

Card3000

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Problem and Solution

Our modern world is plagued by an antiquated payment medium, the common credit card. An object that we are raised to use and depend on causes mass frustration in times of theft and malicious misuse. With the rise of mobile and ubiquitous computing, entrepreneurs around the world are looking to change the way we make in store payment. Many of the implementations introduce a new interaction mechanisms. Some make the process of paying in stores incredibly simple. However, there is a set of challenges that restrains the expansion of these new platforms. First, consumers will always use what is comfortable and guaranteed to be available. People are creatures of habit. The credit card is almost an instinctual payment mechanism. In the small time span of a point of sale interaction, there is very minimal thought into which payments mechanism will be used. Second, companies will not change their payment infrastructure unless they see an immediate benefit. For the non technical merchant, there usually is no clearly visible benefit between more traditional card payment systems and the new ones.

We propose a fresh take on a traditional interaction. With Card3000 consumers will continue to retain all the comfort of using a physical credit card but with the intelligence of a simple mobile computing device. With this device merchants will be able keep their current credit card dependencies. Instead of many credit cards filling wallets and purses, one smart credit card can provide a more secure, friendlier way to pay.

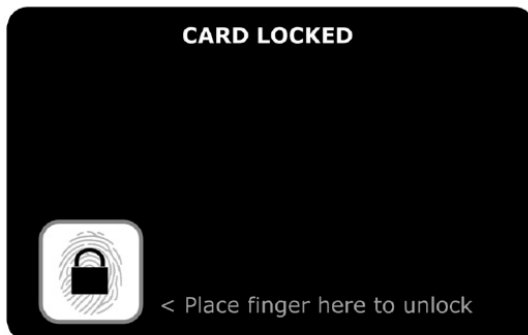
Paper Prototype



Figure 1.a : Overview of Paper prototype

Our single most foundational philosophy was to keep the interface as simple as possible. Our contextual inquiry revealed that every day credit card users wanted a payment method they were comfortable with, and one that was guaranteed to work. Providing a complicated, unintuitive user interface would deter users from using our payment platform. Instead we focused on providing a modest introduction into a set of new smart credit card features.

Lock Screen:



The initial screen a user will see is the “Lock Screen”. Synonymous to lock screens on mobile devices, this is an authentication layer before the actual content. This lockscreen uses biometrics to authenticate with a user’s fingerprint. This screen was designed to be an

intuitive and simple introduction to Card3000. Instead of flooding the user interface with widgets and content we minimized it to one button and supporting text. This simplified authentication screen made the complete user experience more digestible.

Credit Card Selection



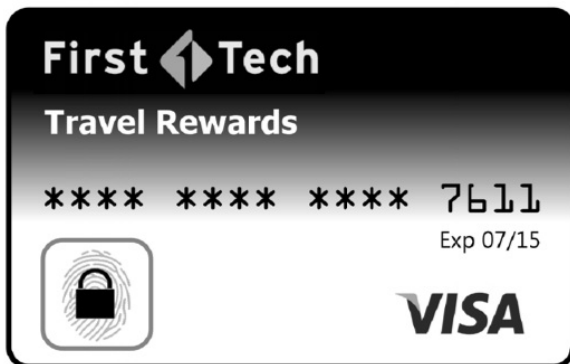
The first screen the user is brought to is their initial credit card. This screen presents the user with their “default” card. We wanted to keep a consistent user interface that did not differ too much from conventional credit cards. We wanted the users to enjoy discovering new elements within the interface, but at the same time, we also wanted the appearance to build on their foundational expectations of what a credit card should look like. As far as interactions, the user is also allowed to

swipe to the left and right between credit cards. There are buttons above and below the credit providing availability to general credit card information and recent transactions respectively.



The display also presents a single, non-navigational button. When the user decides that the current card is the one they want to pay with. They press the lock button to lock the card into a secured payment mode.

Secured Payment:



This screen signifies the credit card is ready to be handed to the cashier to be used to pay for merchandise. This screen is augmented to protect the critical information of the user. The card is also only allowed to be swiped once successfully once it's on this screen, to prevent additional charges to the card. In order to unlock the card and navigate

back to the card selection screen the user must authenticate via the biometric button as before.

CARD INFO	
Current Balance	\$2760.64
Spending Limit	\$3000.00
Available Credit	\$239.36
Expiration Date	May 2015
Security Code (CVV)	371
Contact	1-800-555-7890

Card Information:

From the card selection screen the user is able to select to see details about the credit card. This screen only shows pertinent information in order to make a purchase. We purposely limited the content to critical details.

RECENT TRANSACTIONS	
McDonald's - 10/27	\$1.23
Macy's - 10/25	\$38.56
Best Buy - 10/25	\$700.89
Krispy Kreme - 10/23	\$2.75
Starbucks - 10/20	\$4.00

Transaction Information:

From the card selection screen the user is able to select and view recent transactions. The list of transaction are ordered with respect time of purchase. Each list item is selectable.

TRANSACTION DETAILS	
Best Buy	First Bank VISA (...1234)
Bellevue, WA	10/25 at 7:24 PM
1 Sony 72-inch HDTV	\$599.99
+ 3 other items	
Total	\$700.89

If a user selects a list item, more detailed information is presented. We tried to limit the information displayed to a few items, which the user is likely to care about. This screen also displays a “report fraud” button. This provides a simple and quick mechanism for users to report that the selected charge was fraudulent.

