DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
THE UNIVERSITY OF TEXAS AT ARLINGTON

PROJECT CHARTER
CSE 4316: SENIOR DESIGN I
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THE BREW CREW
BEVERAGE MANAGEMENT

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REVISION HISTORY

Revision	Date	Author(s)	Description
0.1	07.08.2020	KS	document creation
0.2	07.09.2020	SR, NP, BP, LC	sections added (4,7,8,9,10,13 left)
0.3	07.10.2020	NP, LC	sections added (4,13 left)
0.4	07.11.2020	SR, BP, NP, LC, KS	sections 4 and 13 added

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LIST OF FIGURES

1 VISION

Consumers lose track of the beverages they collect which can often lead to the drinks expiring, or sitting on the shelf untouched for years. This is often the case for consumers who are fond of collecting drinks such as rare beer or fancy wine. This can lead to a substantial loss of money, time, and shelf space. Therefore, we have decided to create a project which can manage the inventory of drinks which a particular consumer owns, allowing them to customize their collection on the app and create/delete shelves as needed. The app will send notifications to the user to notify them in advance if any drink is about to expire. Our app will be android based and will be accessible to the general public to organize their shelves. We expect to finish with minimum expenditure while satisfying a higher number of objectives.

2 MISSION

Our team aims to develop a well-managed and easy to navigate application for managing alcoholic beverage. Apart from easy navigation, we aim to develop a systematic way of keeping tabs of the inventory with maximum accuracy. Through our application, users will be able to successfully track and categorize the alcohol products they have. Our application provides a chance for the users track the financial losses that may have occurred by accidental damage or theft of a product. Our product aims to attract individuals who love collecting variety of alcohol product, alcohol beverage companies and businesses that sell alcohol.

The tools that we will be using while implementing the project are:

- android studio

- iOS

- API calls

3 SUCCESS CRITERIA

The app will be used to manage a vast quantity of beverage items. The main priority of the app will be to properly manage the inventory which is scanned by the user. Additionally, for the first delivery, the app should support android and iOS based applications which will have access to the camera. Further features, such as, notifications, sounds, animations, and data will be added after the initial delivery. The final app should be able to store the read, interpret and store the beverage information in shelves (which will be added by the user) and send notifications to the user about expiry dates amongst other information.

After the beverage is scanned:

- notifications will be issued

- space limit will be monitored

4 BACKGROUND

We all have unique hobbies and habits. Some people enjoy doing outdoor activities whereas other enjoy doing indoor activities such as collecting things that they like. Different people have different kinds of interests such as collecting antique coins, seashells, alcoholic beverages, etc. We are focused and dedicated to work on a project that helps those have an interest in collecting various beverages by allowing them to organize their beverage properly. That is why we have decided to work on the app called The Beverage Management which was inspired by Dr. Conly's idea. This app will help an individual as well as small businesses to keep track of the beverages in timely manner. This app will allow a customer to keep the track of name, expiry date, and location of the beverage which will make it easier for them to find the specific one that they are looking for. This app will save people's time and money as it will keep the beverages information date updated and will allow them to consume the beverage before the expiry date.

5 RELATED WORK

There many beverage inventory management apps in different platforms available currently in the market. Partender, Barkeep, Orca Inventory & Ordering and Accubar are among the top results. These applications are commercially used in bars, restaurants and retail stores.

Firstly, Partender is the application genuinely indented for smart phones, android and iOS. According to their website their clients can save up to $10,000 per month [1] . It's a basic application where it tries to keep track of amount of beverage it has in the stock by just taking the picture of the bottle and swiping the level of content, company's motto "Tap-Swipe-Done". The application also helps to order more beverage and can track the most sellers and dead stocks currently in the system [2].

Another interesting application is Accubar, according to the website, "We have taken tried and true beverage management methods and automated them, using fast, sturdy bar-code scanners to save labor, eliminate error points and drive loss prevention and accountability" [3]. Products other features includes, inventory counts, receiving, perpetual inventory, supplier ordering, transfers between locations, empties, etc.

