**Project Identity**

Shampoo-Conditioner Identification Device/ Medicine Reminder

Week 1: 1/21 - 1/27

Kenta Umetsu

**Work Completed**

Over winter break I contacted some experts on programming PDA for some information on alternative programming in case the C++ idea does not work. What I found out was that, there is an alternative option of probably being able to write it using windows excel macros but our user friendly Palm Z22 Handheld does not have the windows operating system available. So if we were to fail, then we would have to decide on a more complicated and expensive PDA that has a windows operating system.

As the semester began, we discussed our free times in order to find a suitable meeting time between all of us to get a head start on planning for the weekly meeting. I contacted Lisa through the phone to setup our meeting time outside of class but found out that our available times on Monday, Wednesday or Friday did not work so immediate emails were sent out to plan our times again.

I have been working on design for the PDA casing that we were going to make. Several prototype designs were drawn to see which designs would be efficient and doable in the machine shop. A hinge will connect the top part of the casing and a rubber type material will be fit inside to keep the PDA in place inside the case. Our intention is not to make a casing that can be used while in the casing because there are accessories available on the market that can be purchased. We want to make a casing that will fully protect the PDA from shock but still keep the screen visible. I also researched some casing material over the break and during my free time and for optimal performance and longevity, ABS material seems to be a very good option. This material is strong and resilient with high impact resistance. Other materials of various material properties and prices will still be researched so that we can make a final decision on casing material in the near future.
Other options that we discussed are having a potential clip on the back of the casing to provide possibly a magnet that will allow our user to stick the PDA onto a fridge. Another future option (if we have time) which we discussed is creating a medicine box for our client which will have a slot for the PDA to attach to on the outside so that everything she needs will be in one place. We are awaiting on our client contact to respond to this idea since in her initial proposal it mentioned that it was not necessary to make a container for her.

I have created an expense chart for the Shampoo-Conditioner Identification Device to track our purchases made so far. An excel spreadsheet was made with part names, prices, total left and date ordered. All 3 of our members have a printed copy of our current expenses to have in our notebooks to know how much we have for our projects. The file is saved on the Z drive of one of our members.

I emailed our client contact to ask several more questions but found out from a response that she is currently out of the country so a future email is planned to ask again.

Sheldon and I worked on some calibration testing on the color sensor that we had ordered. We confirmed its capability to recognize several colors that we intend on using such as white, red and blue. Several trials of recording the frequency of 3 colors and the calibration (white) were taken to understand how the sensor recognized the colors. Among the colors that were tested were green, blue and red. We tried several different shades of colors to find out what will give us the most stable reading from that color. The calibration process of the color sensor takes about 1 second and needs to be calibrated on a white surface. After our testing, Sheldon and I found out that the sensor is fairly accurate at detecting the colors over several consecutive scans without having to recalibrate or reset the device. This result was good because this meant that the user would not have to reset the device after several consecutive scans during the shower or else it may be a tedious process just to get the reading. We also found out that the frequency of the red and blue which was our original bottle color picks had very different frequencies. This allows us, according to our data, to differentiate frequency captures
around 20Hz and lower for red and higher for blue since there was no overlap of the frequency. We did find out though with playing around with the ambient light, by covering up the sensor, the frequency changes so this must be taken into account when making our device.

Sheldon and I also discussed about how we can have the color sensor calibrate when turned on. Since it requires white background to calibrate we want to make a white cover that covers the clear sensor window. This will double function as a protective barrier against water droplets when the sensor window is not in use. Further details of this casing design will be discussed when a prototype design is drawn.

**Future Work**

Further testing of the color sensor will be done with the ambient light difference to see how much it is affected by it. If it is a problem, Sheldon and I have some ideas that we can work with to avoid this problem. More detailed discussion of our casing design for both projects will be my goal so that we have more details worked out to start ordering materials and avoid any future problems we may run into. Further material research needs to be made to compare material properties and prices.

**Project Review**

So far we are right on schedule with the timeline that was created last semester. We seek to continue working out problems we see early on to avoid any major delays in our progress of making both of our projects. Progress over the next few weeks should be smooth as long as the programming for both projects starts to come along as I work on the other details of each project.

**Hours Worked:** 9