REPORT FRAUD

I did not spend **\$700.89**
at **Best Buy**
on **10/25**

Are you sure?

REPORT FRAUD

Report Filed! Call us at (123) 456-7890
if you have further questions.

Would you also like to cancel this card?

Report Fraud Confirmation:

Filing a fraud report is a substantial action with significant repercussions. We allow users to confirm their choice to file a pre formatted report to their credit card company. The actual format of the report is not covered within the scope of this report.

Card Cancellation:

Once a user decides to file a report they are immediately given the option to cancel the credit card. We found that when a user decides to file a fraudulent charge report, their most likely next action is to cancel the credit card it was charged on.

Testing

Participants

All our participants were chosen to have a different levels of experience using alternative forms of in store payments. Participant 3, Michael, has a background in computing and is currently using alternative forms of payment based around the smartphone. Participant 2, Yu, has no experience with alternative forms of in store payments but has a background in design. Participant 1, Margarita, has no experience with alternative forms of payments and no practical experience with design. With these three participants we were able to assess a couple key metrics including alternative payment experience vs digestibility and computing experience vs interface navigability.

Environment

Due to space, time, and geographical constraints the team had to split up the studies into two subgroups. One team operated in the Seattle area while the other in Redmond-Bellevue. In order to supplement the fragmentation, the team operated with a usability study standard operating procedure. We attempted to maintain the same experience across all three studies. For each study we maintained a study team of two people, similar isolated study locations, and a scripted moderator guide. We made two copies of a paper prototype. This prototype included a paper credit card interface that was approximately the same scale as actual credit cards. We made a black paper backing with slits cut out to simulate a credit card sliding pane. We wanted to make the experience as realistic and consistent as possible for all our participants.

Tasks

Task 1a

Your company needs you to catch a flight to Atlanta tonight and you are on your way to the airport. Once you get to the airport, you see that you have an hour before your flight takes off so you decide to grab something from the airport cafe. You want to make the purchase using the company credit card that is already loaded on your Card3000. Please show me how you would make this payment.

Task 1b

Once you land at Atlanta you decide to rent a car for the length of the trip. You pull up to a gas station to fill up the tank. Your Bank of America card provides the best returns on payments made for gas. Please show me how you would use Card3000 to charge the payment to your Bank of America card.

Task 2

You're standing in the checkout line at Costco and you estimate that the total cost of your shopping cart will probably fall over \$300. You're unsure if your Costco card has enough credit left to charge the entire amount to it. Please show me how you would check to see if you can charge your Costco card the entire amount.

Task 3a

You just bought a smoothie from McDonald's and charged it to your Bank of America card. While you're sitting there and waiting to finish your smoothie, you decide to check your transactions on your Bank of America card. Please show me how you would do that.

Task 3b

Now that you're checking your transactions, you notice a payment you never made. You find that your card has been charged \$700.89 for a purchase at BestBuy that you never authorized. Please show me how you would report this transaction to your bank and also cancel this card.

Procedure

In order to prepare for each study, team members conducting the study, the moderators, used the Moderator Guide as a step by step guide. The Moderator Guide reviews all the logistic requirements as well as provides general preparatory instructions.

Depending on the availability of our participants, we attempted to conduct ice breaking activities before the actual studies. This was to ensure that participants were comfortable with the overall process of being studied. The ice breaking event was very informal and non-scripted. Usually the participant knew one of the moderators, therefore the ice breaking was relatively simple and comfortable.



At the beginning of the study all necessary introductions between moderators and the participant were made. At this point the participant is relatively comfortable being a part of the study. To ensure the comfortability of the participant the moderator that knew the participant the best was assigned the speaking role. This ensured that the participant would be comfortable with the voice of the speaker and subsequently, would be more willing to receive instruction.

The moderator not chosen to speak would be in charge of managing the paper prototype. The moderator speaking would initiate the study by reading out the script provided by the moderator guide. This script would combine an introduction, general background, and instructions on how the study will be conducted. We had each participant fill out a personal profile form in order for us to collect data points.

Before each task is conducted it is up to the speaking moderator to read the task and ensure the participant fully understands. As the tasks were conducted both moderators refrained from interfering as the participant spoke their thoughts and opinions aloud. Upon completion of each task we ask the participant for a summary of their opinions regarding the effectiveness of our interface toward the assigned task.

Test Measures

We understood that presenting an interface on a formerly static medium such as a credit card could have some repercussions. Building on top of an interface that people expect to be static requires a delicate approach. The first measure we wanted to test was the overall digestibility of the experience. It was our goal to rate the level of acceptance or discomfort with the content shown in the interface. We also wanted to measure the effectiveness of the interface layout. Therefore we roughly timed participants ability to find widgets. We also rated their navigation capability by how thoroughly they got lost throughout a task. Finally, we wanted to obtain a true sense about how the participant feels when using this product. Ideally, Card3000 would be just as intuitive as a regular credit card.

