, recent, nearby, and all contacts. The default view will be "all contacts" (?)
3. By typing into the search box, the list of contacts below the search box will be filtered such that only contacts matching the text typed into the search box will be visible.
4. "All Contacts" Tab
 - a. When this tab is selected, the list of contacts will contain all of the user's phone contacts plus any HCI contacts they have.
5. "Favorites" tab
 - a. When this tab is selected, the list of contacts will contain only the contacts the user has defined as a favorite by clicking the star next to their name in their contact entry.
 - b. If the user has no favorites, this view will display information about how to add a favorite.
6. "Nearby" tab
 - a. When this tab is selected, the list of contacts will contain users/merchants using the HCI app that are within 1 mile (or the user-specified "nearby" radius in settings) of the user.
7. "Recent" tab
 - a. When this tab is selected, the list of contacts will contain up to 20 most recent users and merchants using the HCI app that the user has sent money to
8. Contacts
 - a. Each contact in the list will display a star - which will be transparent if the contact is not a favorite and yellow if the contact is a favorite (?) - and the contact's name.
 - i. Clicking on the star will toggle the star

between yellow and transparent. If the star is yellow, the user will also show up in the "favorites" tab.

- ii. Clicking on a contact
 - 1. If the contact has more than one email address and/or phone number associated with it clicking on the contact will bring up a modal dialog asking the user to select which email address or phone number to request money from. When the user has selected which email address or phone number, they will be redirected to the "Amount to request" view.
 - 2. If the contact only has one email address and/or phone number associated with it, they will be redirected to the "Amount to request" view.

- 1. "Amount to request" view
 - a. This view will display the name and chosen email/phone number of the contact the user is requesting money from, a number-entry text box where the user can specify how much money to request, a "description" text field, a back button, and a "request" button.
 - i. The dropdown list will contain their HCI account and any other accounts they have associated with their HCI account.
 - ii. If the user hits the back button, they are taken back to the view they were just in.
 - iii. When the user has entered a dollar amount, chosen an account and hit "request" they are redirected to the "confirm" view.
- 2. "Confirm" view
 - a. This view will display the name and chosen email/phone number of the contact the user is requesting money from, the amount they have chosen to request from the contact, the description if there is

one, the account they have chosen to fund with, a back button, and a request button.

- i. If the user hits the back button, they are taken back to the "amount to request" view, populated with the values from this view.
- ii. If the user hits the request button, they are redirected to their transaction log view, where they can see the transaction they just requested at the top of the list.

ii. **Transaction log**

1. Selecting "transaction log" from the main application view will redirect the user to the "transaction log" view.
2. The "transaction log" view will display a list, starting from most recent, of transactions the user has requested or approved.
3. The view will also have a back button; clicking on that button will redirect the user back to the main application view.
4. Transactions
 - a. Each transaction will display the date requested/ approved, name of contact, and the amount of the transaction. If the transaction has not yet been approved, it will be shown in red.
 - b. Clicking on a transaction will take the user to that transaction's detail view.
5. Transaction detail view
 - a. This view will display the name of the transaction's contact, the amount of the transaction, the date, and any note associated with that transaction. The view will have a back button that will redirect the user back to the transaction log view.
 - b. If the transaction is a request from another user, there will also be a "confirm" button. Clicking that button will redirect the user to the send money "confirm" view, where they can confirm this transaction.

iii. **Settings**

1. Selecting "settings" from the main application view will

redirect the user to the "settings" view.

2. This view will have a back button; clicking the back button will redirect the user to the main application view.
3. Users will be able to manage their username, password, phone number and email address.
4. Users will be able to add or remove associated bank accounts from the HCI account.
5. Users will be able to manage their Ad/Coupon settings:
 - a. Location of user by City and State
 - b. Opt-in/out of local advertisements and coupons
6. Users will be able to manage their privacy settings to show or hide their username, location, phone number, email, etc.

iv. Local coupons

1. Selecting "coupons" from the main application view will redirect the user to the "local coupons" view.
2. This view will display a list of coupons for stores near the user; clicking on the coupon will redirect the user the "coupon detail view" for that coupon.
3. This view will have a back button; clicking the back button will redirect the user to the main application view.
4. "Coupon detail" view
 - a. This view will contain the coupon title and name of the business the coupon is for — in the format "Save \$5 on a quart of gelato at Pasto", "50% off a manicure at Red 115" — a map showing where the business is in relation to the user and a "use this coupon" button.
 - b. Clicking the "use this coupon" will redirect the user to the send money "confirm" view, with the relevant information filled in and the name of the coupon in the description field.
 - c. This view will have a back button; clicking the back button will redirect the user to the "local coupons" view.

v. Logout

1. When the user clicks the "logout" button, they are logged out of HCI and redirected to the login view.

4.1.1 Scenarios

Consumer to Merchant Transaction

Joe checks his pending transactions and notices a pending transaction from Wal-Store for \$15.00 which he wants to pay off.