The solutions exist, however at some large scale and including other unnecessary features (transferring beverages, supplier ordering etc.). Being so used commercially has its price demand with Partender ended up for $165 per month [3], Barkeep for $40-50 per month and Accubar's pricing is not mentioned by the vendor [4]. Orca Inventory & Ordering has inventory tracking and control, budgeting tools, and one click ordering system [5], which seems too commercials as compared to our client's personal need.

6 SYSTEM OVERVIEW

Lots of beverage consumers lose track of their collection sof drinks and this can lead to a major loss of money and shelf space. We decided to use a dataset which contains the data for a variety of rare beer to design our drinks database. The user will be able to scan the beer the purchased using an in-built barcode scanner in the app and assign the drink to an empty portion of the shelf.

Our system will need access to the phones camera, which will only be active when the user wants to scan the bar code. The system will search for the information of the drink using the barcode in the dataset and populate the shelves on the application with the required data.

The expiration date of the beer and the number of that type of beer in the shelves will be kept track of so as to handle the user requests, and also send push notifications to the user when the beer is low on supply or about to expire.

Furthermore, the user can modify the functionality of the app (i.e the notifications sound, details of each shelf) within the app.
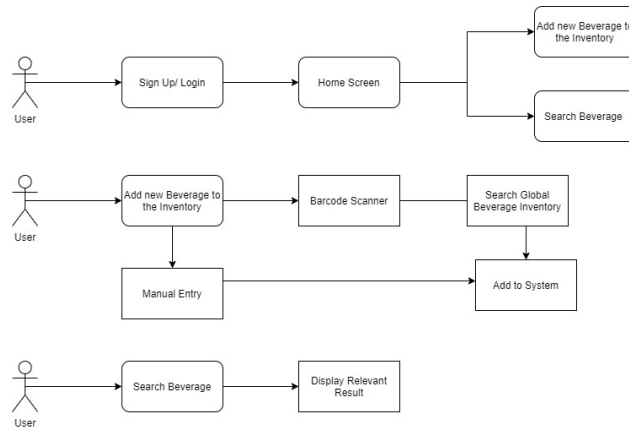
Figure 1: High Level system overview of major system components

7 ROLES & RESPONSIBILITIES

Stakeholders of our project would be Dr. Christopher Conly and CSE department, Points of contact from the sponsor or customer side and Scrum Master is Dr. Christopher Conly.

The team members are Bishal Paudel, Kunal Samant, Nirjal Phaiju, Sima Ryamajhi, and Lokendra B. Chhetri. As Miyamoto Musashi said, "Fixation is the way to death. Fluidity is the way to life." So, to give life to this project, we decided to gyrate our Scrum Master and team leader in every phase. Initially, we decided to appoint Kunal as a team lead and Scrum Master as Dr. Conly.

For this phase, Kunal and Nirjal will be working on Backend whereas Bishal and Lokendra will work on GUIs and frontend. Sima will work as a risk management lead. As a team, we will be giving 100% on the tasks we are assigned and also helping each other out.

8 COST PROPOSAL

Our project is supported and sponsored by the CSE department of University of Texas at Arlington (UTA). Approximately $800 will be provided to us to help our team with completion of the project. However, the team will need to provide valid proof of the expenses in order to be funded. Our team prioritizes on delivering a smooth working software with minimum cost. Therefore, expenses that our team can think of is accessing the global online alcohol inventory database through barcode. Through online research, we found out that there are multiple pricing depending on the package we want to buy. Therefore, the exact cost of purchase is yet to be finalized. Another expense that our project might include is accessing the features of Firebase.

8.1 PRELIMINARY BUDGET

Description	Estimated Cost (in dollars)
Product data API	$25 to $100
Firebase (Blaze Plan)	$25

Table 1: Overview of highest exposure project risks

8.2 Current & Pending Support

Our team aims to deliver a working software with minimum expenses. Currently, there are no pending supports for this project. However, our team is confident that the extra expenses related to the project can be covered by the $800 funding provided by the CSE department.