Testing Results

We found Participant 3, Michael, found the overall experience very intuitive. Swiping between screens, where each screen represents a single credit card, seemed like a natural interaction mechanism. He appreciated that the design was focused to look and feel like a credit card without throwing new features at him too intrusively. However, he was able to find very natural flaws where it was not intuitive. He pointed out that in a credit card detail screen, there should be a hierarchy of relevant information. It was not enough to dump all the information, but instead organize and prioritize the display of only pertinent information. Because our design is focused on the experience at the point of purchase, we only should provide credit information that is absolutely relevant at that time.

Participant 2, Yu, and Michael found the different kinds of intermediate lock states confusing. It was clear the state representation of when a card is ready to pay and when it was completely locked conflicted. Therefore, there was some state incongruence. They also both agreed on having an ability to explicitly lock the phone similar to the way a user can lock a smartphone. To Yu, clickable widgets were not clearly identified to be clickable. By the amount of time it took her to find widgets, it was clear there were some expectations for widgets to appear to be similar to widgets in mobile interfaces. She also desired a more intelligent smart card. If a credit card has the ability to maintain state and the ability to make computations it should be able remember which card the user wishes to use.

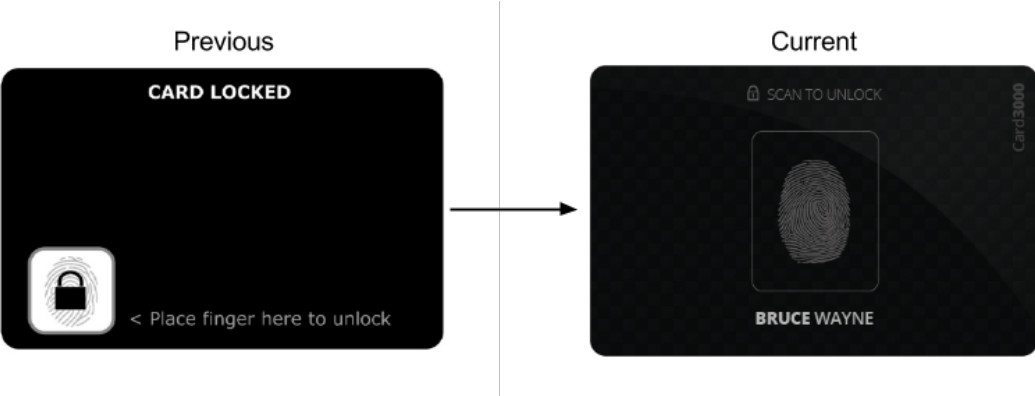
Participant 1, Margarita, was concerned about the sensitivity of the of the widgets themselves. While being overall comfortable with the intricacy of the smart card, she was concerned about how reactive the buttons were to accidental touches. There was also confusion on when the card was in the fully locked state and when it is secured to pay. She also wanted to be able to see an overall snapshot of her accounts.

Unanimously, our participants desired a clearer and more thorough representation of state. There was a clear misinterpretation from have similar states represented in similar ways. The ability to lock your card completely and secure your card for payment have similar aesthetics but have completely different behaviour. This made all of our participants uneasy. While varying in the specifics, all the participants desired more control and personalization with their smart card. Lastly, all the widgets within the card must be obvious. Because we are replicating the appearance of physical credit cards there needs to be obvious interaction mechanisms. Users of Card3000 should feel that every interaction is intuitive and exciting to use.

Interface Revisions

State Representation

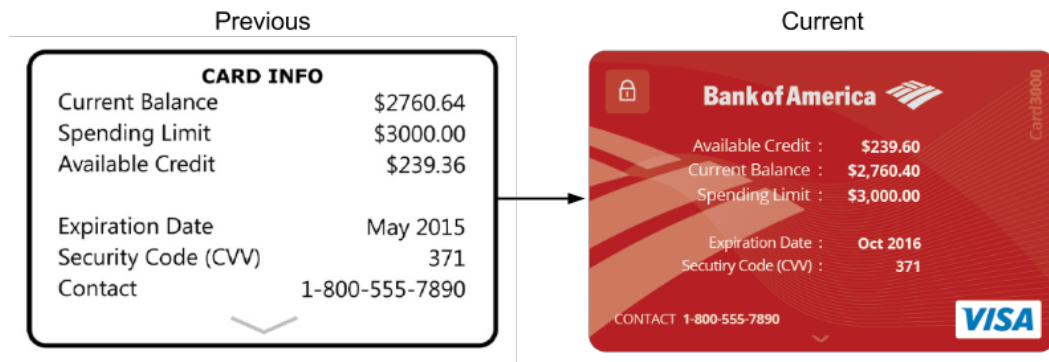
The first change we wanted to change was the clear confusion behind the secured to pay and locked card screens. The initial locked card screen was rather intuitive because it resembles similar smartphone lock screens. Instead, we change the location of the button so that it differs from the location of button identifying a payment mechanism. In the current version we make the functionality very prominent and the location and size different from buttons in later screens located in the lower left hand corner.



This indicated that we needed to make the secure to pay screen more intuitive and informative. We used existing empty real estate to present a short factual term. We wanted to present text to symbolize the card communicating with its user its current state. Therefore, the text “Ready to Pay” is presented over hidden credit card numbers to tell the user that the card is in the proper state to make a payment. This made the screen very simple to understand and more importantly more comfortable for people to use.



