1) Backpack Lever Arm System

Work Completed

The major accomplishment this week was the completion of programming the PIC. Initially, the code that had been developed did allow rotation of the larger motor; however, it was unable to reach the full 270 degrees. Previously, the second motor did not rotate at all. In fact, the problem was the order in which the motors were being addressed in the code. Changing the delays (in microseconds) of one motor seemed to affect the functioning of the other, and we were confused about what to do. Despite many hours of troubleshooting, my teammate and I were unable to fix this. However, this week, my teammate was able to pinpoint the glitch in the code, and modify the order of addressing to rectify the problem. With this breakthrough, we were able to achieve exactly 270 degrees rotation in M1 and 90 degree rotation in M2 (in the desired directions).

Initial Position (Switch is OFF):
Final Position (Switch is ON):

The PCB layout has almost been completed; this will be ordered during the next working week.

**Future Work**
Primarily, future work involves working ordering the appropriate battery power supply to power the PIC and motors to run the backpack lever arm system. In addition, some safety aspects will have to be considered, by encasing the motors or providing the necessary insulation.

Future work will also involve making stable T-nuts, or making a full 4-sided sleeve (as suggested by the adviser) to go around the lever arm, for maximum stability.

**Project Review**
This project is proceeding according to schedule.

**Hours Worked:** 15
2) Shampoo-Conditioner Identification Device

Work Completed
We are in the process of prototyping for the final circuit. An issue that we are still working with is that of the surfboards. The chips, mounted on the surfboards are not giving an output. This is causing us to believe that there is a problem with the amplifiers. We may need to order new ones if we are not successful with these in the near future.

Future Work
After verification that the circuit is working correctly, we merely have to order the board and solder the parts. In addition, we will mount the button. Once this is working, this project will be in its final stages, of insulating and making sure that battery replacement and occasional maintenance is easy to carry out.

Project Review:
This project is on track, and should be completed by the deadline.

Hours Worked: 1