“Phil”

By *DrinkTank*

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**Problem Definition**

During the 2017 fiscal year the liquor industry did over $700 Billion in sales with roughly 20% in loss due to over pouring, theft and free drinks. Shrinkage accounts for $10 billion in losses in 2017 for bars in the US. When it comes to any kind of beverage, the amount being poured needs to be exact. Most cases of over pouring are unintentional. Eyeballing a glass of wine or counting out shots for a cocktail are just two examples. Even when performed by highly skilled, honest servers, free pouring of alcohol is questionable. With cocktails the amount of liquor in each glass is typically so small that over pouring even a little will double the cost of that serving. A 1oz overpour will lose you 50% of the potential revenue from a bottle of liquor. Cocktails are unique because the liquor is often poured over ice and mixed with other ingredients, making it even more difficult to accurately freepour. You can’t see exactly how much liquor is going in. Liquor has a higher profit margin than beer or wine. The cost of a bottle of vodka can range from $27 for 33.8 oz. on the lower end to $20 for 24.5 oz. for more premium options. The goal of this project is to make these numbers shrink for the overpuring of cocktails and mixed drinks, this would save bars all across the United States a lot of money in the long run. If only a 20% improvement were made then that would be another $2Billion dollars that would go into the revenue of these businesses. This device “Phil” could make the current way that bartenders pour the simple drinks a thing of the past, “Phil” would save bar allot of time as well in pouring simple drinks so that the bartenders can focus on the more complicated pours. If you wanted to take “Phil” out to a wedding or party of some kind it would be easy to transport “Phil” with only a little bit of breakdown and setup.

**Overview of the System**

“Phil” will be built with several main functionalities in mind, all with user-friendly design as a main priority. The following functions will be listed in order of their importance, with the highest priority appearing at the top. “Phil” will:

1. Pour a variety of drinks, in their standard ratios
2. Allow the user to select drinks via user interface
3. Allow for easy bottle replacement
4. Monitor and store the details of the drinks that have been poured
5. Include an intuitive way to add and remove drinks from the ‘menu’
6. Have an admin area that allows for backend management
7. Keep track of the amount of drinks made
8. Perform business logic on “Phil”’s usage (profits made, usage statistics, etc.)

As an automated bartender, “Phil” clearly needs to be able to pour drinks. “Phil’s” programming and hardware will be finely tuned to ensure we meet our project’s motivations; the need for the perfect pour ratios every time. In addition, there isn’t much fun in a bartender that makes drinks you don’t ask for. To avoid this, users will be able to order from a list of available drinks. They will select from a screen that shows an intuitive menu. Since we want “Phil” to last a lifetime, there needs to be a way to easily replace bottles once they have been emptied. This will allow our system to be a timeless addition to any bar, without an inherent expiration date.

As any owner of nearly any business will tell, it is important to know what is happening in your establishment. This is no different when it comes to the drinks industry. Because of that, “Phil” will keep track of and display information such as what drinks have been poured and their amounts. Also, as “Phil” moves from location to location, or as new drink recipes are made, there will be a need to add and remove drinks from his repertoire. Finally, we will include an admin area that will allow admin (us the creators, and other selected individuals) to perform checks and maintenance on “Phil’s” systems.

With these functionalities making up the basis of “Phil’s” systems, we aim to tackle our project’s motivations of helping to reduce pouring errors found in bars across the nation. “Phil” will be great addition to any restaurant, bar, or party; reducing costs, time costs, and drink inconsistencies.

**Expected Outcomes and Improvements**

Our expected outcomes are twofold. For one, we expect to solve our problem definition by delivering a system that will aid establishments in reducing profit losses resulting from mispouring their drinks.

We aim to accomplish this by delivering on our other set of expected outcomes. These include designing and building a system that:

* Pours drinks based on their standard amounts
* Allows for the user to customize the partition of each ingredient served
* Monitors the drinks (and amounts) that have been served
* Includes a companion application that will track the amount of profits and the popularity of the drinks served by “Phil”

While we would like to equip “Phil” with as many features as possible, we realize that within the scope and time limit of this project, there are some things we may not get around to. These are listed as our desired ‘future improvements’. These include a feature-complete companion app that can store, access, and analyze statistics recorded by “Phil”, the ability to make even more complex drinks (containing 3 or more ingredients), and the implementation of a fully embedded payment system. These future improvements would promote “Phil” from simply being a tool to be used by establishments, to a nearly entirely autonomous system that can users can have make a drink and pay, all without the need for a human bartender.