

Quick Pay Final Report

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Executive Summary

For our project, we decided to create a mobile application called QuickPay, which can be used to transfer money between people alongside messaging them. We chose to take on this project as we were longing for a simple way to send small amounts of money to friends and family, and we knew that we would be able to design a usable solution to this problem.

We began our investigation by interviewing various other students around campus. We asked questions related to various aspects of sending money, such as whether or not people found it tedious to do so, and from our interviews we found that many people found it tedious to have to deal with security measures, such as passwords, when trying to transfer small amounts of money. We also discovered that there is a great demand for an easy way to transfer money among people on campus, and as such, this has informed how we formed our personas for later phases of the design process. We also decided to try it ourselves, learning in the process that eliminating tedium, such as re-entering information would be important in our design, as well as the importance of feeling as if the process of transferring money is secure.

The information that we got from our investigation greatly influenced the design of the app. We chose to forgo a traditional username/password access control system in favor of a system that relies instead on using a verification code that is sent to one's phone. We chose to do this as we thought it would be much less tedious than having to remember and enter yet another password. Users are also given the option of biometrics for added security. Our disdain for tedium is shown as well in that we require the user to enter very little information about themselves in order to use the service.

Our heuristic evaluation uncovered some problems with the visual design of our prototype. We changed some elements for consistency and clarity, such as changing a button labelled "add" to an icon, and re-labeling the label "bank's name" to "bank branch name".

Our user testing revealed even more about our system. We learned that the signup process went relatively smoothly, with some confusion related to some of our input labels. We learned that users overall had no problems sending money and only visibility issues concerning changing currency. Deleting a card seemed unintuitive to users because of the fact that they had to click on the card info before being prompted by a pop up which displayed a delete option for the selected card. There were problems involving the method by which a card could be deleted, wherein users were searching for an edit button to modify or delete cards. We used this information to influence some changes that were made to our final design. For instance, users can now access a help screen at any time and we added a "send" button that is always visible to our messaging system.

Ultimately, in designing this system, we were able to use what we learned about design in a practical scenario. While there are still avenues for improvement and additional features, we were able to create a system that solves a real-world problem in a practical manner.

Introduction

QuickPay is a mobile application that allows users to easily transfer money to one another via a messaging interface. Users will set up their preferred bank card once and will then be able to transfer money without having to input their banking information again. During this one time setup, users will also be connecting the application with their bank in order to receive payments instantly and without being prompted for any additional information. Anytime a transaction is completed both parties will receive a small message notifying the respective parties that a transaction of payment has been made and by whom.

Design Problem

The reasoning behind the creation of QuickPay came from our team members negative experience when trying to transfer quick, small payments between their friends whenever someone spotted them for coffee or lunch. They found the inconvenience of transferring money outweighed the uncomfortable task of reminding their friends for repayment so they would simply forgo repayment. As students, every dollar counts and having to remind others to pay us back can be awkward and uncomfortable, but consistently losing money is also frustrating.

User Research and Findings

The two user research methods we used were “Interview” and “Try it Ourselves”. In the “Interview” method, we went around campus asking different students and professors to try their current way of sending money to their friends and family as a way to gain feedback. As the interview was conducted we discovered what needed to be changed or added to our design. We asked three questions:

1. “Is there anything tedious about sending money to others online using your current methods?”
2. “Do you have to pay any extra fees as a part of your transfers?”
3. “When you find yourself in a situation where you need to spot someone some cash or need someone to cover a small bill when going out, how do you usually handle those situations?”

We believe the first method went very well because we were able to get concise answers from the different students and professors that we interviewed around campus. From there, we were able to come to a general consensus to answer the questions we had. This is a good sign because our target audience is young people between the ages of 16-35 who often find themselves in situations where they are short on cash and need a friend to spot them. So it's fair to say that

interviewing students at the University of Calgary covers a large part of our desired audience. So the answers we received could potentially be projected to the larger population.

