Project Proposal

Human-Computer Interaction

Class session number: 1

Team number: 4

Team members: 김종성, 신홍준, 장유진, 이예은, 김민지, 정수연

You can just use this table form for the proposal. Or you can use another format (e.g., [HCI proposal previous years](https://drive.google.com/drive/u/0/folders/1PIkLDlD3gr3pYDB0nDtpLI7cIpL-kn7S)) containing the contents in this template. Delete blue texts when you submit the proposal.

| Title | ICoinUp |
| --- | --- |
| Abstract | (describe your project within 3~4 sentences) 세탁기 앱에서 QR코드를 이용하여, 세탁기를 관리하는 기능을 제공하고, 타이머를 통해 사용자 편의성을 개선하는 것을 목적으로 한다. 이를 위해 사용자 중심적 설계 방법론을 적용하고, 앱 내의 인터페이스 디자인과 기능을 개선할 것이다. 개선된 세탁기 앱은 사용자들에게 더욱 편리한 사용 경험을 제공할 뿐만 아니라, 세탁기 앱 개발자들에게 HCI 분야에서 중요한 가이드라인을 제공할 것으로 기대된다.  This project aims to provide a washing machine app that uses QR codes to manage the washing machine and improve user convenience through a timer. To achieve this, we will apply a user-centered design methodology and improve the interface design and functionality within the app. It is expected that the improved washing machine app will not only provide a more convenient experience for users, but also provide important guidelines for washing machine app developers in the field of HCI. |
| Target Users | (for whom? why? as detailed as possible) |
| Problem | (describe current problems and issues)  (more than half page)  Expected contents (but, not limited to)  - their problems  - background information (e.g., news, previous studies, journal papers, reports, …)  - (for journal paper search) go to DBpia through <http://library.handong.edu/nonRelation/dbpiaLink> and search if there’s any research that is related to your project. → the related paper will be mentioned in the final report.  Background Information: Many students at our school reside in dormitories, which means they must share facilities and adjust to living in a group setting. However, with the advancements in technology, we can solve many of the issues that arise and provide more convenient and systematic services with user-friendly interfaces.  Current problems and issues: One of the main problems that dormitory residents face is with the laundry facilities. The issues with the current laundry system include:   * To check the remaining time on a machine, one must physically go to the laundry room. * To retrieve laundry once it's done, one must set a personal timer. * To recharge the laundry card, one must go to the charging station. * To recharge the card, one must pay in cash.   Real-time data is needed to view which machines are currently in use or available. However, implementing a data server system to transfer or store the data and using hardware sensors to detect it would require significant resources. Therefore, feasible solutions are needed to alleviate the inconvenience for current dormitory residents without relying on expensive hardware and allowing payment without the need for cash.  In summary, we require a system that is cost-effective, hardware-free, allows for payment without cash, and enables real-time monitoring of available and in-use laundry machines to address the current issues with the dormitory laundry facilities. |
| Solution | (describe your goal and final output)  (more than half page)  Expected contents (but, not limited to)  - final results, expected outcomes  - technical approaches in detail (e.g., name of the device or algorithm you will use)  - benefits/values target user can earn  - …  The solution to the main problem facing current school dormitory residents is as follows.   We need to monitor through real-time data to know whether we use a washing machine or a dryer. By putting a system in the app that can monitor the washing machine in real time The Icoinup app reduces the hassle of having to go back and forth directly to the laundry room by informing you of the remaining time of the washing machine or dryer machine.  Existing laundry cards can be paid without cash through the washing machine app if you had to go directly to the laundry card charger and charge with cash, and they can be used more conveniently by using a system that automatically withdraws money when you put it to the washing machine. In addition, if you had to set the timer every time because the time between using the washing machine and using the dryer was different, you can go to pick up the laundry without forgetting by setting an automatic alarm at the same time as payment through the washing machine app.    Washing machine apps can solve problems caused by advances in technology and provide more convenient and systematic services with a user-friendly interface. |
| Main Functions | (describe your ideas and main functions/features roughly)  (you can put very rough sketches or reference figures/photos, which can explain your ideas)   1. Payment     Pay for your laundry with a QR code instead of cash. Take a picture of the QR code with your camera and you'll be taken to the payment system. Since payment is personal information, it can be difficult to develop, so we are going to get help from the Information Society Promotion Office. It is a function that recognizes QR codes and makes payments like Kakao Pay and TOSS PAY.   1. Status check     In the photo above, you can see which PCs are and are not in use at the PC room, and if so, how much time is left. It gets data from the server and refreshes it whenever new information is updated. We can apply this concept to the washing machine on every floor of the RC to see if it's being used and how much time it has left when it is.   1. Notifications     Notifications play a very important role in the modern world. Cell phones are one of the essential tools in our lives, and notifications alert us to new information or events. For one thing, they help us remember important events or appointments that we might otherwise miss. For another, they help us avoid missing important information or news. Putting in and picking up the washing machine is a commitment. Notifications and vibrations let you know the wash is done. |
| Interaction Concepts | User scenarios or use cases  - how your interaction idea fit use cases  - explain your interaction concepts with figures/sketches (sketches of use cases, sketches of display and interfaces)  Use case #1 Login     1. User click the HGU app 2. Go to RC and click the washing machine icon below my page. 3. Check the Laundry Status Window of his or her RC certain floor.   Use case #2 Laundry and payments     1. Click the empty washing machine and select the mode. 2. Capture the QR code to pay the money. 3. Move to Laundry Status Window if there in no money after showing message “Balance is insufficient” 4. Move to Laundry Status Window if there in no money after showing message “Payment has been completed” 5. Show how many minutes are left until laundry is over.   Use case #3 Verification and pick up     1. Hover the washing machine icon and check how many minutes are left. 2. If my laundry is over, an alarm or alert to tell the laundry is over. |
| Plan of Interactions | (describe interaction ideas in detail)  (draw sequence diagrams of each interaction. examples: <https://docs.google.com/presentation/d/1ND6QEVViKZdJWkaym66ePcvCNXCL0GYv/edit?usp=sharing&ouid=112935998469619194040&rtpof=true&sd=true>)  <User & App & Server>    <Example 1. Mouth-opening interaction to start a game>    <Example 2. Hand gesture interaction to select a menu> |
| Implementation | | List of requirements | PC, Laptop, Smartphone | | --- | --- | | Programming language | Python | | Source codes, examples |  | | APIs, libraries | Jump to Django(<https://wikidocs.net/book/4223>)  Django (<https://docs.djangoproject.com/ko/3.1/intro/> ) | | Device | Smartphone (ios, android) with camera | | IDE | Visual Studio, vscode | | Additional software | Photoshop, Figma | | Media sources (images, videos, music) | Python Django Tutorial for Beginners <https://www.youtube.com/watch?v=rHux0gMZ3Eg>    <https://littledeep.com/washing-machine-illustration/> | | Data | Washing machine and dryer information for each floor of the user's dormitory  Washing start time and during washing time information  Payment details | |
| Schedule | (calendar type, or Gantt chart, or weekly-based, …) |
| Final Outputs | [Final Working]  Implementing & Designing washingTimer Web/App  HCI Python Web App    [Final report] |

Submission

* Page limit: minimum of 7 pages (including figures)
* Format: Times New Roman, 11 pt., 1.15 line space
* File format: PDF
* Language: English
* Due: announced at LMS
* Submission to LMS

Evaluation

* Detail of planning
* Feasibility

Sample Proposals

<https://drive.google.com/drive/u/0/folders/1PIkLDlD3gr3pYDB0nDtpLI7cIpL-kn7S>