1. PROJECT IDENTITY:
HEAD & ARM MOUNTED ART DESIGN SYSTEM
Week 3
2/2/2007
Sirisha Muppidi

2. WORK COMPLETED
The most expensive component for the project is the fiber optic sensor switch. Due to its high price, thorough research had to be preformed to make sure that the sensor purchases would be the best one. My main objective for this past week was to find the best possible fiber optic switch sensor that could be utilized for Team 1’s design project. *The Handbook of Modern Sensory* located in the reference section of the library, by Jacob Fraden proved to be a useful aid again for it helped clear out the difference between the various different optical switch options. After discussing the results of my research with my teammates, we reached a consensus to choose the Scatir switch. The switch uses a Nickel metal hydride rechargeable battery, is light weight and can be set up with eyeglasses.

Several professors on campus specialize in fields which would greatly benefit Team 1 when building the sensor. Four professors specifically; Peter Cheo, Geoff Taylor, Bahram Javidi and Niloy Dutta, have been found to provide valuable knowledge.

This week in lab, the following parts arrived; 36 inch gooseneck, aluminum guiding beams, wrist band and the motors. I tried on the wrist band and it was superbly comfortable. The stiff portion of the wrist guard will be utilized as part of the stabilizing mechanism for the gooseneck arm in the arm mounted art design system. As a group we discussed an appropriate manner in which to insert the guiding beams to the aluminum ding and I suggested that we create two holes in the aluminum ring so that the beams can fit, then the two pieces could be welded together to create one strong and stable part. I photographed each of those parts and the images are shown in figure 1 below. Because of the size of the images I was having trouble sending my document via email so Nemi told me to use the website [www.megaupload.com](http://www.megaupload.com) and this will really help improve team communication and information accessiblity in the future.
During lab I continued work on the Methods and Materials section of the SUNY Stonybook conference abstract. With the aid of the lab microscope the team noticed that the speedometer rotator was not threaded, this meant that the team needed to devise a new manner in which to attach the utensil component to the rotating tube. The team tried to formulate a new way of attaching the rotating utensil to the end of the gooseneck speedometer arm conglomerate. Becky and I then meet with Dr. Northrop to further discuss the utensil gooseneck joint. He suggested that an aluminum spool be wrapped around the rotator with two set screws holding the rotator at 90 degree angles. The sketch of which can be seen in the figure 1 above. Afterwards, I helped Nemi a little with setting up the torque test.

Becky and I went to the BME office to get a copy of the current budget so that it could be crosschecked with the team budget. The team has spent a total of $310 so far leaving a solid amount of the budget untouched.

On 2/3/2007, a Saturday, Team 1 meet up again so that they could continue with the torque test. The motor was attached to the end of the speedometer cable which was taped to a light weight makeshift utensil. After the motor was powered, the rotation of the utensil on the speedometer end was working perfectly.

My teammates were unfamiliar with the bogging program that we set up last week in lab to enhance communication so I briefed them on how to operate the site.

3. FUTURE WORK
By the end of week four I will have contacted and discussed the project with resourceful professors located on campus. The purchase requisition form will have been handed in on Monday so that the fiber optic switch sensor may be ordered. The SUNY paper will be peer edited by the team mates so that it will be ready for submission by February 8th, 2007.

This upcoming week, Becky and I will go to the shop to remove the lip on the speedometer cable so that it may easily fit into the gooseneck tubing. Also the method of attaching the gooseneck tubing to the helmet, guiding beams and aluminum will have been discovered. By week five the utensil to rotator mechanism will be finalized. Once the optical sensor arrives we

<table>
<thead>
<tr>
<th>Week</th>
<th>Tasks should be accomplished by Friday of that week</th>
</tr>
</thead>
</table>
| 4    | >Optical Sensor Switch PRQ  
>Meet with professors |
|      | >How to attach guiding beams to helmet & ring  
>PSpice circuit, test/determine values  
>Test motor  
>De-rust  
>fit flexible shaft into gooseneck  
Finish SUNY abstract |
| 5    | >utensil rotator mechanism  
>utensil rotator mechanism |
|      | >Circuit  
>finalize utensil rotator mechanism |
| 6    | >Design sensor to mechanical motion interface |

Figure 2: Task Spreadsheet

4. PROJECT REVIEW
So far we believe we are on track and have made up for any lost time that may have been incurred due to all our parts not being in on the first week of senior design. As long as we follow the schedule we will continue to do well and finish our project on time. Our biggest challenge will be designing the interface between the fiber optic switch and the machine. But we are confident that we will be successful. I have noticed that upon trying to create and build parts, much of the original design was altered, it seems that actually brainstorming and devising to build is a more efficient method to creating a functioning engineering project. Also the use of prototypes and visual aids really benefits everyone in trying to create an appropriate design.

5. HOURS WORKED
In Lab: 4 + Outside Lab: 5 = Total: 9 hours