Human Computer Interaction - Project Phase 2

Advancing Experience: Unveiling SadaPay's Enhanced Prototype Journey

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Introduction

This report gives a detailed summary and descriptions of the enhancements made and new features added to the SadaPay mobile application in the form of a prototype. The prototype is constructed using the web-based application, Figma and is linked down below under *References*. The changes made reflect the recommendations from the earlier report titled, *"SadaPay User Experience and Interface Assessment: A Holistic Review and Improvement Strategy"* submitted on October 30, 2023.

The crux of this project is to improve design of the SadaPay application. We take inspiration from the individuals who whole-heartedly participated in our survey and provided important insights to improve designs. We build onto our understanding of design principles, particularly Ben Shneiderman's *8 Golden Rules of Interface Design*:

1. Strive for consistency
2. Enable frequent users to use shortcuts
3. Offer informative feedback
4. Design dialogue to yield closure
5. Offer simple error handling
6. Permit easy reversal of actions
7. Support internal locus of control
8. Reduce short-term memory load

SadaPay Prototype on Figma - URL

The prototype for this project is designed on Figma, which is web-based application for designing applications. The following URL is the link of our project:

https://www.figma.com/file/k8GoShy7JwWdNIliw0fQSF/HCI---Phase-2?type=design&node-id=0%3A1&mode=design&t=ZoinsuXVxOlceCUA-1

Targeted Individuals to Facilitate

We curate multiple groups that our survey indicated were not adequately facilitated, which are listed below. We then target aspects of the application that must be improved like visual, functional, accessibility and standardization.

- Senior citizens
- Disabled people
- Illiterate people
- Socio-economically challenged individuals
- Privacy-sensitive users

Key Changes: Functional

SadaPay is built on the idea of being easy-to-use. It caters to people that need to make quick financial transactions, which meant that it needed to include only a few important functions. However, we realized that in the effort to make the app concise and *Sada* (simple), it has forgone some very important functions. SadaPay has excluded things like a standardized beneficiary/contact list, notifications section and discovering/exploration of app without signing up first.

1. Contact List

The idea is taken from online banking applications' beneficiary list, which is like contact book of important information of all accounts/individuals that the user saves. This way the users have access to an ordered list of accounts from which they can easily search and quickly make transactions instead of entering redundant information for every new transaction.

SadaPay provides a list of all contacts from the device's phonebook which are registered with their app, but only in the *Request Money* section. In the *Send Money* section, it only lists down recent accounts ordered based on recency of transaction. Apart from lacking functional efficiency, this is also an inconsistent design. In our new prototype, we have added a comprehensive contact list taken from the device's phonebook, in both these features. In addition, we also facilitate adding new contacts or accounts if the user makes a transaction to a new or unknown recipients.
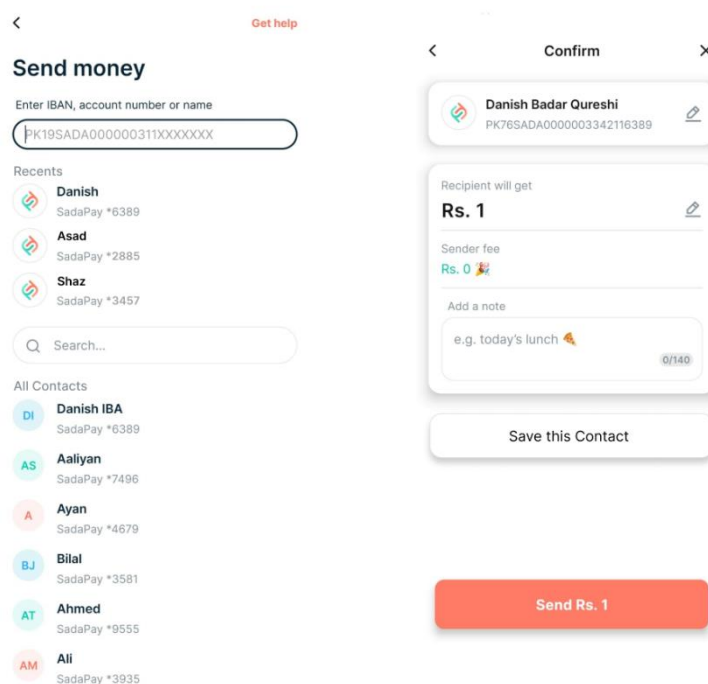
## 2. Explore SadaPay without Registration

Currently a new user who hears or gets to know about SadaPay can never get first-hand experience of the application. New users must register by entering personal identifiable information, CNIC pictures, and fingerprints; then wait for it to be verified, before they are allowed to use the app. There is no way for them to first experience what they are signing up for, and so, privacy-sensitive individuals are often reluctant to sign up for SadaPay.

