HiKorea Interface Analysis: Immigration Website for Foreigners in Korea

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ABSTRACT

The HiKorea website (http://hikorea.go.kr) is a an immigration website for foreigners in Korea. The main tasks that users can perform through the website are appointment reservation and e-applications. Through evaluating user experiences of the website, we found many issues in the interface. With the user centered design process, which includes project proposal, task analysis, low fidelity prototype, video prototype, heuristic evaluation and high fidelity prototype, we propose a mobile application to improve the user workflow with HiKorea.

Author Keywords

User-centered design, web development, heuristic evaluation, mobile application

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; See http://acm.org/about/class/1998 for the full list of ACM classifiers. This section is required.

PROJECT PROPOSAL

One of the main tasks for foreigners on the HiKorea website is to book appointments for the Alien Registration Card (ARC). However, this website was not designed with foreigners in mind and is difficult for them to use due to a difference in knowledge. Therefore, the interface should be designed with foreigner personas and foreigner input to ensure a satisfactory experience. This includes providing browser compatibility information, extension installation instructions, and overall user interface. Our overall solution for this website is a mobile application that can be used to perform many tasks needed by foreigners in Korea. This presents a new and enhanced user workflow enhanced by technology.

ANALYSIS OF PROBLEM

The HiKorea.go.kr website is useful to foreigners because it provides an appointment reservation system and online application submission. This helps reduce wait time at the immigration office. However, this website is difficult to use for foreigners because they are unfamiliar with Korean interfaces. They will not know that they need to use Internet Explorer or why they are being asked to download extensions to access the site. Some positive aspects of this website that will be beneficial to retain is the online application submission, member login, and appointment confirmation receipt.

Many exchange students at Yonsei University struggled to use this site to book appointments. Some simply gave up on this website and waited at the immigration office instead. In a Yonsei exchange group chat of over 300 people, for the entire first month all messages consisted of "what is this website", "how do I use this website" and "it won't open, what do I do". This reflects the bad user experience of this website as it does not provide enough affordances for foreign users.

Some examples of existing work practices are the Canadian Immigration website (http://www.cic.gc.ca/english/), (https://www.uscis.gov), the USA Immigration website, and (https://www.gov.uk/browse/visas-immigration) the UK immigration website. These sites provide a much better user interface and experience than the outdated HiKorea website. The appointment reservation systems and online applications on these sites are much more intuitive to the user.

USER PERSONAS

Diane, an exchange student from UK

Diane is an exchange student at Yonsei University in Seoul, Korea. She is very excited to be studying in a foreign country and exchanging cultural experiences. However, she is only here for 4 months and therefore has limited time to explore everything that she wishes to. She knows how to use a computer to contact friends and family and she likes to share photos with them. However, she is not an expert. She has 90 days to submit her ARC application and wants to do it as soon as possible to get her foreigner number and a phone plan. Diane hasn't used Internet Explorer since she first got her laptop and used it to download Google Chrome. She hasn't made any friends yet in Korea and doesn't know who to ask when she encounters errors. Diane will likely give up if she feels like she's struggling and doesn't know what is happening and will instead take an easier, longer option.

George, an English teacher in Korea from US

George has been in Korea for 5 years teaching English. He's experienced a lot of Korean culture and knows how to use interfaces in Korea. As a teacher, he works long hours

everyday and has very limited free time. Depending on where English teachers are needed, he often changes schools. Because of this, he has to update the address on his ARC using the HiKorea.go.kr website frequently. Before becoming a teacher, George obtained a Bachelors in Computer Science in his home country. Initially, he had problems using the HiKorea.go.kr website. However, since he has been in Korea for a while, he has learned the requirements of Korean interfaces.

TASK ANALYSIS

The task analysis for this website was performed by interviewing users who have successfully and unsuccessfully used the HiKorea website. We asked them about their experience making an appointment reservation for the ARC.

Who is going to use the system?

The appointment reservation system will be mainly used by foreigners in Korea.

What tasks do they now perform?

Appointment reservation

What tasks are desired?

- A better user experience is desired. Being able to actually use the website to make reservations. Most exchange students just gave up on the website and went to the office and hoped there was an available spot.
- Combine the E-Application and the Appointment Reservation system. To fill out the E-Application, the user needs to go to another website.
- Website only has English/Korean option but the Seoul Southern immigration office has an entire floor dedicated to Chinese people. Clearly, there is a lot of Chinese who need this service but they cannot use this website. Provide a Chinese language option.