From the first question, we found out that almost all users expressed complaints about having to enter a security question and a password for every time they try to transfer money to their peers. From the second question, we learnt that users that were not under a student plan in their bank don't like having to pay some transfer fee for every transaction made. This was not the case for everyone we interviewed but for the majority. For the third question, the majority of people said they would lend money to friends when asked via cash or credit but with the knowledge that the likelihood of getting repaid would be low due to their friends and themselves forgetting.

Since we are part of the user group, we decided that “Try it Ourselves” would be a good way for us to discover major points that would contribute to the development of our product. We ended up finding six key points that would be core to our product when using it.

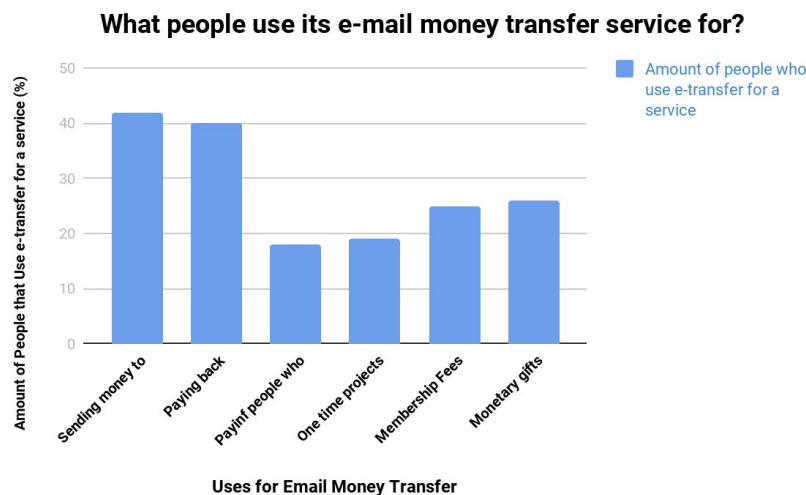
1. One time setup for preferred bank card - users do not want to enter information every time they receive or send a payment, it is time-consuming and would defeat the purpose of the convenience aspect.
2. Users want to ensure only they can authenticate transactions - by using a mobile device's built-in biometric security, we can conveniently ensure the real user is the only one making transactions.
3. Users should be able to identify who they are sending money to easily - by providing the name and possibly additional information of the person they are about to send money to, the user can be certain the money is being sent to the intended recipient.
4. Users should not be able to mistakenly send money by slips - after the user presses on the money transfer button icon, the “send money” button will be greyed out and unclickable for a period of 5 seconds to prevent accidental screen clicks and to ensure the user reads the recipient name.
5. Users should be able to change currency type easily - when typing the amount of money the user is about to send, there should be an option to change the currency type to at least the most popular currencies, this system should be accurate and up to date with global exchange rates.
6. Users should be confident that their card information is not leaked or stored anywhere except their phone - All users should be notified of any encryption we use and that we discard card information from their phone immediately if they decided to delete their card payment method.

In this research method, we essentially thought about the key features and processes that we would like to see in an app like this. We think this was somewhat successful because it allowed us to bring to light key features that we need to include in our final product, which could

lead to a better prototype in the future. This was also beneficial since it made us think more closely about the experience actual users may have. But it also had flaws since with this method we weren't out getting the public opinion on the product. So some of the features which we thought were important, may not be necessarily important to the majority of people in our target audience.

To supplement our two research methods, we did some secondary research. For this, we looked at the 2018 Globe and Mail article:

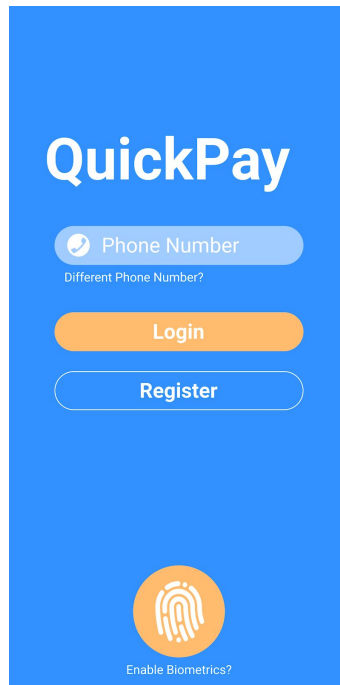
<https://www.theglobeandmail.com/globe-investor/personal-finance/e-mail-money-transfer-is-the-better-way/article4190103/>, to gain further knowledge on the topic. From this, we learnt about the increasing use of email money transfer rather than exchanging money physically. One thing that stood out to us came in a survey conducted by Interac. Where they asked people what they use its email money transfer service for, and 40% mentioned using it to pay back someone whom they owe money. We see this as a significant stat because it shows that there is an emerging market for our product.