To cater to this group, we have introduced the option to *Explore as guest*. By clicking this option before or during signing up, users can take a tour of SadaPay and discover the different functions of the app. User can also explore as an unverified new user once they wait for a verification.
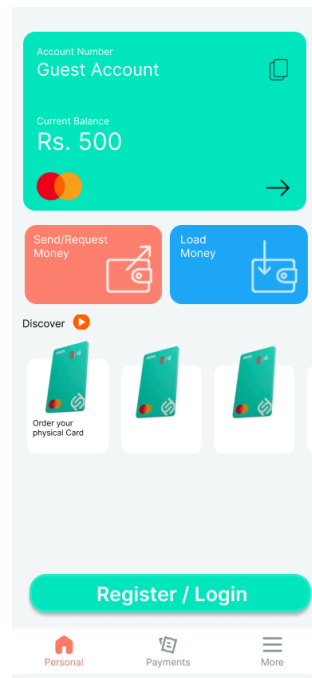
3. Notifications

The main idea that motivated us to include a notifications screen/section was that money requests made to the user could only be seen when the user navigated to the *Money Request* option within the *Payment* section. Users therefore forget money request sent to them. A notification tab not only solved this issue by being visible on the home screen itself prompting the user of important updates. Furthermore, together with listing down money requests, users can directly *send* or *decline* these requests. It also lists down recent transactions made externally with SadaPay's cards.
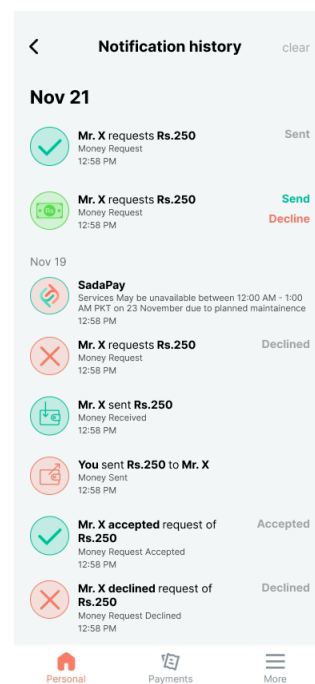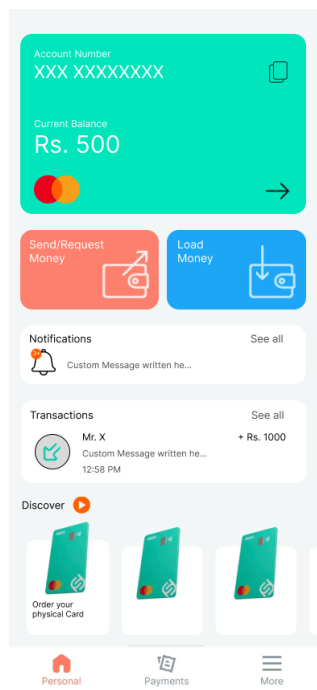
Key Changes: Accessibility and Inclusivity

Most efficient designs are developed keeping everyone in mind. Good design makes a product useful as well as understandable and it is the designers' job to make it useful and understandable for everyone without discriminating the abilities or literacy of the user base. Care must be taken to include disable, illiterate and senior citizens in the user base, and the application must be designed to make its features more accessible for them. Therefore, to make SadaPay more accessible and inclusive, we have introduced a completely new *Accessibility* option within the *More* section. The Accessibility option enables users to change settings to make the user experience more comfortable by catering to their specific needs which include:

- Language
- Voice Narrator
- Colors and Theme
- Text and Icon Size
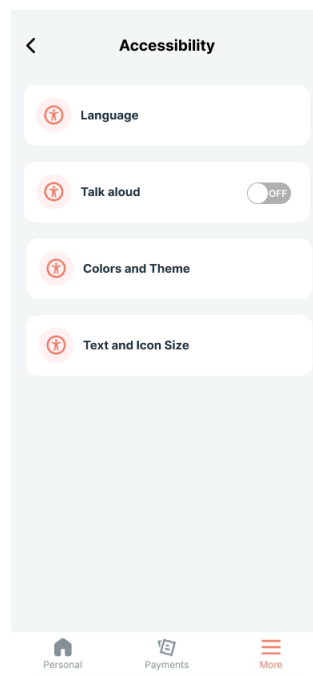
1. Language Selector

