Work Completed

This week our team spent a lot of time finishing details of the project. Adam and I worked on finding an enclosure for the electrical components as well as for the joystick. We considered fabricating custom boxes, but after reviewing a number of web sites, found that many of them would send sample enclosures free of charge. We were fortunate to find a large plastic enclosure from OKW Enclosures. This will sit just inside the base of the easel and house the power supply, relays, and circuit breakers. We also found a smaller aluminum box which will work perfectly with the joystick. This box will provide support for the joystick and also allow it to be placed on a table or wheelchair.

I also decided on a method of connecting the joystick to the easel. This will be done using a Serial cable with a D9-subminiature connector. This will allow the cable to be easily replaced should anything happen to it. It will also allow the joystick to be unplugged when not in use. An order was placed for 2 right angle D9 female connectors which will be attached to both the easel and the joystick enclosure. A set of female screwlock connectors was also purchased so that the serial cable can be secured to the connector preventing accidental removal.

I also spent time searching for wire that would be appropriate for the easel. Ideally, a 7 wire 22-24 gauge bundle would be desired. Since the joystick requires seven
separate wires (one for each possible direction, plus a common wire) this would keep the joystick wires together and not require multiple separate wires. Category 5 network cable was suggested, but its solid core design leaves it more susceptible to breaking. Unfortunately, any bundled wire found meeting the desired specifications only came in large supplies. It was necessary to order in excess of 100’. As a result, I will most likely use two bundles of 4 wires which is readily available.

Figure 1: Metal Joystick Enclosure

Figure 2: Plastic Electrical Enclosure
Future Work

Over the next week I will be wiring the easel in its entirety. We will need to drill holes in the easel frame to carefully run wires. We will also be mounting the electrical components in the plastic enclosure and installing the enclosure into the easel. The smaller enclosure will be drilled to fit the joystick and once the D9 connectors arrive they will be installed on both the easel and joystick. The power supply and relays will also be wired and the easel will be tested to ensure that all electrical components are functioning as expected. The limit switch assembly for the horizontal motion will also be assembled and installed with the diodes.

Project Review

The project seems to be coming along very well. Time is catching up quickly but we are confident that we will finish successfully. The only thing holding our team back is waiting on some small orders that were placed for miscellaneous parts. Fortunately, these parts are not extremely important to the easel, nor does their absence significantly affect our progress. These parts include a piece of DIN rail which the relays will attach to as well as the D9 connectors.

Hours Worked

Around 4-5 hours was spent this week determining a method to attach the joystick. I then spent another couple of hours researching D9 connectors and placing an order for them. I also spent 3-4 hours searching for enclosures for the electrical components and joystick on the internet as well as by calling a number of companies. Total for the week is around 10-11 hours.