Actors

- Joe is a Consumer who wants to pay a pending transaction from Wal-Store
- Wal-Store is the Merchant who awaits payment from Joe
- HCI is the mobile commerce app that the user, Joe, is working with.

User Steps and System Response

1. Starting from the home menu, Joe clicks the “Pending Transactions” button. The system will redirect Joe to a view listing all of his pending transaction by order of descending date.
2. Joe clicks on the one pending transaction from Wal-Store for \$15.00. HCI will show Joe a “Pay in Full” button.
3. Joe can either
 - a. Click the “Pay in Full” button. The system will confirm his payment before completing the transaction and show a modal dialog of registered accounts Joe can use to pay with.
 - b. After Joe selects one of his accounts he can either:
 - i. Confirm the transaction by clicking the “OK” button. The system will then transfer the full amount of \$15.00 from his registered HCI account to Wal-Store and add this transaction log to his transaction history.
 - ii. Cancel the transaction by clicking the “Cancel” button. If selected the system will return Joe to the pending transactions page.
 - c. Not pay by sliding the window to the right. The system will return Joe to the pending transactions page.

Peer to Peer Transactions

Joe wants to create a new P2P transaction because Jill owes him \$15.00.

Actors

- Joe plays as a pseudo-Merchant by issuing the transaction
- Jill plays as the peer who receives the transaction
- HCI is the mobile commerce app that the merchant, Joe, is working with.

User Steps and System Response

1. Starting from the home menu, Joe clicks the “Make P2P Transaction” button. The system will redirect Joe to a view listing all of his registered contacts with HCI accounts.
2. From this menu, a text field is display on the page where Joe can enter a word to use in specifying the recipient. Joe can search for a specific contact by: username, phone number, or email address.
3. Joe can either
 - a. Select the recipient by clicking their name and a new window opens up where Joe can specify the transaction parameters
 - i. a) Charge Amount
 - ii. b) Which e-mail to send transaction to
 - iii. c) (Optional) Transaction Description
 - iv. d) Or can click the “back” button to return to the contact list
 - b. Press the “back” button to return to the home menu’
4. After the details are made, Joe is presented with a confirmation window detailing the transaction. Joe can either
 - a. Click the “OK” button. The system will authorize the transaction, send the bill to the recipient, and return Joe to the home menu.
 - b. Click the “Cancel” button. The system will return Joe to the previous screen where he can re-adjust specifications.

4.1.3 Non-Functional Requirements

1. Implementation: The iPhone and Android apps must be native apps. As such, the iPhone app must be implemented in XCode 4, using the iOS5 SDK.
2. Performance - Must perform fast enough so there is no visible ‘lag’ of graphical elements.
3. Space - Must meet Apple’s App Store guidelines.
4. Reliability - Must not have any memory leaks as determined by appropriate tools in XCode (iPhone) and Eclipse (Android)
5. Maintenance - Code must be clean, commented, and modular so the project can be adopted by other developers in the future.
6. Usability - The average credit card transaction takes 20-30 seconds to complete; our apps should be able to process an transaction over 3G in less than 30 seconds.
7. Interoperability - The application must operate with the existing HCI SOAP transaction API.

Project Execution Plan

Timeline of Major Events

- 2/9/12 – Requirements Presentation
- 3/10/12 – Complete Registration for UGRADS conference
- 4/5/12 – Design/Implementation Presentation
- 4/27/12 – Capstone Conference Final Project Presentation
- 5/7/12 – Complete Final Report

Major Capstone Course Milestones:

- 2/7/12 – Complete Requirements Document
- 2/8/12 – Finalize preparations for first capstone presentation
- 2/23/12 – Complete Design Document
- 4/4/12 – Finalize preparations for second capstone presentation
- 4/14/12 – Finish capstone poster
- 5/4/12 – Final website updating of all documentation

Major Project Milestones

1. First UI design for iPhone
 - a. Code must be fully implemented and debugged
2. Complete implementation of second UI design for iPhone
 - a. Code must be fully implemented and debugged
3. Complete implementation of third UI design for iPhone
 - a. Code must be fully implemented and debugged
4. Convert first UI design to Android
 - a. Android code must incorporate most or all design elements from iPhone counterpart
5. Convert second UI design to Android
 - a. Android code must incorporate most or all design elements from iPhone counterpart
6. Convert third UI design to Android
 - a. Android code must incorporate most or all design elements from iPhone counterpart
7. Complete survey conduction for all UIs on iPhone
 - a. Analysis of survey must be made and applied to design to the iPhone
8. Complete survey conduction for all UIs on Android
 - a. Analysis of survey must be made and applied to design to the iPhone

The due dates for the project milestones are flexible and will be used as an evaluation of progress to measure how much work is being completed. All aspects must be completed before the Capstone Conference (4/27)

7. Appendices

1. Development Tool Kit used for iPhone Programming: Xcode with Objective-C
2. Development Tool Kit used for Android Programming: Eclipse with Java