**Work Completed**

This week work was focused on the final assembly of the device. The first item to complete was spray painting the exterior of the device (See Figure 1). This was done in the machine shop room especially for painting.

![Figure 1: Spray Painted Front Panel](image)

While the pieces were drying, the various electrical components including the LEDs, fans, solenoids, and switches were wired. This means adding long portions of wire to their pins by soldering the ends and shrink wrapping the connections. When the pieces were dry, the device was assembled together. After assembly, all the previously wired components were installed into the device.

Pearl also modified some of the interior fabrication such as the fragrance dispersion system (See Figure 2). 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.
Additionally, the inside layout of the base had to be determined (See Figure 3). A clear PVC divider was added to separate the electrical components from the storage compartment. The storage compartment will hold the user switches and battery charger when not in use. The electrical side will hold the battery, sound chip box, and PCB box. The battery and sound chip box are held down with Velcro, while the PCB box is directly screwed into the base.

Unfortunately, the cases that were ordered for the sound chips did not come in soon enough. Therefore, Chris was given the task of designing and fabricating an alternate housing for the sound chips. Fortunately, Senior Design Team 3 had in their possession an unused case that would be suitable for fabrication into our sound chip housing. The sound chips are attached to the case via screws and plastic washers to ensure complete electrical isolation of the chips. Holes were drilled into the side to allow for entry and exit of wires to and from the PCB. Figure 4 shows the final product.
The next step was to organize and thread the wires from the top portion of the device into the base (See Figure 5). Zip ties were used to secure and separate the wires within the device.

When the PCB arrived (See Figure 6), the team began soldering all the electrical components onto the board. The team then soldered all the wires threaded from the upper portion of the device.
Once this was complete, the device was tested. Everything worked except the solenoid drivers. It was discovered that these were too sensitive to work properly within the device. The sound and lights work as desired, however. The following is a picture of the completely assembled device:

**Future Work**

Since the solenoid drivers were found to be too sensitive, a new driver will have to be found. Once this driver is found, a new circuit schematic must be devised. This schematic can be used to make the appropriate changes to the PCB. This will have to be ordered as well as the new electrical parts associated with the new schematic. When these orders arrive, the new PCB will have to be assembled by soldering all the parts and
the existing wires within the device. Once this is complete, the device can be completely assembled.

**Project Review**

The project completion was not met by the deadline.

**Hours Worked**

Emily = 35  
Pearl = 36  
Chris = 30

Total = 101