In order to correctly prioritize credit card information, we moved the “Available Credit” toward the top of the screen. This is meant to provide the most important content in the easiest to find location.



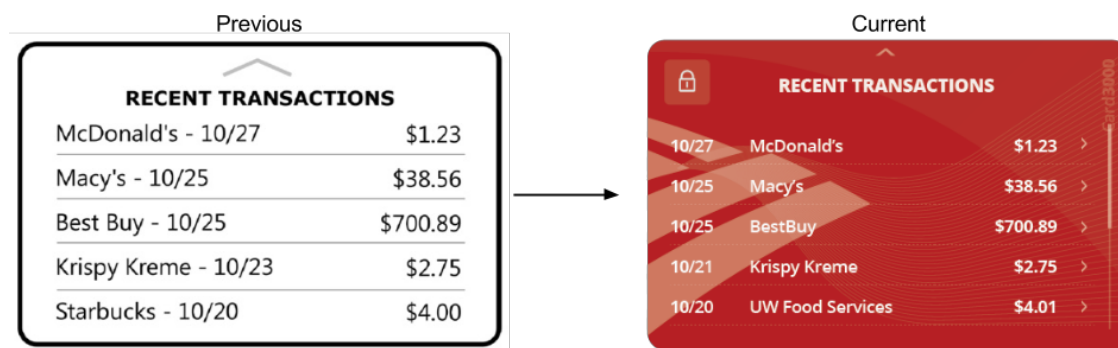
Personalization

We added a settings screen that is always to the left of the default card. The default card is the farthest most left card. This provides a standard location for the settings screen at a guaranteed location. This provides a consistent user experience.



Widget Representation

To assist the presentation of selectable list items we added a modest arrow to each item. The arrow is intended to resemble the the arrows found on individual credit card screens. By maintaining the same design pattern throughout the different layers of interfaces we maintain a consistent user experience.



Interactive Prototype

For our final deliverable we decided to create a high-fidelity interactive prototype that demonstrated the capabilities of the Card3000 interface. Being a non-standard interface that would be used in regular payment scenarios, we concluded that describing the capabilities of the interface would help us convey a better story around the product than other forms of visual representation. The high-fidelity prototype also gave us a chance to put all the user feedback we collected into actionable items, helping us create an interface that's more attuned to the needs of the user.

Prototyping tools

The prototypes were created using the popular prototyping tool Axure. The card faces themselves were first developed in Adobe Illustrator. As a first step we selected cards that we wanted to represent in the interface; in our case we decided to use the design of Starbucks, Bank of America and Wells Fargo cards. Once we had the card livery identified, we went about mimicking the present card interface design but carefully moved around these elements to make place for additional Card3000 components, such as the "Activate for Pay" button at the bottom left corner. Similarly the different states of the interface were carefully re-created in Adobe Illustrator and then exported as images with transparent backgrounds into Axure.

With the help of Axure, we were able to stitch these images together into the final high-fidelity prototype. Axure supports the definition of touchpoints or "hot spots" that function as input zones for touch or clicks. These serve as input based on which the interface can be updated for the specific function being requested.

Task Scenarios

A step-by-step demonstration of the interface for each of the tasks is described below. A short summary of each task to support the interface has be included, to read a detailed description of each task please refer the *Tasks* sub-section under *Testing*.

1. Scenario - Making a payment

While travelling on a business trip, you need to make a payment using your company credit card that's already loaded on your Card3000. You also want to fill up at a gas station using your Bank of America card since it provides the best reward points for gas purchases.

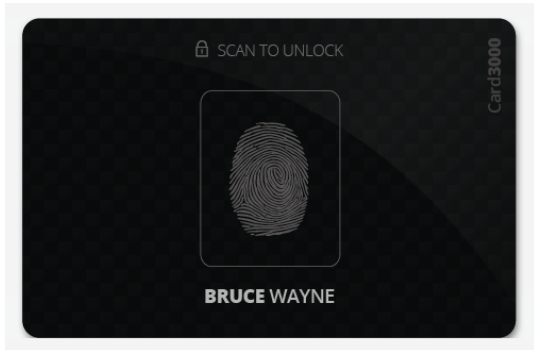
Interface Description

The steps to complete this task are shown below:

Step 1:

Step 2:

Unlock card with fingerprint scan



Swipe right to get to company credit card



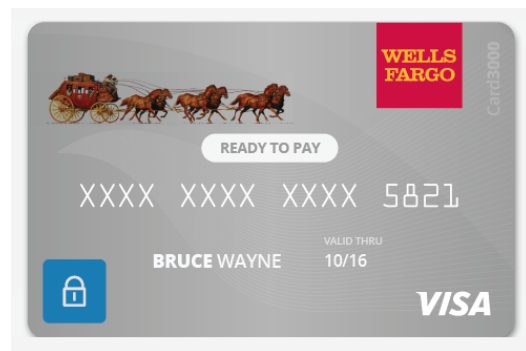
Step 3:

