Work Completed

During the sixth week, work was concentrated on the circuit. After some more tinkering, the solenoid driver was made to work properly. Last week’s circuit diagram (See Figure 1) was correct; one of the wires was just in the wrong spot on the protoboard.

Once it was determined that the driver outputted the necessary 12 volts between pins 5 and 6, an actual solenoid was attached to the circuit and tested. It worked as desired. It was determined that this circuit takes about 1.4 Amps. Since the solenoid driver is rated for 3 Amps, no worry of frying the chip exists. The following is a picture of the protoboard setup and the actual solenoid test:
Work then finally began on incorporating the sound chips into the rest of the circuit. Several modifications had to be made to each of the chips in order for them to interface correctly with the PIC. The melody chip (See Figure 3) harvested from the children’s book required a simple addition. A small portion of wire was soldered accordingly to connect the pins necessary to play the desired melody.

![Figure 3: Melody Chip](image)

With this addition, the chip will work when 5 volts is sent from the appropriate PIC pin for about six seconds. Without a voltage signal, the melody will stop. The Frog, Monkey, Pig, and Lion Voice Chip (See Figure 4) all needed the same alteration. The switch was removed from each PCB and replaced with a wire soldered to the HIGH side of the switch inputs. By connecting this and the positive voltage wire the appropriate pin on the PIC, a voltage signal will activate the chip and sound will be produced. Like the melody chip, the sound will stop without a voltage signal. Unlike the melody chip, the sound lasts for about 4 seconds.

![Figure 4a, b, c, & d: Frog, Monkey, Pig, and Lion](image)

The Bird Voice Chip (See Figure 5), on the other hand, required no alterations.
Its positive voltage wire will simply be attached to the appropriate PIC pin and a voltage signal like the other chips will activate its sound. A working sound circuit was not achieved by the end of this week.

**Future Work**

Originally, next week was supposed to be spent on laying out the PCB and ordering it. However, since the sound circuit is still not final and the PIC has not been tested, these tasks will need to be added to next week’s work. If necessary, some work might need to be done over break. After Spring Break, work will begin installing features on the casing while the PCB is being shipped.

**Project Review**

Although the circuit is still running behind, the plan is to be back on track after Spring Break. Once again, however, if not the timeline was devised with extra time incase something did not go as planned and the work is not on schedule.

**Hours Worked**

Total = 12 hours