“PHIL”  
Implementation Report Pt. 2

By *DrinkTank*

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## **Recap**

“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.

## **Section 1: Implementation Details**

**1.1 Implementation Overview**

Our implementation has come along nicely. We have continued to make progress, and fixed some issues addressed in our last report and presentation. We have finished the initial build of our GUI, and fixed the following issues:

* Fixed the pumped turning on when the system is powered on
* Fixed issues of power consumption by introducing a phone charger

We also are planning on making several updates to our current system that will be addressed later in this document.

**1.2 How much work has been done, are we on track to finish**

In short, we have made tremendous progress this semester and we plan on finishing our base build of PHIL before the semester is over. PHIL has had his base functionality of pouring drinks completed for some time now. As of now we have completed the hardware setup, version 1.0 of the GUI, the basic connectivity of our voice recognition, and the initial setup of our database relations.

**1.3 What functionalities have been completed**

1.3.1 Completed Hardware

The hardware has been set up for some time, and is fully functional. Throughout our implementation, we have successfully set up the Raspberry Pi, Arduino, Relay, 3 pumps, hoses, and a Dell power supply and have created a system capable of pouring drinks.

1.3.2 Completed GUI

Version 1.0 of the GUI has been completed and has undergone most of our testing. Additional testing and improvements are still in progress. Version 1.0 currently satisfies our basic requirements. Throughout implementation of our GUI, we have learned and utilized the Python 3.5 and it’s native Tkinter package.

1.3.3 Completed Database

The database relations have been designed and setup. We have also tested integrating our selected database of SQLite with our Python script.

1.3.4 Completed Voice Recognition

Mycroft AI has been installed on our system and has undergone basic benchmarking.

**1.4 What work/functionalities are still being done?**

1.4.1 Hardware In Progress

At this point in time, all of our hardware is in place, and functional. We are simply making minor tweaks and improvements to the physical setup to improve performance. No major changes will occur in our hardware setup from this point forward.

1.4.2 GUI In Progress

We are working on finishing the testing of our GUI version 1.0. We then plan on creating Version 2.0, which we hope to make include more dynamic creation and removal of drinks. Version 2.0 will also bring a more visually appealing GUI.

1.4.3 Database In Progress

We need to finish the rest of our relations. Most importantly, we are working on setting up the database integration with PHIL. We need to include the database queries and operations within our Python script.

1.4.4 Voice Recognition In Progress

This is the area with the most work left to be done. We need to continue testing Mycroft AI. We also need to create our own application package using the source code to make PHIL compatible with the actions we need him to perform.

**1.5 Are there any major implementation issues?**

At this point, we have resolved any issues that can be considered “major.” PHIL is functional, and we have not run into any obvious problems with the functional requirements that still need to be implemented. While there are several bugs that need to be ironed out (such as small leaks in the hoses), none of them are serious enough to be considered major project implementation issues.

## **Section 2: Partial Demo**

Due to hardware and transportation constraints, our partial demo is a video shown in class during our presentation. The video can be accessed by visiting our presentation slides. During our video, we have labeled and announced the hardware, GUI and implementation process for a clear audience understanding of what is occurring.