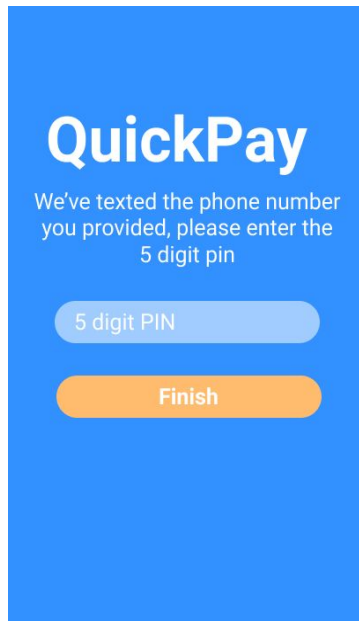
Something we would do differently next time would be to interview not only people at the University but also young people around the city in social places, like the mall, or the coffee shop. From this, we would get an even better answer to our questions since we will be talking to a wider variety of people. We would also add some rating scale question to the set of questions we ask so that we can also add a quantitative value to what people think of our product and the problem it can solve.

Design and Justification

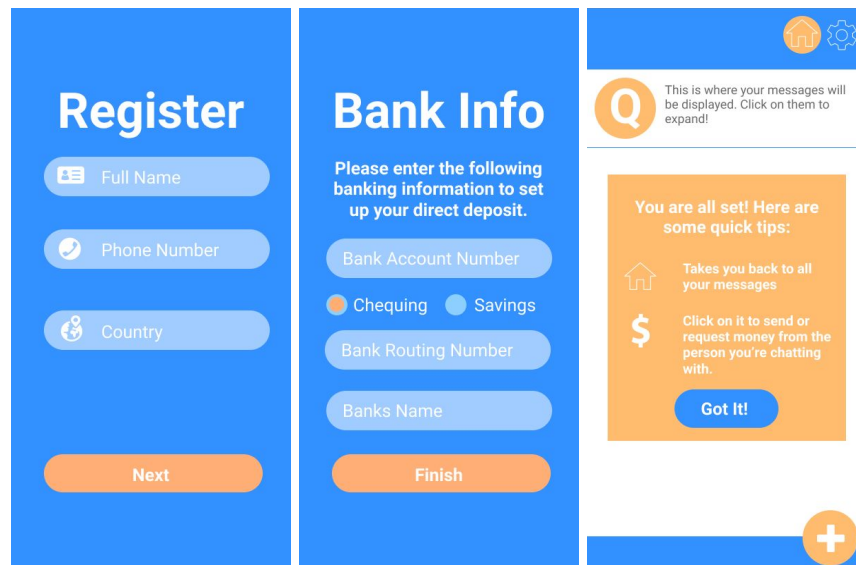
When designing our application, one of our main goals was to build a visual interface that wouldn't overwhelm the user with information, but still provide them with the necessary information that they need. Throughout our product, we try to use bright colours (primarily blue and orange) in order to provide more aesthetic appeal for our user.



