I. **Backpack Lever Arm System**

**Work Completed:**
During this week, the team mainly focused on the mechanical aspect of the lever arm system. We went to Machine shop and made various parts, such as the T-nuts that create holes in the 80/20 extrusion for easy attachment, T-shapes to secure the two hinges, and mounted motor 1 onto the lever arm. I made the T-shapes, and helped with the other two tasks. Machine shop work was time consuming, but the team was able to make some very good progress.

![Figure 1. T-nuts for 80/20 material](image1.png)

After making the necessary parts, team assembled lever arm together, and was able to demonstrate the 270 degree movement with motor 1. However the movement was controlled by hardware, the team is still in the process of programming the PIC.

I looked into the insulation material for the electrical components, and was able to find cover material for T-slots extrusions we are using, however there is a minimum purchasing requirement, so I will consult with other teams, and order the material together.

![Figure 2. T-slots covers](image2.png)
Future Work:
During next week, I will continue working on the mechanical aspect of the lever arm system, and order the appropriate insulation material when the electronic components are finalized.

Project Review:
The team is on schedule with this project, the mechanical parts were the major accomplishments of this week. The electrical components are relatively more time consuming, but we are moving along smoothly in terms of the timeline.

Hours Worked: 12

II. Shampoo & Conditioner Identification Device

Work Completed
I ordered all the necessary components for prototyping this week. Finding the correct protoboard adapter for the surface mount amplifier we need was a challenge, but with the help from the TA, and some research, I was able to order the correct one.

Circuit insulation is very critical in this project because the Shampoo & Conditioner Identification Device is going to be used in the shower, and the client’s safety should always come first. I thought of the idea of using an iPod holder/strap to attach the circuit to the shampoo bottle, and this week, I decided to look into waterproof iPod cases. I found several products, but after some research, the team and I chose the Pro Armband from H2OAudio. This armband is made out of Neoprene which is the material that is used to make wet suit. This Armband is claimed to be waterproof and can be used for swimming.

Figure 3. Pro Armband
**Future Work:**

Next week, my task will include prototyping the amplification circuit so we can order the PCB circuit and move forward with this project.

**Project Review:**

The team is following the timeline for this project. Once the electrical components arrive, the project will move a lot faster.

**Hours Worked:** 4