Inventory App

Software Development
4th Year Project

Functional Specification

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Introduction

The goal of the Inventory App is to allow a user to easily keep an inventory of their books/DVDs/CDs by scanning the barcode on the item. The information about the scanned item will be automatically retrieved and the item added to the collection of items in the inventory. The application allows the user to add all their items to an inventory without the need to type any details in to application thanks to the use of a barcode scanner and optical character recognition.

To accompany the mobile application, a website will be available for the user to log in and organise their inventory of items.

Purpose

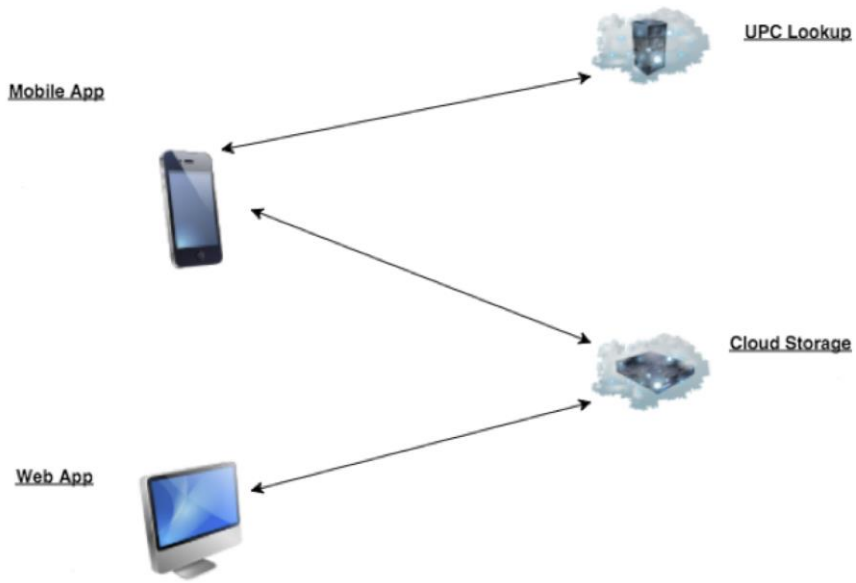
The purpose of this document is to outline the main features and functionalities of the application which will be developed. Some of the functionality that will be discussed in this document include, the scanning of a barcode, item lookup using the scanned barcode, retrieval of the information associated with the queried barcode, automatic population of database tables with the relevant information, the use of optical character recognition and creating reports from the item information which can be exported.

Scope

The scope of this document is to explain the functionalities and the key features that are planned for this project.

System Overview

Context Diagram



The diagram above is a high level representation of how the system will work. The system will consist of a mobile application for scanning the barcode on an item, an API which will be queried with the resulting barcode number that returns item information, a cloud storage platform which will store the item information and a web application which can be used to organise a users inventory.

Functionality

Mobile Application

Scan Item

The user can choose the option to add an item to their inventory by scanning the item's barcode. When this option is chosen, the camera on the mobile phone will be activated and the barcode will be decoded by the barcode scanner and the barcode number of the item returned. The barcode number will then be used as input with an API for looking up the details related to the scanned item. If an item is found matching the scanned barcode, then the item details will be automatically added to a database table and the user notified. If a match for the scanned barcode is not found, the user will have the option to add the item to their inventory.

Add Item

When an item has been scanned and no information relating to the item is found, the user can use this option to manually add an item to their inventory. This can be done by typing the item information into the application or by using the OCR take a picture, for example, of the cover of the book to retrieve the title of the book and the authors name, which will then populate a text fields without the need for the user to type in any information. Some of the fields that will be required to fill out will be: Barcode, title, author, category, price.

List Inventory

When items have been added to the inventory by the user, the user can then view the items currently in the inventory by selecting a specified category such as, books, games, cds, dvds.

Search Item

The user can choose to search for an item by typing in text associated with an item such as title, author or category and searching for the item rather than scrolling down through a list of all the items in the inventory to find the item that they are looking for.

Edit Item

The user can select an item from the list of items in the inventory which will bring the user to a page displaying the item's information. The item information can then be edited by the user and the updated information returned to the cloud storage which is saved.

Delete Item

When the user selects an item from the inventory , the item information page will be displayed. On this page the user will have the option to delete the item from the inventory which will remove a record of the item from the cloud storage database.

Export Items

The export functionality will allow the user to create a CSV file containing information relating to all the items stored in their inventory. This CSV file will then be sent to the users email address where it can then be printed off, or opened and viewed in a program such as Microsoft Excel. This file could be given to an insurance company in the case where a fire or theft has occurred.

Register

Once the app has been downloaded by the user, they will be then be able to register their credentials to gain access to the app. The credentials which must be provided are, username, email address, and password. The user account will be created if the provided credentials are valid and not already in use by another user.