Click 'Pay' to activate card for payment



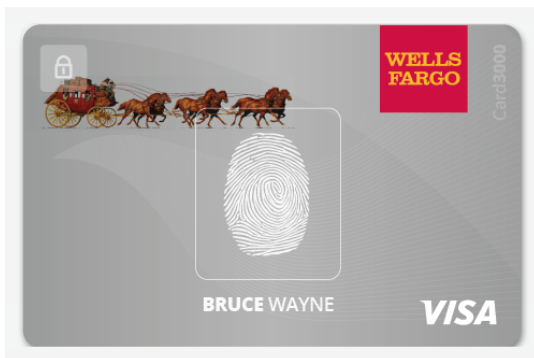
Step 4:

After payment, click 'Unlock' at bottom left



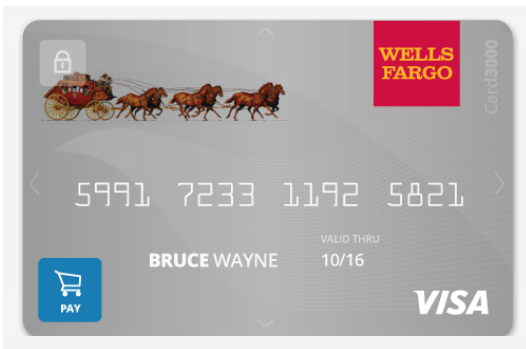
Step 5:

Scan fingerprint again to unlock Card3000



Step 6:

Swipe left and follow the exact same steps for payment with another card



2. Scenario - Checking card balance and account details

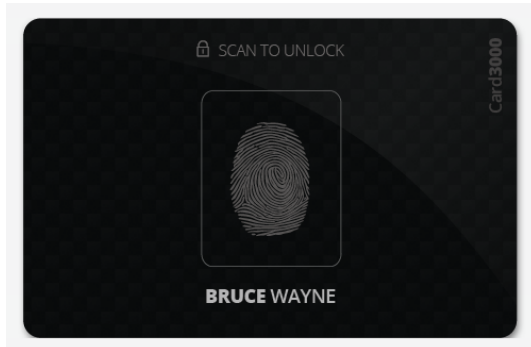
While waiting in the checkout line, you want to check the available balance on your credit card to ensure that you don't overdraft on the account.

Interface Description

The steps to complete this task are shown below:

Step 1:

Unlock card with fingerprint scan



Step 2:

Swipe down to access card account details



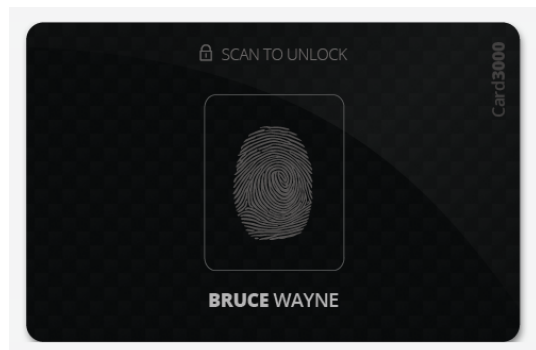
Step 3:

View card details. Click lock icon in upper left corner to lock card again.



Step 4:

Card locked.



3. Scenario - Check transactions & report disputed transaction

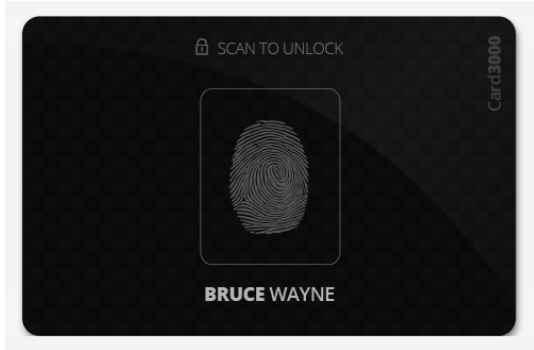
While checking your transactions list, you notice a transaction for a large amount that you never authorized. You would like to report a disputed transaction from within the interface of Card3000.

Interface Description

The steps to complete this task are shown below:

Step 1:

Unlock card with fingerprint scan



Step 2:

Swipe up to access card transactions



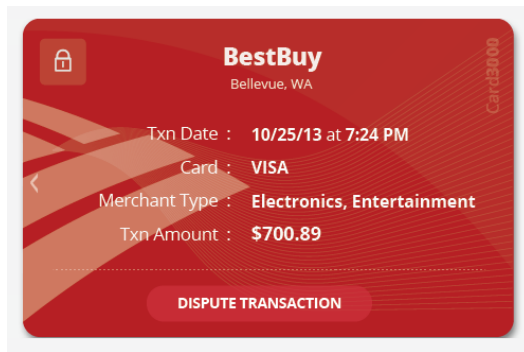
Step 3:

Click on a transaction to view details



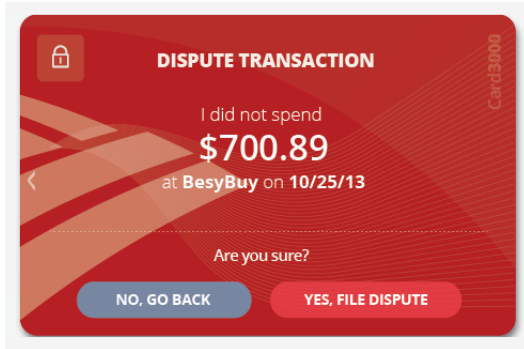
Step 4:

