Work Completed

During the past week, Sarah was able to test for new resistance values for our new motor, once we had determined that the old one was not acceptable, as it would stall when a higher-weighted person would sit on it. Our concern for its longevity led us to choose a different motor (which, again, was available in the back of the senior design lab). The new motor uses more amperage and has an overall higher torque rating, and so different resistance values in the motor controller were needed to slow down the motor to a comfortable speed. Sarah was able to determine the values needed and then soldered them into place (see figure below).

![Figure 1: Sarah soldering new resistances onto the motor controller.](image)

Sarah was also able to complete the rest of the squish switch by stitching Velcro onto the case and then tested it in its enclosed state to ensure that it worked, and she also stitched up the back of the chair with heavy black thread for aesthetics.

Adam began tearing out the old motor from the design and has been able to test using the new motor with the motor controller and our power supply. When it didn’t work, he realized that the resistances in the motor controller were too high, and so he geared down the motor, which will increase the torque of the device, and will just cut out
as much resistance in the motor controller as possible. A new cam was also machined, as the old one did not fit on the new motor. A picture of his progress can be seen below.

**Figure 2:** Adam working on the new motor, fitting it to a mounting bracket.

Tom was able to attach a skirt of the extra material from the speaker box cover to the base of the chair to cover up the underside of the chair. A staple gun was used from the machine shop and the back will be stitched into place. Tom was also able to make labels for the caretaker controls and switch ports. He was also able to begin compiling the owner’s manual for the chair, describing how to operate the device. He also ordered the new circuit breaker needed for the motor.

**Figures 3 and 4:** Skirt attached to bottom of chair, and labels on caretaker control box.
Future Work

During the next week, Sarah hopes to stitch up any lose seams and also begin editing our final report. Adam will complete the attachment and enclosure of the new motor. Tom will complete the skirt attachment and continue work on the user’s manual.

Project Review

A slight setback had occurred last week when we realized that our motor just wasn’t going to cut it (at least not in the long run) if it began struggling this early with our rocking. Swapping out to a higher-torque motor allowed us to ensure some longevity in the automated rocking portion of our device, but it still meant reworking our resistances to ensure the motor turned slowly, as well as creating a new cam and mounting area for the motor. The new circuit breaker has to be installed, and testing still needs to be completed. Also, this week is the last week for build time, so we need to really hope
that our circuit breaker makes it here on time and that this motor doesn’t provide any issues with the change.

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<th></th>
<th>Task Description</th>
<th>Duration</th>
<th>Start Date</th>
<th>End Date</th>
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<td>89</td>
<td><strong>FINAL CONSTRUCTION AND TESTING</strong></td>
<td>10 days</td>
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<td>Fri 4/7/06</td>
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<td>Power Point slides, poster</td>
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**Timeline 3:** Updated future timeline.

**Hours Worked**
Adam Rauwerdink: 24  
Sarah Philo: 6  
Tom Dabrowski: 13.25