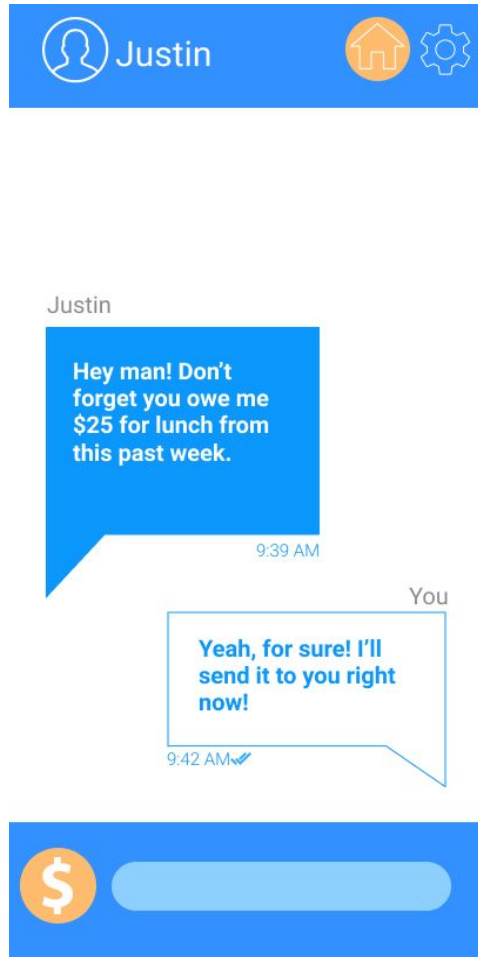
When a user first enters our app, they come to this screen. Here they can log in by entering their phone number, or sign up if they haven't already. They are also given the option to enable biometrics for logging in, such as a fingerprint.



After the user has entered the phone number to login, they will be sent a text with a five digit verification pin which they must then enter to log into their account. We do this for security reasons to confirm that the person trying to access the account, actually has the mobile phone.



During the process of registration, we try and get the user to enter as little information as possible. This is so that we don't overwhelm our users and also to improve the usability of the app. As you can see we don't demand a password, date of birth, or a security question like other services. After the new user has been registered we then give them a quick rundown of how messaging will work. The banking information the user has entered can be accessed in the wallet section of the app.



Here is our conversation page. The name of the recipient is presented at the top, along with a home button and setting button. The setting button allows us to hide other features, instead of forcing them all onto the one screen. As messages are sent we add timestamps, so the participants can know when a message has been sent and when a message has been read. The “\$” symbol, allows the user to send money as opposed to just a message. We differentiate the sender of the message by using different colours, white if the user is sending and blue for the message being sent to them.

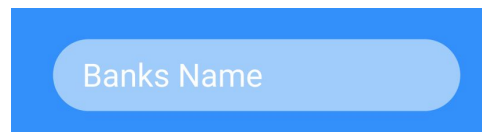
Heuristic Evaluation and Findings

Based on the heuristic evaluation we received, a number of ambiguous functionalities were identified. A major design flaw was in the wallet page, where the “home” button was right next to the add button with no visual barrier, making them seem related to one another. On top of that, the “home” button was an icon while the “add” button was text, which could confuse the user by making them think the “home” button is a visual representation of the word “add”.

In our revision, we made the “add” button an icon in order to avoid any confusion. This is what the original add button looked like:



When adding a card, we should be more explicit as to what we want when we say “banks name”. This is what the original bank name text form looked like:



We have changed the placeholder text to say “bank branch name” to be more specific of critical information.

We found out that we need to also include access to the help page in case users forget some of the application functionality or to re-read tutorial messages.

The revisions are shown later in this report.

Concluding our heuristic evaluation feedback, it was important for us to improve the fluidity and clarity of page changes and be more specific of critical information. Buttons with functionality should be icons, and text should be non-interactive.

User Testing and Findings

Tasks

1. *Sign up on to Quick Pay and add a banking card to your account.*
2. *Send payment to a friend in a different currency.*
3. *Delete a banking card from your account.*

Findings

Response to Task 1:

Overall the users managed to successfully sign up onto Quick Pay and add a banking card to the account. The application took the user through an intuitive sequence that facilitated the

sign up process. The only exception was that the user seemed confused when they encountered the input prompt “Bank Name” when entering their banking information. The user was unsure if it was the company they bank under or the name of the specific branch name. The user seemed to rush through the introduction message, that contained icon meanings and basic outline on how to navigate the app, when they completed creating their account. At the time, there was no way to go back to that help popup, however this was revised as shown later in this report.

