**Week 1-2**

Main tasks completed for the week:

* Learned the difference between contracted and un-contracted braille language
* Detailed the design of braille reader
  + Design document write-up
    - Executive description
    - User story
    - Requirement
    - Influential factors
  + Discussed functionalities of the device
* Searched for potential mini speaker for audio output of the device
* Searched for potential mini push-pull solenoid products on the market
  + Compare prices between buying and building solenoid
  + Estimated specs for solenoid actuators

Goal for next week:

* Deciding which subsystem to work on
* Complete the design document revision
* Brainstorm questions to ask the DRC person
* More background researches
* Create a project timeline Gantt chart for the team

Research notes:

Portable Braille reader inspiration:

<https://www.youtube.com/watch?v=N5iTWgvzhU8>

Thoughts:

As shown in the video, the solenoids were all attached to the pin key pads directly, which means that when the actuator received the instruction from the micro-controller, the actuator pushed the pins up and down.

How to make a mini size solenoid:

<https://www.youtube.com/watch?v=DvHiPvuWDPg>

Thoughts:

Considering our budget is tight and the cheapest mini push-pull solenoid on the market would be around $5 each and we need around 48 solenoids, therefore, we may have to build our own solenoids if necessary.

Possible speaker choice for our audio system:

<https://www.radioshack.com/products/radioshack-8-ohm-mini-speaker?variant=20332224901&utm_medium=cpc&utm_source=google&utm_campaign=Google%20Shopping&gclid=CjwKCAiAgqDxBRBTEiwA59eEN0Wc5nuAtmsIiGCme7ke9AVYahdqlP_jP2SLQW7PASx0L5ksvPXzRhoC2HMQAvD_BwE>

Thoughts:

It is an 8-ohm speaker with reasonable size and price, however, not sure if this will supply enough volume needed for our device.

How to translate text to Braille using C:

<http://liblouis.org/documentation/liblouis.html#lou_005fhyphenate>

How to translate Grade 2 Braille from text using Python:

<https://github.com/LazoCoder/Braille-Translator>

Thoughts:

First of all, we have to make sure that the translator recognizes the “break point” of each sentence or paragraph; second, we have to make sure that representation of numbers and letters are differentiated because they usually use the same representation in Braille; third, there should be an escape code”.” for the capital letters.

The module code size is 11.74kB (2.93 for printing Braille→ maybe switch to connecting to the actuator end)

Grade 1 vs Grade 2 Braille:

<http://www.acb.org/tennessee/braille.html>

Thoughts:

In grade 2 Braille, a cell can represent a shortened form of the word, so if we want to use contracted Braille then we can consider using this translation above.

How to extract plain text from html file using C:

<https://stackoverflow.com/questions/15319329/extract-plain-text-from-an-html-file-in-c>

How to extract plain text from html file using Python:

<https://github.com/Alir3z4/html2text>

Thoughts:

Since we are using html file for our input text format, the converter control will have to first extract text from html file then they can store the converted Braille for the use of further text-to-speech processing.