Click 'Dispute Transaction'



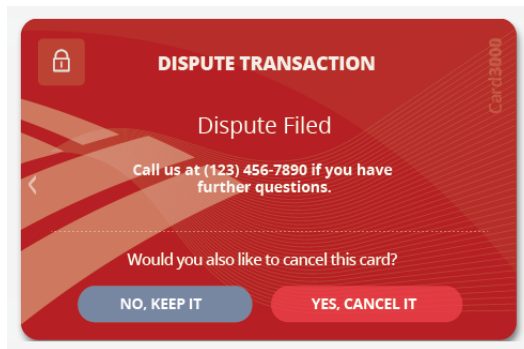
Step 5:

Accept and file dispute



Step 6:

Optionally you can 'Cancel' the card



Summary Discussion

We were able to gain important insight by conducting contextual inquiries prior to the initial design. During the inquiry we discovered that the amount of thought our participants put into the actual point of purchase interactions were minimal. Once a consumer commits to a purchase, the process of selecting a payment medium appeared instinctual. Participants were more likely to choose comfort and simplicity over substantial benefits such as security. Therefore, we focused our design methodology more toward simplicity rather than extensibility.

We learned it was critical to understand the overall emotional context of making an in store payment. Making a payment in a store implicitly requires a level of trust between the customer and the merchant. We wanted a design that promoted higher trust. Our goal was to design a device that allowed consumers to be more comfortable making purchases. Throughout the studies, we were able to build critical insights about our potential users. As a result, the initial version of the smart credit card was designed to be simple and intuitive

The initial responses in the usability study were in favor of the simple and familiar presentation. The majority of requested changes were aesthetic. This made it very simple for us to augment our original design. We were pleased and surprised to that see our participants wanted more features. This gave us a chance to provide a richer feature set, tailored to specific yet unanimous participant requests. The studies and processes allowed us to set important metrics and design iteratively.

Our participants were instrumental in the design of the user interface and breadth of the feature set. Consequently, we feel that our product has been mainly tailored to consumers. However, there are stakeholders that our design does not consider effectively. From a value sensitive design standpoint, there are several significant stakeholders that we did not have an opportunity to study. The infrastructure behind supporting a credit card is incredibly complex.

If we had more time and a hardware platform to develop a product, we would interview and study other credit card stakeholders. We understand that if our design takes the responsibility of managing security, its not just our credibility that is at risk but those of the credit card vendors as well. We would have to design with the concerns and desires of consumers and their credit card vendors. The prior concern was based off the premise that we had a hardware platform that gave us flexibility as well. Our design requires the exploration of hardware support, but we hope it assist credit card manufactures in the future as hardware technology progresses.

Appendix A - Moderator Guide

Preparation & Setup

Before starting, following is a checklist of steps to be followed to ensure that the ideal environment for conducting the usability evaluation session has been prepared.

Study Requirements

1. Paper prototypes of Card3000.
2. Copy of *Moderator Guide*.
3. Copy of *Tasks for Participant*. Tear this into strips containing the different tasks.
4. Copy of *Personal Profile*.
5. Copy of *Note taker form*.
6. A pen.

General Instructions

1. Have a copy of the moderator guide with you.
2. Be sure to read through the entire moderator guide at least once before conducting the session. Familiarize yourself with the sequence of activities that need to be conducted.
3. Have a copy of the personal profile form to collect a few details about the participant.
4. Keep a copy of the task list form next to you at all times to quickly scribble down observations for each task and other comments made by the participant during the study session. Also note down if the participant completed the task successfully.
5. Most importantly, make sure to stick to the moderator guide to avoid the possibility of introducing any discrepancies in the process of running the evaluation session.

Moderator Guide

Welcome!

Hello and Welcome!

Thank you for your willingness to participate in this study session. Let me start by explaining what we will be doing today. We are in the process of evaluating a new, futuristic credit card called Card3000 and we are here today to test it for usability flaws.

As you might already know, we are doing this study as part of a project requirement for the *HCI Course* in the CSE department at the University of Washington.

Please take a moment to fill out this Personal Profile form. Please understand that your participation will be anonymous. We will not use your identity or reference your participation by name.

[Moderator hands Participant Profile form and waits for participant to complete the form.]

In order to be consistent across all test participants, I will be reading to you from a script today.

A few notes before we begin:

1. We want to improve the product, so we need to know honestly what you think. We are here to investigate the way users interact with Card3000. You were selected because you represent the type of user who may use this product in the future.
2. Please keep in mind, it is important to take your time - this is not a race to finish the exercise.
3. We are here today to test the product, not you. Therefore, nothing you will do or say would be considered wrong.
4. You will be instructed to stop after completing each exercise to discuss your impressions with me.
5. We are going to be testing the product using an early version built out of paper, so each time we move to a different task, I will change the prototype in front of you.
6. If you have questions, just ask. I may not be able to answer them right away, since we're interested in how people react when they don't have someone sitting next to them who knows the product, but I will try to answer any questions you still have when we're done.
7. If, at any time, you feel uncomfortable with the study or subject matter, please feel free to stop. You will not be penalized and any data captured will be deleted. Also, if at any time, you need a break, please let me know.

