Detailed Design, Prototype 1, BOM, Peer Feedback and Team Dynamics

Submitted by

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1.0 INTRODUCTION

This deliverable will review and analyze the client feedback received during the second meeting. With the given recommendations, this team will implement new and improved solutions to our conceptual design. With the help of these new modifications, this team will develop and update the detailed design of our concept. Moreover, the critical product assumptions will be defined and will include the creation of the first prototype of our product such as its purpose and functions. Further, prototype testing, analyzing, and evaluation will take place in consideration of the set target specifications. In addition, an outline will be constructed containing the important information that this team intends to present to the client. Finally, a detailed preliminary bill of materials and parts will be presented for the final prototype.

2.0 CLIENT FEEDBACK

_____During the second client meeting, the prototype was met with praise but questions about the functions and the efficiency of them. The concept of a “Point Recognition” function on the Vissiolle application was confusing due to the different ways of using household appliances. The client brought up questions about a tutorial for the new user and effective ways to communicate the tutorial. For each button the client wanted to have a clarification question just in case the user touches the wrong button. The camera placement should also be taken into account as the user may move the hand a lot while using the “Point Recognition” button and not align the camera with the appliance they want to use. The client then asked about Vissiolle giving instruction to the user on the actions needed to accomplish the user goals. That concept will be further

explored in point recognition, and hopefully the team can create a function that will accomplish that.

3.0 PRODUCT ASSUMPTIONS

The first generation of Vissiolle is made to demonstrate its functionality and software interface. These demands were collected from the second client meeting that some user-friendly features were added to Vissiolle. The concern is that due to the smart phone's nature and its characteristics, physical buttons will be alternated by virtual buttons with sound effects when clients press on. Therefore, the user experience could not be evaluated so far since the prototype is only a visual concept. Our team also enables this app with image recognition mode. This is going to be a practical feature that assists the clients to gain better environmental awareness of what is around them.

4.0 PROTOTYPE

The purpose of this prototype is to ensure that there are no difficulties or problems with the chosen concept. In figure 1 the main camera will be necessary to accurately depict what the household appliances the user wants to use. The button on the left that says "Image Recognition" can identify objects and give the user an accurate description of the object selected. This is meant to help the user use objects that work with that household appliance. For example, if the user

takes a picture of detergent the application says detergent. The testing used for this button can be seen on figure 2.

The function on the right will be “Point Recognition” and this button will be read whatever the user points at. This button requires the user to hold it while pointing it and it is meant for the user to effectively use their household appliances. The testing used for this button can be seen from figure 3 to figure 5.

Lastly, the top right corner symbol signifies an audio explaining the screen for the user. Understanding the client and there potential issues has each tutorial on the top right corner of the screen. Also whenever this application is opened, a quick description of the screen to help the user will be given.

Figure 1: Prototype 1, main interface

5.0 PROTOTYPE TESTING, ANALYSIS & PERFORMANCE EVALUATION

In figure 1, the interface for vissiolle gave an explanation to the user about the placement and the functions of the application. If the user chooses to press “Image Recognition” the button repeats its name to clarify the user's action. Holding on the button allows the user to continue with the button's function and it reads out the name of the Image being held. As seen Figure 2 “Black Pepper”is read out loud by Vissiolle. If the user is confused about the application, a tutorial on the top right of the screen is suggested.

Figure 2: Image recognition is used to identify a specific ingredient

In figure 3, the “Point Recognition ” button will be used to efficiently communicate what the user wants to reality. To clarify that statement, the main issue with effectively using household appliances is the mass amount of options and the confusion it brings. Figure 3 shows the user aligning the phone with the knob of a washer. The user must align the camera as if it is tilted or shakes a lot it may cause disturbance to properly reading household appliances options.

Figure 3:To use point recognition, first aim the camera at an appliance’s controls

As seen in figure 4 the button is pressed and it is tracking the finger using point recognition to read the word the finger is pointing at. This is very effective for those who are visually impaired as they use touch for direction and move slow to use household appliances.

Vissiolle is a step up from that. As seen on Figure 4 the word “Normal” is read out loud by Vissiolle.

