4TB6: Problem Statement and Goals

Stonecap Solutions - Smart Serve

Max Turek *turekm*
Ryan Were *werer*
Sam Nusselder *nusselds*
Peter Minbashian *minbashp*
David Bednar *bednad*1

09/26/2022

Contents

Table 1: Revision History

Date	**Developer(s)**	**Change**
09/26/22	Max Turek Sam Nusselder Ryan Were	Initial Draft
04/05/23	David Bednar	Revision 1.0

1 Problem Statement

1.1 Problem Explanation

Stonecap Solutions aims to solve existing issues in the billion dollar bartending industry relating to the process of fulfilling drink orders. Bars are often busy with many orders being processed through a mental queue by bartenders. This can result in long wait times. Furthermore, many restaurants and bars are susceptible to being understaffed, further exasperating this issue. Cocktails and other drinks are imprecisely made, varying in volume and consistency. When bartenders are rushing around to make these drinks, the risk of spilling them arises. If these issues are severe enough, it could result in unsatisfied customers, decreasing business profits.

1.2 Proposed Solution

Stonecap Solutions aims to solve this problem by developing a drink delivery system that streamlines the process of a customer ordering a drink up to them receiving it. The system would automate the tasks of taking customer orders, making the drinks, and alerting the end user when the drinks are ready. This would result in a system that creates consistent, accurate and timely drinks while avoiding unnecessary spillage.

1.3 Inputs and Outputs

Administrator Inputs

- Physical liquid ingredients
- Ingredient names, volumes, and corresponding pump locations

User Inputs

- Empty glass
- Drink choice
- Customer name and age

Outputs

- Accurately made cocktail/drink
- Communication to customer that their drink is ready
- Communication to staff on ingredient and system status

1.4 Stakeholders

- Restaurants and business owners that serve cocktails/drinks
- Consumers seeking an autonomous cocktail/drink creation system
- Bartenders
- Customers at bars

1.5 Environment

Hardware
The hardware environment will consist of working either in a lab or in a kitchen at home or in a restaurant. We have a connection to a bar owner which might allow us to test/build the product in a more realistic environment. Electrical access through wall or battery and internet access will be needed for building the hardware components.

Software
The software environment will consist of a web app which communicates to a server. The web app will be accessible from any computer or smartphone. The web app will have everything that the user needs to browse, order, and buy their drink/drinks. The server which takes in all orders from the web app and sends commands to the hardware. The server will be located on the cloud.

2 Goals

2.1 Immediate Goals

Goal	**Explanation**
Ease of Communication	End users are able to effectively communicate with Smart Serve. Users understand the status of Smart Serve. This would be measured by all customer orders being fulfilled correctly and all users being informed on their order status.
Ease of Use	System is simple and easy to use for all customers. This would be measured by at least 75 percent of users find the product intuitive to use.
Autonomy	Smart Serve is fully autonomous once starting up. This allows customers to interact with Smart Serve without any human interaction.
Consistency	Smart Serve continues to pour a consistent drink after 100 pours.
Accuracy	Smart Serve pours drinks with accurate proportions. This would be measured by checking if the individual ingredients of a drink follow the appropriate proportion (i.e. 100 millilitres of rum and 300 millilitres of coke).
Fast Service	Drinks are served to consumers quickly. One drink is served within 45 seconds.

2.2 Stretch Goals

Goal	**Explanation**
Self Cleaning	Smart Serve is able to clean all necessary components without human interaction.
Fool Proof	Any risks posed by realistic system malfunctions should be minimized through smart design.
Smart Recommendations	Smart Serve can provide drink recommendations. This can be measured by drink recommendations being purchased at least 20 percent of the time.