Currently SadaPay's user interface only supports English language, which prevents people who are unfamiliar or uncomfortable with the language to use to the app effectively. To solve this problem, we have introduced an option to change the language of the application. We allow for users to select a language at the point of registration, as well as include an option under the *Accessibility* section to change it.
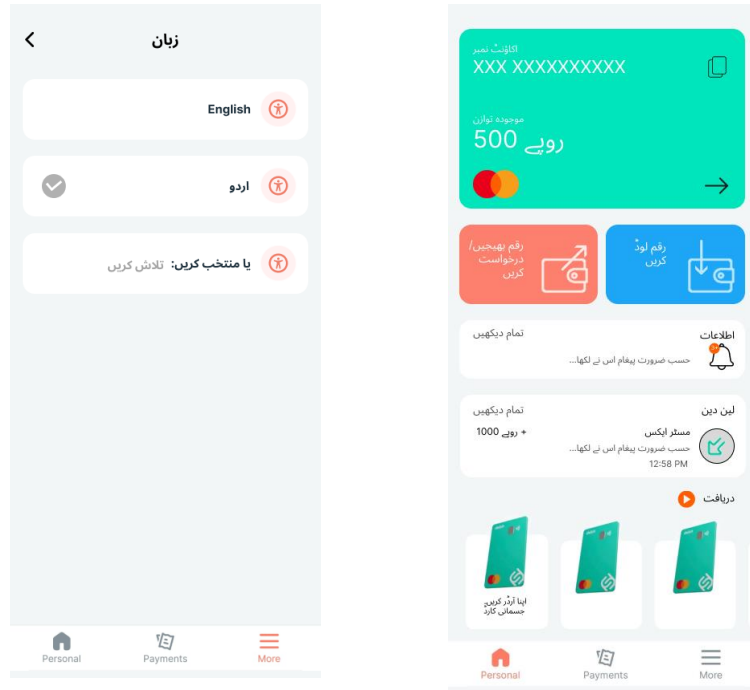
2. Voice Narrator

To cater to visually challenged individuals, we also introduce a *Talk aloud* feature which when enabled gives audio description of the screen. It gives the users spoken feedback so that people who have difficulty reading the screen can use the app effectively. When this option is enabled, the application flow is slightly altered like the user must now double tap any option to activate it since single tap or dragging would be used to get audio descriptions of the option.
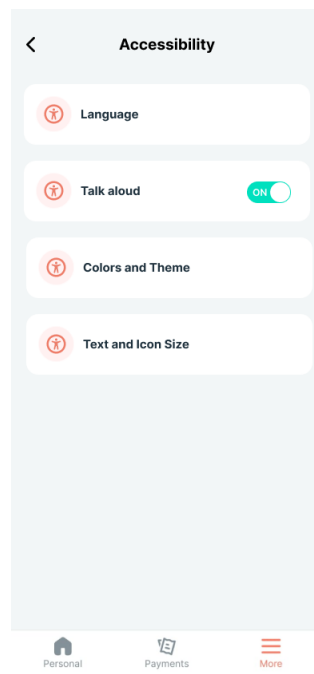
3. Colors and Theme

