**Rentable**

Requirements Document

# 1. Introduction

## 1.1 Overview

“Rentable” is a mobile application that provides a platform for peer-to-peer lending of various products. The application will offer its users an intuitive interface that displays products based on their categories and location of the users. The application uses artificial intelligence to recognize the type of the product which enables the user to rent in one click.

## 1.2 Scope of the Product

This Android mobile application will allow users to rent and borrow their belongings in a secured fashion. The deliverable of the project is limited to Android operating system that uses firebase as a mobile application development platform. This Mobile application provides services such as Authentication, User Profiling, Product Image Recognition, Data Storage and feed for the user where the user can select their interest of items and proceed for the checkout. ML Kit service provided by Firebase platform is used classifying the products.

## 1.3 Business Case for the Product

The mobile application has become the need for any business purpose. As we know that smart phones and tablets have replaced traditional PC’s, the mobile application is a best way to reach the audience for this business use case. The use of Artificial Intelligence to recognize a product, reduces the human effort of manually entering the details of the product.

The lender just takes a picture of the product that he wants to lend and the image recognition module helps the lender to easily update their product details.

The location-based filtering and category filtering enables the user to swiftly search or rent a product from the feed displayed. The location service provided by the app helps easy pick up and/or drop of the product.

# 2. General Description

This application is designed for the users who need a product for a few days/months also for users who have such products to rent. The app not only provides a common platform for both of this user but also acts as a mediatory in handling the transactions for renting. The app utilizes the image recognition by using AI to determine what product the user wants to post on the app.

## 2.1 Product Perspective

As this mobile application will serve as a common platform for lending and borrowing of various products, it serves needs of the users instead of buying a new one. At the same time lender can earn money for the product rented for a specific period of time. The project is being developed by the students from the Department of Computer Science and Engineering, University at Buffalo. The App targets the general public who want to rent/borrow an item.

## 2.2 Product Functions

This mobile application will serve as a common platform for both lenders and borrowers. The application provides a camera interface to click a picture of the product, the image recognition service provided by the app classifies the product into a category.

The app homepage displays the products based on filters applied by the user such as location, category etc.

## 2.3 User Characteristics

The end user who will be using this product must be familiar with using a mobile application. There is no need of any prior technical knowledge required. The app provides an easy understandable interface, products displayed gives an option to rent an item.

Everything is pretty much self-explanatory during the billing or the shipping process. Since renting or borrowing is what the user has to do, everything is laid out as a step by step procedure that user has to follow to procced to rent or borrow or simply goes back to make any changes.

## 2.4 General Constraints

None

## 2.5 Assumptions and Dependencies

Following are the assumptions we have made-

* This android application is hosted on google play store.
* Internet connection required
* The user can authenticate his/her account using
  + Google account
  + Phone number

# 3. Specific Requirements

## 3.1 User Requirements

* Provides Authentication for the user.
  + Login.
  + Create an account.
* Displays the feed, which contains the available products in the user location to rent.
* interactive interface to rent or buy the product.
* Use of AI to recognize the product which in turn reduces the manual effort of entering the details.
* The Location service provide protects the user confidentiality and enables easy pick up and drop locations.
* The storage service built in the App helps the renter and borrower to store the images of the product for future damage control charges.

## 3.2 System Requirements

* This application will follow strict authentication mechanisms to secure user data.
* The database is built upon user provided data at the time of registration and is administered via Firebase.
* Since the database is hosted externally, the application must have access to Internet to seamlessly access the data.
* The user’s profile data and product details are stored in the database. These product details are retrieved to the borrowers search.
* Once the rent process is initiated or started, a sold tag is added to the item in the database until the duration of rent is done.
* When the user no longer wants to rent their item then he/she may remove it which eventually updates the database.
* Backend: Database scalability needs to be handled effectively as we need to display the feed of products which are classified based on their categories to the user.

## 3.3 Interface Requirements

* Login/Sign up registration
* Camera access
* Location Access for product feed
* Wi-Fi or mobile data access
* Storage Access

## 3.4 Administration Function Requirements

* Mobile application administration tasks include frequent monitoring of Database performance and creation of DB Indexes if necessary to ensure efficiency.
* Database Backup must be done at regular intervals to ensure reliability, atomicity and security of stored data.
* Application and Database logs are monitored to identify any sudden failures in the system.

# 4. Appendices

None

# 5. Glossary

None

# 6. References

* <https://developer.android.com/studio/intro>
* <https://firebase.google.com/docs?gclid=Cj0KCQiAm4TyBRDgARIsAOU75sqiiJcPk7tBPF2guvKRVthJHh2RIHoBvOF-0P2dOK_6AJxYoz83IfcaAg9jEALw_wcB>