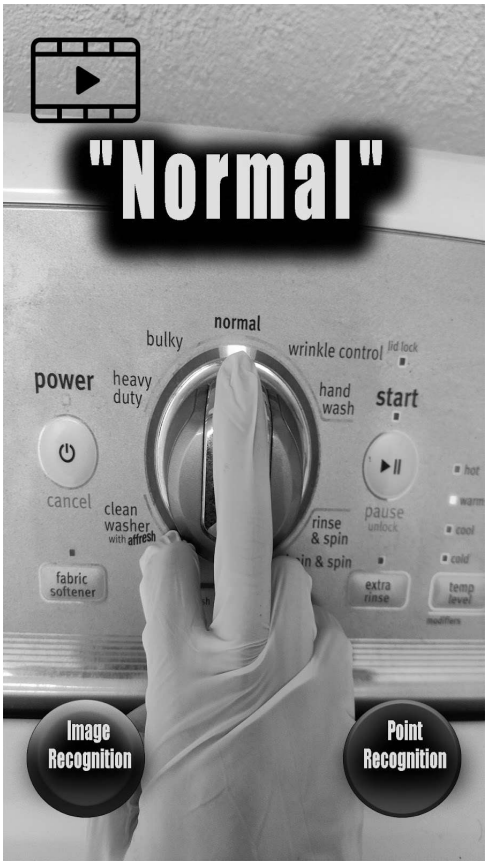

Figure 4: Point recognition showing a laundry dial set to the normal wash setting

On Figure 5, Vissiolle stays on the finger and reads “Wrinkle Control”. If the user is on the option they want then they can take their hand off the household appliances. Vissiolle’s purpose is to use “Point Recognition” and assist it with “Image Recognition” to give the user the most optimal use of the household appliances.

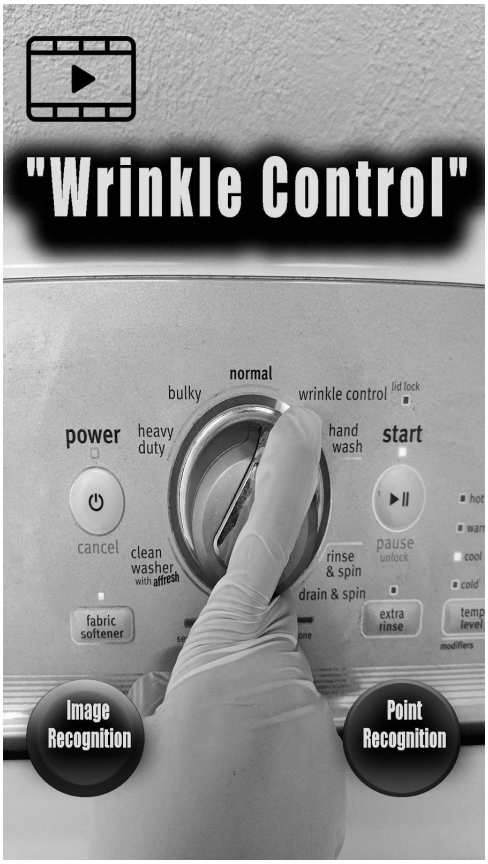

Figure 5: Point recognition showing a laundry dial set to the wrinkle control wash setting

6.0 PLANNING FOR NEXT CLIENT MEETING

We intend on presenting our first prototype to our client, to give her a downloadable software that she could download and try out its functionality and features on her own in order to gather valuable feedback which will guide us towards a better iteration of the next generation prototype on what features she enjoys and what she does not. After she experiences the first-generation prototype, our team will be able to narrow potential issues in order to develop the prototypes into a functional application.

7.0 BILL OF MATERIALS

Our product is software based, therefore our bill of materials is strictly the tools and equipment that we need to develop our software. Materials/Equipment which are already owned and thus don't need to be purchased are labeled “owned”.

Table 1: Bill of materials

Material/Tool/Equipment	Description	Quantity	Cost per unit	Total cost
Laptop	For creating software	3	Owned	Owned
Software Design Application	“Unity” will be the choice of software creating platform	3	Free	Free
Stove	For functionality testing purpose of “image recognition”	1	Owned	Owned

8.0 CONCLUSION

After considering client feedback and making assumptions we were ready to design a simple prototype. The prototype was focused on designing the user interface and outlining all of the features our product would be desired to have. We will present this interface to the client during the next client meeting to get more feedback about the selected features. We have also prepared a bill of materials however as a software based project we do not foresee any necessary purchases.