SadaPay's default color scheme is very attractive. It is relatively high contrast which aids partially color-blind people. However, to improve accessibility, we have added an option of *High contrast* which makes the elements' even more easily recognizable. In addition, we also introduce a *Dark mode* option.
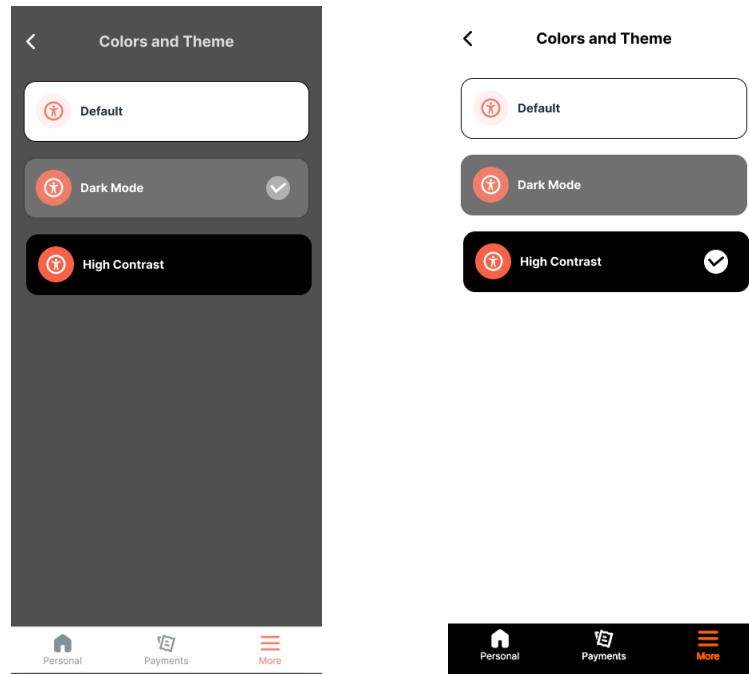
4. Text and Icon Size

Lastly, we also added 3 new options of text sizes that the users can opt from.
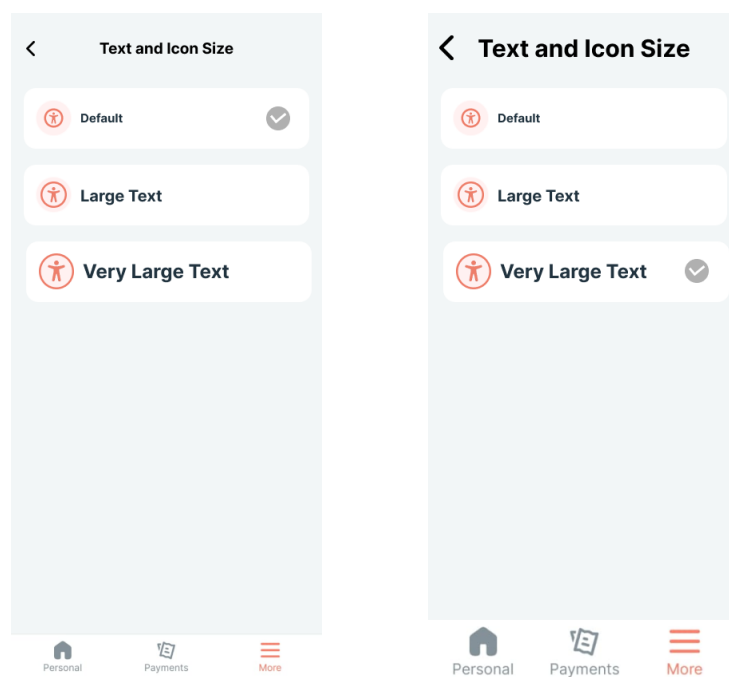
Miscellaneous Enhancements

Visual

Most of the respondents agreed that the SadaPay mobile application is one of the most aesthetically pleasing financial applications. Therefore, very few changes were introduced. Key changes are listed down below:

1. Added icons on Send/Request and Load Money cards for better visualization. This targeted illiterate individuals and those who like recognizing functions using images and icons.

2. Color schemes like green for debit and red for credit transactions are introduced to facilitate efficient information visibility.
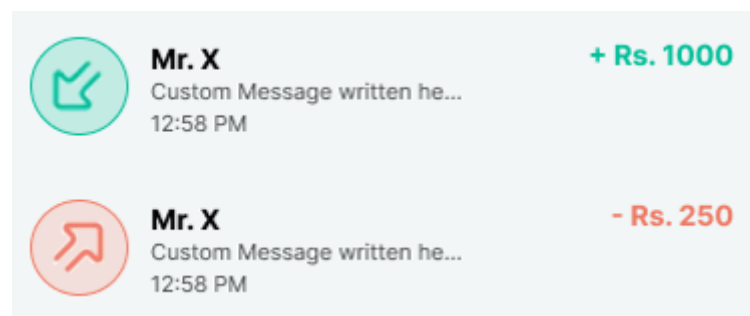

Standardization

Shneiderman states that the user interface must "strive for consistency". It is important to standardize systems to make the learning curve shorter and enhance user experience. SadaPay already does it well, but we have made some improvements. This includes using similar colors for similar operations throughout the app and keeping the layout consistent. For example, green and red are used for debit and credit transactions respectively.

