# Capstone Design (2)
## Project Proposal



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# 1. Project Idea Proposal

You can see the book market briskly in the opening of a course. We tend to buy expensive books in secondhand books at a fraction of the cost of new ones. How do you deal? Usually, I use direct or courier transactions a lot. We think the key to dealing is 'Safe Trade.' Are our deals always secure and reliable? Don't you worry about whether or not the seller's items are normal when you buy them? We also worry about the correct goods will be delivered when we deposit the money first.

In order to solve these problems, people choose to trade directly. If you do a direct transaction, you can check the goods yourself and pay them on the spot. But a direct transaction is a face-to-face transaction. That's why we have to set an appointment and a place for each other's appointment. It's hard to get in touch with your purchase anonymously and meet the time. There are also many people who are anxious and reluctant to meet in person these days. There are other ways to use locker transactions that don't meet people in person. However, the concerns about sellers getting the right money and consumers getting the right stuff don't diminish.

We were wondering if we could make a safe deal, not an unstable one. Create a barrel to make a safe deal. A transaction in which the seller puts the goods in a box and the buyer pays to receive the goods. This will be a convenient deal for both sellers and consumers.

# 2. Development Background and Objectives

## 2.1 Background

### 2.1.1 Frequent Book Transaction Between Students

It is not hard to find students selling and buying textbooks because the price of them is not affordable for students normally. As this trend spreads around the universities, a lot of intermediation services are emerged such as the application 'Everytime' and many other websites. However, the existing services offer only mediation between seller and buyer. It is their job to decide when and where the deal taking place. Depending on this problem, we enforce our competitiveness through providing the service deciding the spot and time.

### 2.1.2   Increase in Fraud in Transactions

Because the transaction between seller and buyer is totally up to them, the fraud can be easily happened. And when they are fraudulent, there is no way to respond to the fraud. To prevent this damage, we are going to get into the deal and make sure users of our services are guaranteed safe transaction. And the 'Book Box' will provide this by offering the secure transaction.

### 2.2   Objectives

Through providing secure transaction, we aim to

**first**, activate the trade of books between students

**second**, reduce the fraud during transaction.

**third**, offer the efficient trading for the users.

## 3.  Market Research

### 3.1   Everytime Book Market (Application)

The application 'Everytime' is one of the largest online communities among university students in Korea. And there is a book market service which occupies the largest portion of used book deal among students. However, this service offers only the transaction and do not guarantee the secure transaction. It is annoying for the seller or buyer to decide how, when and where they will trade the books.

### 3.2   School Community Websites

Every school has their own community websites and there is a section which is only for trade/transaction between the students of the school. It is more convenient and safer for the students because the trades take place between same university students and most of the communities are not anonymous. Despite of the advantages, there are some inconveniences which are just same with 'Everytime'.

## 3.3 Online Community

There are hundreds of thousands of online communities such as online café of Naver and Daum. Transactions through these online communities are usually occurred between non-students or people who have interests on something in common. This way has merit for people who are looking for the specialty publications. However, there are some risks of fraud and crime.

# 4. Project Implementation

This project provides a platform for buying and selling second-hand books. Book transactions are based on distance (neighborhood) and are traded through the "Book Box" for more stable direct transactions. If it is commercialized, the Book Box will be installed at a university of station.

The transaction process is as follows. First, the seller registers the book by inputting the information and condition of the used book, price and transaction area etc. Second, the buyer clicks the "buy" button to buy. Next, determine the location and time of the Book Box. When the seller puts the book in the Book Box by taking the generated QR code and barcode of the book, the system informs the buyer that the book is in the Book Box. Then, the buyer takes the generated QR code and payment is made. Finally, Book Box is opened, and the book transaction is completed.

## 4.1 Application

### 4.1.1 Sign up/Sign in/Sign out

Sign up is required to sell and buy books. The member's personal information will be stored in the database.

### 4.1.2 Book Selling Page

Book selling page is the main page of this application. Like other shopping mall pages, you can see books registered by seller and book transaction takes place.

### 4.1.3 Book Box Reservation

After seller and buyer agrees the trade the book, they reserve the location and date of transaction (Book Box).

### 4.1.4 QR Code Creation and Storage

After Book Box reservation, system creates QR code to transact book through Book Box. When seller willing to put the book in the Book Box, through the seller's QR code, transaction details such as trader and transaction book are confirmed. Through the buyer's QR code, transaction details are confirmed, and the payment is made.

## 4.2 Book Box

### 4.2.1 QR Code Recognition and Locker

When Book Box deals with seller, it confirms seller's identity and the book to trade and Book Box is unlocked. Then seller puts the book in the Book Box and the Book Box is locked. When Book Box deals with buyer, it confirms buyer's identity and payment, then Book Box is unlocked. After that buyer can take the book.

### 4.2.2 Book Barcode Recognition

Before putting the book in the Book Box, it recognizes the book's barcode to check if the book seller brought is same with the book that seller supposed to sell.

## 4.3 Administer Page

Administer page manages members, books that seller registered, all the data related to transaction.

## 5.  Development Environment

- Java SDK 11.0.2

- Android SDK 26.0

- Android Studio 3.3.2

- PHP

- Raspberry Pi

- MySQL

## 6.  Division of Work & Project Schedule

### 6.1  Division of Work

**Hoyun**

- Server

- QR Code Implementation

**Yuseon**

- Server

- Application UI

**Seungyun**

- Database

- Raspberry Pi

## 6.2 Project Schedule

| | March | | | April | | | | | May | | | | June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 18 | 25 | 1 | 8 | 15 | 22 | 29 | 6 | 13 | 20 | 27 | 3 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Proposal & Modification | █ | █ | █ | | | | | | | | | | |
| Study and Research | | █ | █ | █ | | | | | | | | | |
| Application UI | | █ | █ | █ | █ | | | | | | | | |
| Database Construction | | | █ | █ | █ | | | | | | | | |
| Server Implementation | | | █ | █ | █ | | █ | █ | █ | █ | █ | █ | |
| **Mid-Demo Preparation** | | | | | █ | | | | | | | | |
| Raspberry Pi Design | | | | | | | | | █ | █ | █ | | |
| Raspberry Pi Implementation | | | | | | | | | | █ | █ | █ | |
| Debug | | | | | | | | | | | █ | █ | |
| **Final-Demo Preparation** | | | | | | | | | | | | █ | |

Column 7 (April 15): Mid-Demo Presentation

Column 14 (June 3): Final-Demo Presentation