How are the tasks performed/learned?

If the user knows how to use the internet and navigate websites, they should be able to navigate the website. However, since the user experience is bad, the user will be frustrated and may decide to not use the website anymore.

Where are the tasks performed?

Users can make appointments on a computer or mobile device with internet access. If they are a foreigner in Korea, they may not have internet access available so they may have to use a public computer instead of their personal computer.

What is the relationship between customer and data?

This website stores personal, sensitive information about the user, such as their passport number and date of birth. If the user is using the website as a "non-member", they will have the option to set a password to access their application later.

What other tools does the customer have?

If the user does not want to use the online reservation system to make an appointment, they can:

- Make an appointment on the phone
- Ask someone else to make the appointment for them
- Go to the office without an appointment

How do users communicate with each other?

Reserving an appointment is an individual task and does not require communication with other users. Most users communicate with each other because they are having problems with the website and they cannot make an appointment.

How often are tasks performed?

During their stay in Korea, the user may only need to make an appointment one time for their Alien Registration Card (ARC). Depending on their situation, they may also need to use the website to extend their visa or submit a change of address.

What are the time constraints on the task?

Users would like to make an appointment quickly and easily. If there is a long process to make an appointment, the user will be less motivated to use the reservation system.

What happens when things go wrong?

If the user is not able to make a reservation online, they will most likely try another method or go without an appointment.

LOW FIDELITY PROTOTYPE

The low fidelity prototype was made using Google Slides to design the different application screens. Then, the designs were printed and cut to phone size. The main screens can be seen in Figure 1. These screens focus on language selection, main user task menu and the application settings menu. Figure 2 shows the screens for the ARC application with the new user workflow. There are two ways that users can select their office location - manual selection or by entering their address to automatically find the best location. The date and time selection for the appointment was improved based on user feedback and observations from the website.

User Workflow

When the user first opens the app, they will be able to set the language. If they want to change the language later, they can change it in the settings menu.
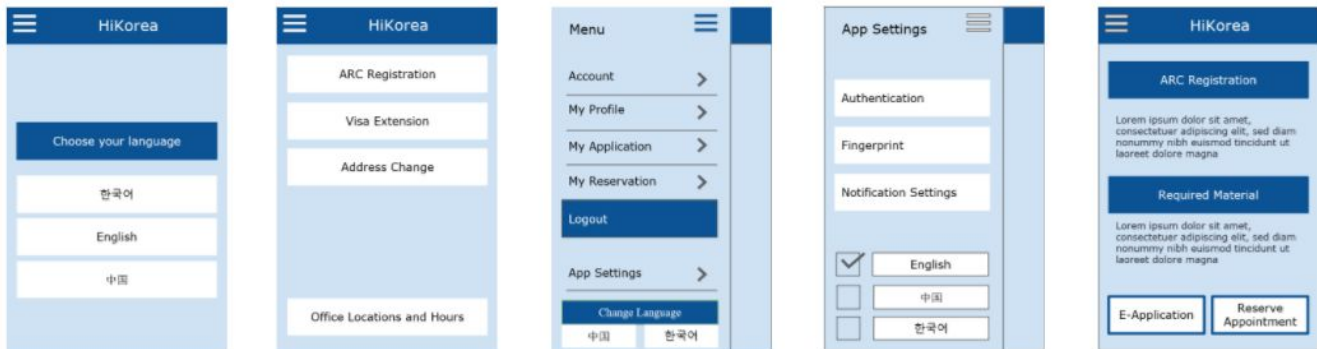

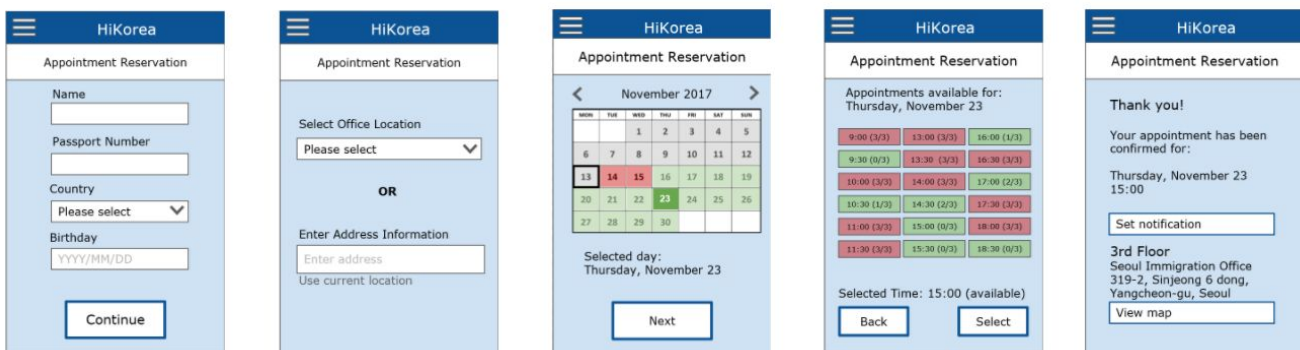**Figure 1. Main application screens in the low fidelity prototype.**