Error handling

An important aspect of a good user experience is that the system should be forgiving towards errors and making changes must be easy. As Shneiderman mentions, the system must "permit easy reversal of actions" and "offer simple error handling". However, currently when a user has to change the amount of money to be sent, they have to start over the whole process flow again. We have improved this process flow by allowing editing the amount at the later steps. This allows for better error handling.
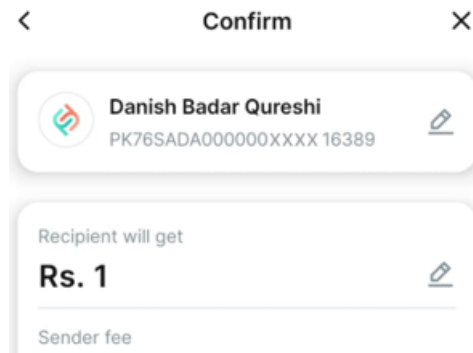
Evaluation

After completing the design of the prototype, it was forwarded for evaluation to the same group of people whose feedback was taken in the previous survey *(refer report: "SadaPay User Experience and Interface Assessment: A Holistic Review and Improvement Strategy")*. Most of the respondents were unfamiliar with Figma and what a prototype was, so care was taken to give them specific information and relevant screens were shown to get their feedback. We incorporated *Cognitive Walkthrough* and *Think A Loud Protocols* to try to understand their feedback. In addition, there feedback was taken in-person or via video-conferencing where at least one team member was always present to help the respondents.

Impressions

The first impressions were mostly good. People noted and appreciated that it was almost identical to the original application, with some changes here and there. This allowed almost no newer learning curve. On closer inspection, respondents noticed the changes like the inclusion of icons and some changes to the layout of the home screen. The color scheme was identical to the original which is what made it look identical to it.

Functional Analysis

Users were informed of the functional changes made in the prototype like addition of a contact list, notification tab and exploring the app. All these changes were well received. Exploration of the app was appreciated, but users still believed that it might not be the most optimum way to introduce an application to new people. This is because of the nature of SadaPay being a fintech application, where it is difficult to simulate transactions.

The idea of the notification tab was novel and surprising for many. Users liked having something within the app to track their interactions. Some people even commented that they did not notice Money Requests being lost prior to us informing them. They found the incorporation of money requests like this very impressive. We did receive feedback that the money requests and other important notifications should be highlighted and not cleared without a confirmation dialogue box. This is an important insight that would be included in future work.

Accessibility Reviews

The inclusion of language selection was something that some users had already mentioned in our previous survey and they and all others liked the idea of allowing people to interact with the app in their preferred language. Particularly those who could not read and/or understand English acknowledged their inclusivity. Similarly, all the newer features introduced for added accessibility and inclusivity were positively received by everyone.

Conclusion

SadaPay is a relatively newer application. It targets younger people belonging to middle- and upper-class groups of people and it caters to their needs very well, and is seen to be working to improve its services. While improving its financial services is important, it is also imperative to update and keep working to improve its usability and overall mobile applications' experience.

Functional aspects are generally always improved overtime, but SadaPay lacks in providing inclusivity and accessibility features for differently-abled individuals. In addition, certain users like to interact with applications in a certain way and without any accessibility options, they are unable to customize their experience.

This project allowed us to explore and understand SadaPay's exceptional user experience, while also critically analyzing its shortcomings. We were able to expand upon our understand of Human-Computer Interaction while working on a real-world application which gave us insights about how things are done professionally. This report summarizes not only SadaPay's user experience, but also records principle concepts of system design and how people interact with them.

References

1. Qureshi, D., Virani, A., & Shoaib, S. (2023). *SadaPay User Experience and Interface Assessment: A Holistic Review and Improvement Strategy.*

2. Shoaib, S., Qureshi, D., & Virani, A. (2023, December). *SadaPay prototype on figma - HCI Phase 2.* From Figma: https://www.figma.com/file/k8GoShy7JwWdNIliw0fQSF/HCI---Phase-2?type=design&node-id=0%3A1&mode=design&t=B4XvHFaAumOvgA20-1

3. Wong, E. (2020, July 31). *Shneiderman's Eight Golden Rules Will Help You Design Better Interfaces.* Interaction Design Foundation - IxDF. https://www.interaction-design.org/literature/article/shneiderman-s-eight-golden-rules-will-help-you-design-better-interfaces