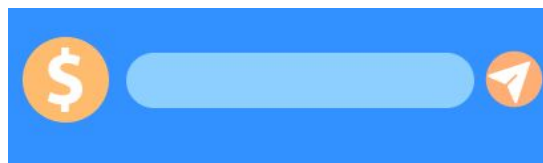
Response to Task 2:

When asked to send a payment using a different currency the users had no issues in completing said task. The only input we received from them was that the “Currency Change?” link could be made to be slightly more visible.

Response to Task 3

In completing the third task of deleting a banking card from the users account, there seemed to be some issues that were encountered. In entering the wallet screen, the user seemed to be looking for an edit button, it was only after he realized that there was none did he try to click on the individual cards themselves where he was then presented with the option to delete a card. The first initial feel for completing this task was okay since the user had to guess on how to enter the wallet screen and then how to delete a specific card. The reason for this was because there was no explicit icon that corresponded to that specific task in open view but rather after some screen exploration. This was intentionally done to keep a minimalistic design but could be re-evaluated on later iterations as to whether it is the right fit.

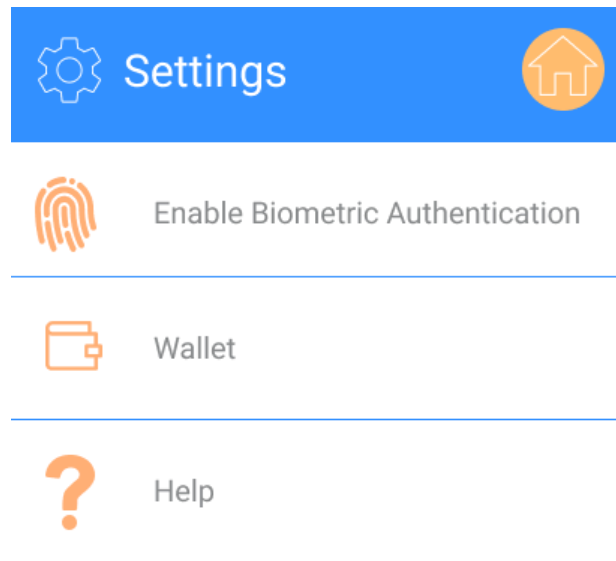
Redesign Based on User Testing and Heuristic Evaluation Response



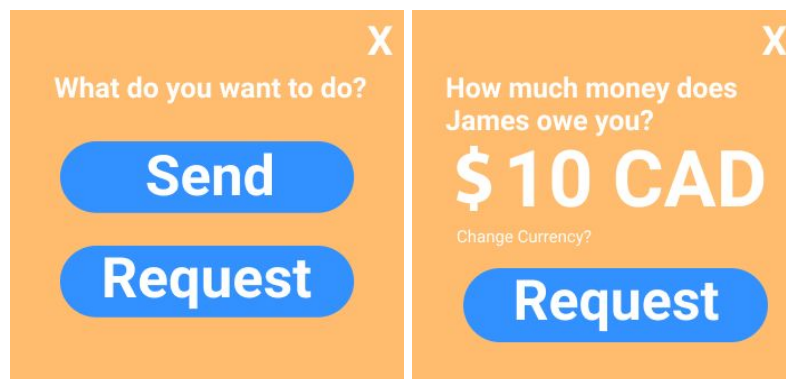
We have added a send button that is always visible on the chat screen, which previously was only visible after expanding the virtual keyboard. This means that users will be able to see that a send button exists as soon as they enter the chat screen, clarifying usability to new users. This also provides the ability for users to send a message that was previously typed but never sent without having to open the keyboard.