Figure 2. Application screens in the low fidelity prototype for the ARC application.

To view the application menu, the user can open the menu icon located on the top left of the screen. The design reasoning for menu button position is that many applications use this placement so many users are familiar with this design. In the menu, the user can choose to view their applications, reservations, application settings and more.

When the user selects "ARC Registration" from the main user task menu, they will see the ARC information screen. Here they can view the general information for submitting the ARC, the required application materials, reserve an appointment or submit an e-application.

When the user selects the "Reserver Appointment" button, they will be able to fill out the application to reserve an appointment at the immigration office.

VIDEO PROTOTYPE
The video prototype shows the new and improved user workflow when they make an appointment for their ARC. In our video planning storyboard, we show step by step screens of the low fidelity prototype. The setup asks the user for all required information for the application. The recording was filmed from above, simulating the point of view of our actor using the application for the first time.

HEURISTIC EVALUATION
The heuristic evaluation (HE) using H1 & H2 conditions was held with low fidelity prototype seen in Figure 1 and Figure 2. Five foreigners who had already used HiKorea before provided their feedback for evaluation. They pointed out user recognition and visibility as main shortcoming of the prototype.

Consistency - Button placement
Figure 2 shows screens with one button at bottom and two buttons at bottom. Screens with two buttons have buttons placed at leftside and rightside while screens with one buttons have button at the middle of screen. Some screens have the "Continue" button at the bottom center while other screens have two buttons placed on the bottom left and right of the screen. The different placement of buttons may be annoying for the user to adjust their fingers each time.To obtain consistency, we put one button to be at bottom right.

Consistency - Language
Inconsistent language was also chosen as element breaking consistency. This may be confusing for the user because they both mean the same thing. We replaced "Next" and "Continue" with "Submit" on the last page of the application.

Error Prevention
The low fidelity user interface does not have an option to review the application before submitting. This may lead to user error when submitting the application. To prevent this, we inserted "Review Application" screen before the final application submission.

An evaluator proposed a question with undo function. He suggested that implementing undo/back with the back button on Android may cause some number of unintentional go back(undo), and make user do steps again. To solve this problem, a confirmation message box saying - "If you go back, you will lose your progress on this screen" is inserted.

Visibility of System Status
Application Progress

This was violated in our suggested application as there is nothing in our application that tells a user their progress. There should be a progress meter somewhere on the screen so a user knows how much of the application they have completed and how much they have left to complete. For example, a small indicator that states "[3/5 pages]" or just "[3/5]".

Loading bars

Furthermore, our prototype did not have a loading bar or image for users to know that their request is processing, such as when a user finishes their application.

Confirmation Page

However, a positive aspect is there is a confirmation page at the end to confirm to a user their appointment has been made or their application is complete. This is good as otherwise a user will not know if an error has occurred or not if no message appears.

HIGH FIDELITY PROTOTYPE
The high fidelity prototype was made with the online high fidelity prototyping website called Proto.io. The main goal of high fidelity prototyping was to improve the prototype based on the HE and demonstrate progress of ARC application. Proto.io provided the ability to link screens and mobile animations. We used screen recorder to take video clip of a user making an appointment reservation with the high fidelity prototype. We edited the video with Windows Movie Maker.

CONCLUSION
By going through the user centered design process, we iterated and improved our original design for a better user experience and workflow. There are many further advancements that can be made to expand this application design to encompass more tasks from the HiKorea website. If these improvements are replayed to the Korean Immigration Office, they can improve their interfaces and have more effective immigration process for tourists. This is especially important as the 2018 Pyeongchang Olympics which will increase tourism in Korea.