Work Completed

During the final week to have a successful working project (week 11), the main tasks were to have final assembly and solder all components onto the PCB board. In the beginning of the week, the PCB board didn’t arrive as expected and throughout the week we had to wait for the board and all the electrical components ordered from Digi Key before final assembly (table 1).

Table 1: Timeline for Week# 11

| Final Assembly | 5 days | Mon 4/3/06 | Fri 4/7/06 | Chris, Pearl, Emily |

While we waited for all of our electrical components to arrived, I modified some of the interior fabrication such as the fragrance dispersion system (figure 1). One of the problems involve in the interior fabrication was the amount of scent being disperse into the fragrance chamber. Some of aerosol spray cans were spraying too much into the chamber and tweaking the lever activators was required until a fair amount of scent is being dispersed.

Figure 1: Interior Fabrication – Solenoid System

Another structural fabrication accomplished was modifying the base interior. I’ve created a plate to divide the storage space from the electrical component area. This was accomplished by using a clear PVC sheet with a few triangular reinforcements in order to hold the plate in place (figure 2). Additional work done in the base interior was using velcro to hold the battery, PCB box, and sound chip box. This allows easy removal of all the electrical components in the base including the battery for recharging.
Emily and I work on organizing and putting all the wires from the casing into the base. This was accomplished by drilling four holes from the top portion base onto the top base panel. Each hole represents solenoid wires, LEDs wires, speakers, and indicator LEDs wires. As seen in figure 3, there are tons of wires in the top portion of the casing but we were able to organize the wire scheme and the only problem left is putting it all in the base and the PCB.

Once we had all the wires and structural fabrication completed, our PCB board and components are the only tasks needed to accomplish. On the last day of the week, all our components and PCB board and we were able to quickly solder and
put all circuitry together. At first, it was smooth sailing to put all the resistors and capacitors and DIP sockets onto the PCB but then once we put all the LEDs wires and solenoid wires onto the PCB, it was chaotic. There are too many wires from the case onto the tiny PCB board that, we had some difficulties on organizing. However we were able to put all the wires onto its right location. Once the PCB board is finish, we assemble everything together such as the structure, microprocessor, battery and the PCB board. The initiate test of the project wasn’t a success. The only problem we have with the circuit is all the solenoid weren’t activating at its appropriate time.

**Future Work**

The following week would be our most critical week to accomplish because we don’t have a working project and we must have a working project by the end of week 12 along with the final report and the user manual. However, the most important task would be to have a working project. Emily was able to find out the problem with the circuitry was due to the solenoid drivers. For the next week, we’ll look at other solenoid drivers that can be use in the PCB board besides the DRV 103h solenoid driver chips.

**Project Overview**

So far our project is behind schedule with having a working project. The problem relied on the circuit and the difficulties on the circuit are finding a chip to successfully power the solenoid without consuming a lot of current from the PIC or the power source.

**Hours Worked**

Pearl – 36 hrs