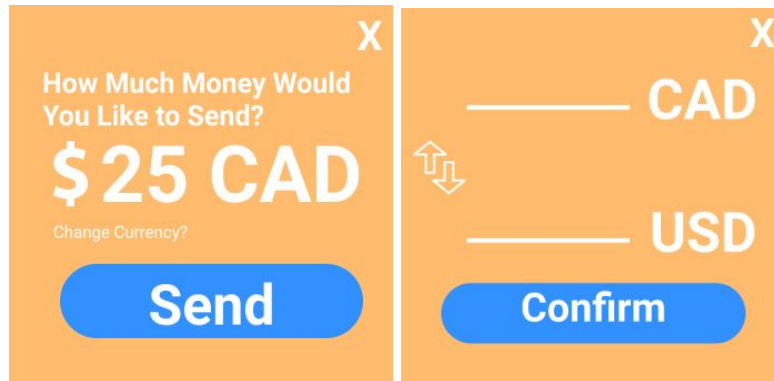


We have modified the button which allows users to add cards to their wallet. It is now an icon showing a credit card with a plus button, and is styled similarly to the home button next to it. Previously it was just the word “Add” in plain text with no styling, making it appear out of place and uninteractive.

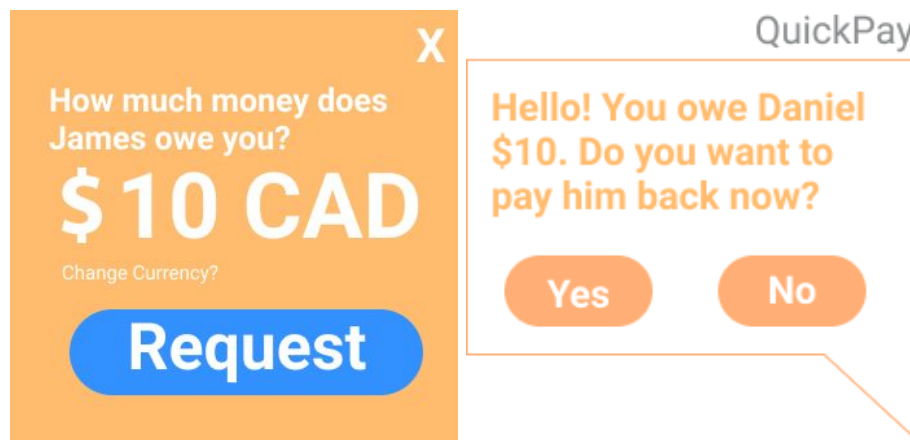


In the settings page there is now a help button to show tutorials that were previously only shown the first time a user enters a specific page in the application. Placing this help button in settings is intuitive and follows industry standards. Allowing users to re-read application tutorials is advantageous if the user has not visited the application in some time and has forgotten key functionality aspects.





We have added exit buttons in the upper right corner of all money related pop ups to give users to ability to cancel transactions at any point in time during the process. This simple addition means users do not have to follow through with an intended transaction or force close the application in order to cancel.



Some feedback on our heuristic evaluation said that the request money functionality seemed useless since the person requesting money can just ask and have the sender just send money. However we kept this functionality because we believe this increases the ease of use for the sender, since they can just accept or decline the request. This also gives a degree of control to the person requesting money because they are explicitly stating the amount they want, allowing the sender to accept or deny payment of that specified amount.

Recommendations for Next Iteration of Design

In future iterations, we would like to improve the existing features and add new features such as:

- The ability to use QuickPay to purchase through NFC
- Show when a user is typing

- Prompt user to enable biometrics if the application detects the phone has biometric capabilities, ensure support for facial recognition biometric systems
- The ability for recurring payments and recurring requests
- Statistics of money in/out summary with visuals such as graphs
- Option to require re-authentication to validate each non-recurring payment
- Suggest auto conversion of currency based on recipient's phone number area code or country extension
- Implement the "Different phone number?" feature on the login page by using some secure way of updating the phone number and verifying the user's identity beforehand

Conclusions

To develop QuickPay, we have implemented different design evaluation and implementation methods that were discussed during lecture. Unlike most of the mobile applications developed without any use of such design methods, the QuickPay mobile applications has been designed following solid sociological trends, interviewing methodologies and theories. A solid real world problem was sought after with proper use of user research and design evaluation methods. Use of implementation methods is vital and the techniques have been evolving over time. We believe this makes this application most convenient for the daily minute or large transactions of money that usually involve a hassle of having to go back and forth on how the transactions would move forward. This application is expected to grow in the future as well, since some research on other potential and supplementary applications is already being undertaken in order to extend the types of payment methods such as cheque and integration of gift cards.