Do you have any questions at this time?

Introduction to Study Session

Alright, let's get started.

We want you to perform a list of tasks. These tasks will be focussed **specifically** on payment scenarios using the new credit card system that we are testing today. The scenarios focus on regular interactions that you have with your credit card, such as making a payment, checking your transactions and account balance, checking for fraudulent transactions, etc.

Our goal is to test for usability flaws with the design and to gather as much input from you about your experience with using this card.

We have just two rules for the entire session -

1. Think Aloud - Please speak aloud everything that runs through your mind while performing these tasks. This is important for us since we want to document your understanding and interpretation of the interface.

During the session, I may prompt you to "Think Aloud" if you fall quiet. Please understand that this is only for the purpose of capturing your thoughts while performing the tasks.

2. Please use this pen as a pointer to denote a touch on the interface. [Moderator hands a pen to the participant.]

And before we begin, let me quickly describe the interface to you. [Moderator explains the different swipe gestures of Card3000. This is important because Card3000 is an interface that doesn't exist as of today and the participant may not have anything else to compare it with to implicitly understand how the interface would work. A quick walkthrough of the interface will let them know of the capabilities of the card.]

Tasks

We have a set of very simple tasks for you to perform. At the end of each task, I'll ask you to share your thoughts on the task you performed, whether it matches your expectations, and any other feedback you may have.

[Moderator - have a copy of '*Tasks for Participant*'. Tear the form into strips and give the participant each task on a separate strip of paper]

[Moderator - make sure that the sliding credit card strip is set to 'Costco' when the participant looks at the prototype]

Task 1a

Your company needs you to catch a flight to Atlanta tonight and you are on your way to the airport. Once you get to the airport, you see that you have an hour before your flight takes off so you decide to grab something from the airport cafe. You want to make the purchase using the company credit card that is already loaded on your Card3000. Please show me how you would make this payment.

Task 1b

Once you land at Atlanta you decide to rent a car for the length of the trip. You pull up to a gas station to fill up the tank. Your Bank of America card provides the best returns on payments made for gas. Please show me how you would use Card3000 to charge the payment to your Bank of America card.

[Moderator - rest the sliding credit card strip to 'Starbucks' before Task 2]

Task 2

You're standing in the checkout line at Costco and you're estimating that the total cost of your shopping cart will probably fall over \$300. You're unsure if your Costco card has enough credit left to charge the entire amount to it. Please show me how you would check to see if you can charge your Costco card the entire amount.

[Moderator - rest the sliding credit card strip to 'First Tech' before Task 3]

Task 3a

You just bought a smoothie from McDonald's and charged your Bank of America card for it. While you're sitting there and waiting to finish your smoothie, you decide to check your transactions on your Bank of America card. Please show me how you would do that.

Task 3b

Now that you're checking your transactions, you notice a payment you never made. You find that your card has been charged \$700.89 for a purchase at BestBuy that you never authorized. Please show me how you would report this transaction to your bank and also cancel this card.

Feedback

Thank you so much for your patience in completing those tasks. Now that we've completed our tasks, do you have any feedback that you would like to share with me?

Thank You

We really appreciate the time that you have taken to be with us today to conduct this study session. Your input will be most invaluable to us as we try to make improvements to Card3000.
Thank You!

----- End of moderator guide -----

Appendix B - Tasks Handout for Participants

Tasks for Participant

Task 1a

Your company needs you to catch a flight to Atlanta tonight and you are on your way to the airport. Once you get to the airport, you see that you have an hour before your flight takes off so you decide to grab something from the airport cafe. You want me to make the purchase using the company credit card that is already loaded on your Card3000. Please show me how you would make this payment?

Task 1b

Once you land at Atlanta you decide to rent a car for the length of the trip. You pull up to a gas station to fill up the tank. Your Bank of America card provides the best returns on payments made for gas. Please show me how you would use Card3000 to charge the payment to your Bank of America card?

Task 2

You're standing in the checkout line at Costco and you're estimating that the total cost of your shopping cart will probably fall over \$300. You're unsure if your Costco card has enough credit left to charge the entire amount to it. Please show me how you would check to see if you can charge your Costco card the entire amount?

Task 3a

You just bought a smoothie from McDonald's and charged your Bank of America card for it. While you're sitting there and waiting to finish your smoothie, you decide to check your transactions on your Bank of America card. Please show me how you would do that?

Task 3b

Now that you're checking your transactions, you notice a payment you never made. You find that your card has been charged \$700.89 for a purchase at BestBuy that you never authorized. Please show me how you would report this transactions to your bank and also cancel this card?

Appendix C - Personal Profile Form

Personal Profile Form

Name: _____ Gender: ___M ___F

Where do you currently reside?

___ Seattle ___ Redmond ___ Bellevue

Which age group do you fall under?

___ 20 – 29 ___ 30 – 39 ___ 40 – 55 ___ 56 +

On a scale of 5, how computer savvy do you consider yourself?

1 - I know not anything about this strange device called a computer;

5 – I feel very comfortable with web navigation, email, and most things related to the internet.)