9 Facilities & Equipment

Our project is a software-based project therefore, the equipment used will be our personal desktops and laptops. The team concluded that no other exterior hardware product will be needed. However, in terms of software our team will be needing various development tools.

The team will be using Barcode scanner API, which will help our software to successfully identify products through barcode. Firebase is another such tool that our team will be using for realtime database, cloud messaging and user login authentication. There are free versions available in the market for both Barcode scanner API and Firebase but, the free versions come with limitations such as limited amount of storage space for Firebase and limited number of barcode scans for the barcode API. Therefore, the team may need to use the provided funds to access the additional features.

10 Assumptions

The following list contains critical assumptions related to the implementation and testing of the project:

- The budget provided by the CSE department will be enough to deliver and smooth and working application.

- The members of the team are familiar with front-end and back-end aspect of software development which will be critical for balanced distribution of the workload among group members.

- No external hardware will be needed in order to complete our project

- Users of the application will have access to internet and camera.

- The application will focus on android users.

- A suitable and affordable API will be found in order to successfully implement barcode scanner.

11 Constraints

The following list contains key constraints related to the implementation and testing of the project.

- A team of five members will work on the project.

- All the team meetings will be done through Microsoft Teams software.

- The development costs must be less than $800.

- Final prototype demonstration must be completed by August 12, 2020.

- Access to online beverage inventory database will be made available during the development phase of the application.

- Application will be made using android OS.

12 Risks

Risk description	Probability	Loss (days)	Exposure (days)
Delay in the availability of online beverage inventory database	0.50	16	8
Lack of user feedback during the development due to the current situation	0.7	10	7
Schedule conflicts and time management	0.30	12	4
Lack of knowledge of the tools and technologies required for this project	0.60	10	6
Changes in requirements	0.5	20	10

Table 2: Overview of highest exposure project risks

13 Documentation & Reporting

13.1 Major Documentation Deliverables

We will divide the work between all the team members, and complete our individual part. Each team member will be responsible for maintaining their own part and updating if necessary. The final document will be reviewed by the team before submitting.

13.1.1 Project Charter

The initial version of the charter will be revised by the group before submitting it on July 12th, 2020. The charter will be updated as per the changes made in this project. Also, feedback from the team member and Professor will be taken into consideration, and the charter will be updated before the final version. The final version will be delivered on December 1st, 2020.

13.1.2 System Requirements Specification

We will write all the requirements for the project and make sure with our customer/Professor to check that if all the requirements have been included before starting on project. When changes are made in the projects, requirements will be updated and maintained. While making the projects we will contact customer to make sure that our software meets customer all needs. We will make required changes in the requirements from the feedback of the customer. The final version will be submitted on July 27th, 2020.

13.1.3 Architectural Design Specification

The initial document will be submitted on——Before starting any of the development in the project, we will make the architectural design layout and submit it to the customer. After the feedback of the customer on its we will start to work on development. There might be few changes in this document after the feedback of the customer and Professor. This document will be updated when there are any changes made in the design. The final version will be delivered on August 20th, 2020.

13.1.4 Detailed Design Specification

Detailed design specification will be started after we have requirements specification and architectural design specification so that we will have everything to start working on. The layout for the detailed design will be shown to the customer and Professor for the validation. The initial version will be submitted on September 21st, 2020. There will be changes made in this document over the time. This document will be updated when there are some changes made in the design of the project after the validation with the customer. The final version will be submitted on December 1st, 2020.

13.2 Recurring Sprint Items

13.2.1 PRODUCT BACKLOG

We will add items to the product backlog based on their level of importance and dependencies. We will decide what elements are a must-have to be completed first while also making sure items that are a critical part of the other parts of the software are placed at a higher priority. We will decide as a group what needs to get done and in what order. At the moment, we haven't narrowed down exactly what software we will use to maintain the backlog.

13.2.2 SPRINT PLANNING

Each sprint will be decided based off of the previous sprint and what is needed to be done. There will be roughly 4 sprints.

13.2.3 SPRINT GOAL

Our sprint goal will be decided by our group.