Login

Once the user has registered their details they can then log into the application by providing their username and password. If the details provided are valid, they will then be directed to the application's home page.

Website

Login

Once the user has registered their details using the mobile application they can then log into the website to view their inventory.

List Inventory

Once the user has logged into the website they will be directed to the landing page where they can choose to list the items in the inventory by selecting a category such as, books, cds, dvds, games.

Edit Item

The user can select an item from their inventory list and edit the item details using the edit item screen.

Delete Item

From the edit item screen the user has the option to delete the item from their inventory which removes the record from cloud storage database.

Target Audience

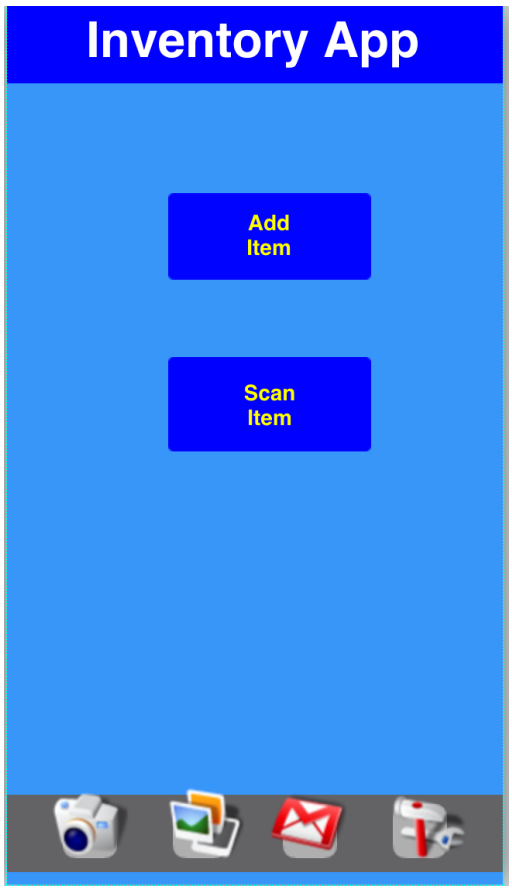
The application will appeal to any smart phone user interested in keeping a record of their books, games, music or movies. A kid for example, could keep a record of his gaming collection and use the application to show a list of all his games to his friends. A mature adult could keep a record of their book collection and sort these books in order of preference by which they plan on reading these books. A teenager trying to decide what movie they are going to watch from their large DVD collection. A user may want to keep a record of their belongings for insurance purposes in the case that some of their items are stolen or missing. The application will appeal to people of various ages.

User Interface

The mobile application's user interface will be designed with the aim of it being simple and as concise as possible to provide a good user experience. If the user interface is too difficult to navigate or understand, the user will not want to use the application because of bad user experience. It is very important that the user be able to operate the application immediately without the need for a user guide

The colour scheme for the application will be blue, white and yellow. These are very friendly colours and will allow text to be displayed very clearly on the screen to the user.

The user interface must also be responsive and dynamic. This can be achieved by using a mobile web framework such as GoRatchet.



Cloud Communication

The mobile application will need to be able to communicate with a database hosted in the cloud. Since the data will be structured data, a mySQL database will be used to store the user and item information. The passing of data from the mobile application to the cloud will be done by using ajax to send JSON data over the network. The JSON objects can then be parsed to extract the information.

Supplementary Specification

Functionality

- Users must be registered and logged in to use the application.
- Data can only be sent and received to and from the server if there is an active internet connection.

Usability

- The application must be easy to navigate through the menus.
- Website to assist with the organisation of inventory items.
- User friendly to users of all ages, simple options, no ambiguity.
- Consistent look and feel to the mobile application and website.
- Informative feedback to the user in the case of events or errors.

Reliability

- Inventory information will not be lost due to a malfunctioning or lost phone, as the data is stored in the cloud.

Performance

- Item information must be accessible 95% of the time provided an internet connection is available.
- Page transitions must take less than two seconds 80% of the time.
- Item retrieval must take less than 3 seconds 70% of the time.

Supportability

- The mobile application will be designed so that it can be built for various mobile platforms.

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- User credentials must be kept private and secure.

Potential risks/issues

Some of potential risks that could arise throughout the project:

- Problem interacting with the phone's native device API's
- Implementing an OCR engine that is not very accurate
- Spending too much time on one part of the project and neglecting other parts.
- The mobile application being slow and unresponsive.

Project Plan

The duration of the project from commencement date to submission date is 29 weeks. In this time frame there will be three sprints, with each sprint lasting approximately 9 weeks. For each of these sprints I plan on dividing my time up in segments as follows:

- 1.5 weeks for research
- 2.5 weeks for design
- 4 weeks for coding
- 1 week for testing