What is your preferred mode of payment?

___ Credit Card ___ Cash ___ Mobile Phone ___ Other

(if other, please describe _____)

Have you ever made mobile payments before?

___ Yes ___ No

(if yes, please tell us what mobile payment system you used _____)

Appendix D - Note Taker Form

Note Taker Form

Participant Name : _____

Task 1a

Pass | Fail

Task 1b

Pass | Fail

Task 2

Pass | Fail

Task 3a

Pass | Fail

Task 3b

Pass | Fail

Appendix E - Collected Participant Notes

Participant 1

Name: Margarita Kashkuli **Gender:** F

Where do you currently reside?

Seattle

Which age group do you fall under?

20 – 29

On a scale of 5, how computer savvy do you consider yourself?

5

What is your preferred mode of payment?

Credit Card

Have you ever made mobile payments before?

No

Feedback on Tasks (Passed all tasks)

Task 1a : “What if I accidentally press the unlock button? Instead of a tap, it should be a long tap to unlock the card. Similarly for making a payment.”

Task 1b : “Long tap to activate for payment”

Task 2 : “Can I clear the balance of one card from the balance of another card?”

Task 3a : “Confused about the two locked states of the card. There should be a button that lets me explicitly lock the card.”

Task 3b : “I didn’t know I could click the transaction.”

General Feedback : “I’d like to see a consolidated view of all my accounts.”

“Simple & User-friendly, I like that.”

Notes

- Need to distinguish between the two locked states of the card.
- A button that explicitly locks the card, as well as having a timeout state.
- Improve affordances for transaction. User didn’t know she could click the transaction.
- Add an arrow to the right of each transaction to denote that the row is clickable.

- Perhaps, design a screen for the consolidated view of all account. See how this can be merged with a card setting screen.

Participant 2

Name: Yu Xin **Gender:** F

Where do you currently reside?

Seattle

Which age group do you fall under?

20 – 29

On a scale of 5, how computer savvy do you consider yourself?

4

What is your preferred mode of payment?

Credit Card

Have you ever made mobile payments before?

No

Feedback on Tasks (Passed all tasks)

Task 1a : “The activated state of the card with the *lock icon* makes me feel like clicking it before handing it over to the cashier. The icon makes me feel like the card is still unlocked and I need to click it to put it into a locked state.”

Task 1b : “I’m confused between the two lock screens”. “The card should have more intelligence built in to automatically tell me which card I should use to complete the payment - based on best rewards, remaining credit balance, etc.”

Task 2 : “Probably put available credit as the first item in the card details page. I get easily confused with banking terms so having my credit balance as the first item will help.”

Task 3a : “Is the transaction list scrollable? Maybe having a scrollbar at the side will let me know I can scroll for more transactions. I would also like to see the status of the transaction - pending or approved.”

Task 3b : “Have a tooltip for what ‘Cancel this card’ will do. I’m not sure what *exactly* will happen if I hit Cancel this card. I would like to know before I actually hit the button.” “What happens after I click

cancel? Does the card disappear from my list of cards or does it have a X icon against it while the card cancellation request is being processed?”

General Feedback : “I would like to have a way to re-order my cards. Because I could have 20 cards, and use just one frequently, I don’t want to have to scroll through all of them before I get to it.”
“Intelligently select cards based on my location.”

“I like how simple and easy to use it is. Please stick to that. The highlight of this card is keeping it simple.”

Notes

- Use a different icon to show that the card is in a locked state.
- Need to distinguish between the two locked states of the card.
- A button that explicitly locks the card, as well as having a timeout state.
- Improve affordances for transaction list
- Add an arrow to the right of each transaction to highlight that the row is clickable.
- Add a new screen for Settings.

Participant 3

Name: Michael **Gender:** M

Where do you currently reside?

Bellevue

Which age group do you fall under?

30 – 39

On a scale of 5, how computer savvy do you consider yourself?

5

What is your preferred mode of payment?

Credit Card

Have you ever made mobile payments before?

Yes - Groupon, PayPal

Feedback on Tasks (Passed all tasks)

Task 1a/b : Lock screen is clear and intuitive. Sliding screen is “very easy, only 3 options for each card, Pay, view details, view transactions”

In activated card mode- “looks, feels, acts just like a credit card”

Task 2 : Card info screen - “available credit should be at top -- that’s most likely what I need to know when making a payment -- followed by current balance and limit”.

Task 3a/b : Transactions page - “not clear that I can click on transactions, but I would have eventually tried that if I had this card”

Transactions details - “I like how detailed they are, but I wouldn’t expect that in real life. That just simply wouldn’t exist”

General Feedback :

Very clean, simple.

Would like a setup screen - which would appear to far left or right of sliding allows for options such as card timeout and reordering of cards.

“How do you lock the card again” - was looking for a way to fully lock the card after payment.

Notes

During Task 3b, viewing transaction details and filing fraud report, Michael did not realize that he could tap on a transaction. Instead, he navigated up to Card Details screen and tapped the phone number to attempt to call the card issuer.

Many times throughout the study, he expressed doubts about the technical feasibility and the agreements with the card issuers -- I reminded him several times that these issues are not a concern for this study.