13.2.4 SPRINT BACKLOG

The sprint backlog will be similar to the product backlog and the sprints will be decided based on the remaining tasks, ordered based on their priority.

13.2.5 TASK BREAKDOWN

Each task will be discussed and then assigned to a specific member in order to ensure a fair distribution and based on the members strengths and weaknesses.

13.2.6 SPRINT BURN DOWN CHARTS

The team lead for that specific sprint will be tasked to generate a Burn Down chart:
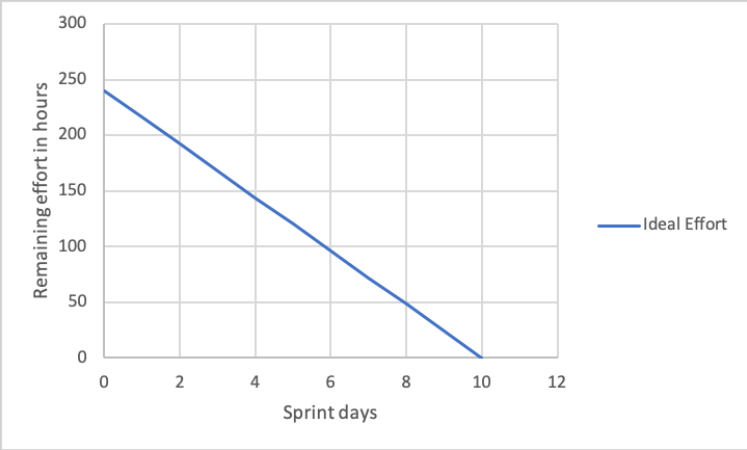

Figure 2: Example sprint burn down chart

13.2.7 SPRINT RETROSPECTIVE

At the end of each sprint we will gather together and meet to discuss what will be needed in further sprints. The sprints wont have specific due dates as the team would be able to communicates the status of their tasks.

13.2.8 INDIVIDUAL STATUS REPORTS

We will report to each other and communicate regularly about the updates on the project. We will note important points which will need to be discussed prior to deadlines.

13.2.9 ENGINEERING NOTEBOOKS

The engineering notebook should be updated whenever ideas related to the project arise. Hopefully, there would be a few updates between each meeting that we have regarding large changes to the project.

13.3 CLOSEOUT MATERIALS

The following materials, in addition to major documentation deliverables, will be provided to the customer upon project closeout. Remove this paragraph from your draft, but leave the heading.

13.3.1 SYSTEM PROTOTYPE

The Final System Prototype will have an android application that is well tested and properly functional. The Prototype shall be demonstrated to relevant stakeholders before the end of Senior Design 2. The team will be meeting with the project supervisor and customer on several occasions for Prototype Acceptance Test. This will help our team to ensure that we are moving in the right direction. There will be no demonstrations off-site therefore, no need for Field Acceptance Test.

13.3.2 PROJECT POSTER

The poster of our project will include our applications vision, mission and guidelines for installing the application. The Dimension of the poster approximately 20-30 inches wide and 30-40 inches tall. The poster will be delivered one day before the final presentation day of Senior Design 2.

13.3.3 WEB PAGE

Web Page will contain the basic information of your project. This web page will help the readers learn more about the application and the team behind the application. The web page will consist of the team's vision, mission, background and introduction to the team members.

13.3.4 DEMO VIDEO

The Demo video will show the viewers how to install and use the software. It will inform the users about the major features of the application. The video will be 3-6 minutes long.

13.3.5 SOURCE CODE

The source code will be pushed to github repository periodically. The source code will only be available for team members until the project is complete. After the completion of project, the source code will be available to the sponsors of the project, and decision of making code available to public will be decided later.

13.3.6 SOURCE CODE DOCUMENTATION

We will present our documentation in html format, with documentation for each function or parts of the code.

13.3.7 INSTALLATION SCRIPTS

The app will be available in app store so it will be very use to download and install.

13.3.8 USER MANUAL

This app will be user friendly and very easy to use. The app will have short introduction video explaining about its features and how this app works so it will easy for everyone to use this app.

14 REFERENCES

REFERENCES

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