1. PROJECT IDENTITY:
HEAD & ARM MOUNTED ART DESIGN SYSTEM
3/19/2007
Nemi Kotadiya

2. WORK COMPLETED

This week, our project involved finishing the mechanical aspect of the project and getting ahead with the electrical aspect. In the electrical part of the project, I am learning how we can build an external circuit to the fiber optic eye blink switch, so that when the user of the switch blinks their eye, the motor starts and when they blink again it stops.

The mechanical part of the project that needed attention was the utensil holder. We had previously decided on the compass but after testing it a couple of times, we felt that it never really put enough force on to the paper to make the squiggles readily visible. Therefore, Sirisha worked out a design and after some few suggestions from Becky and I, we came to a final design for that piece of our project. A rod with a thicker diameter was going to be attached to one part of the compass and the actual utensil holder and set screw would be placed on the compass piece. Also, a ball bearing will be attached to the larger diameter rod so that it allows for free movement of the compass on the paper.

To add to the electrical components of the system, reversing the motor is going to be done using the allegro 2916 chip. A typical application (from its data sheet) of this chip is shown in the next page. Also the next paragraph shows some more information of the chip from its datasheet provided by Allegro systems.

To program this chip assembly language is going to be used and a microcontroller program called MPLAB® is going to be used. The UDN2916B/EB/LB dual bridges are designed to drive both windings of a bipolar stepper motor. Output current is sensed and controlled independently in each bridge by an external sense resistor (RS), internal comparator, and monostable multivibrator. Loads with high distributed
capacitances may result in high turn-ON current peaks. This peak (appearing across \( RS \)) will attempt to trip the comparator, resulting in erroneous current control or high-frequency oscillations. An external RCCC time delay should be used to further delay the action of the comparator.

Also, since our 48 inch gooseneck arrived, we had to look for a longer speedometer cable. So, to look for a longer speedometer cable, I went to auto junk yard but all they had were thicker versions of cable and also the longest one that was available was 40 inches long.

3. FUTURE WORK

Although, we have figured out many things in terms of the electrical part of our project, we have not implemented any of it yet. For example, the reversing of the motor is going to be done using the chip but we still need to program the chip. Also, we have to start building the external circuit
that is going to interface with the fiber optic eye blink switch. Also, we need to find a speedometer cable that is longer than 48 inches and can actually fit through the gooseneck.

4. PROJECT REVIEW

Due to the bad weather and cancellation of classes, we missed our senior design class and therefore we are falling back on the work that we had to do in lab. However, we will be doing more work over the week to make up for that. We are also going to be meeting over the weekend to go over the project progress. I also feel that our team is communicating with each other very well to find out small pieces of time during a particular day in which we can meet up and work.

5. HOURS WORKED

In Lab: 2 + Outside Lab: 8 = Total: 10 hours