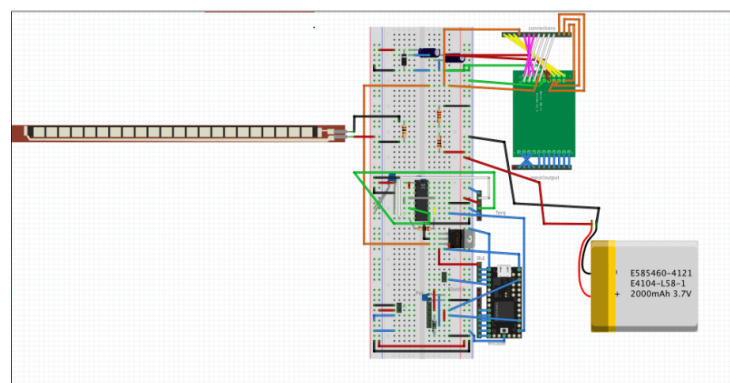**TO: Dr. Sarah Oman**
FROM: Team J
SUBJECT: Final Product Testing Proof Summary
DATE: August 02, 2017

We worked on our project based on the engineering requirements that was given to us by Dr. Oman and Dr. Lerner. Now, our project has meet all the requirements that we were asked for to do. First engineering requirement is that the system need to be adjustable. We achieved this goal by making enough holes in the lower and upper steels. The process will be that the parents of the kid will be able to use the screws to adjust the size and length of the steels. We also provided enough holes in order to meet various ages. Furthermore, we are making bands to make the thermoplastic bands either bigger or smaller depend on the size of the kid's thigh and shank. Second engineering requirement is that the system needs to be light weight and strong in the same time, and that is why we are using light aluminum for the two steels because aluminum is strong and light at the same time. In addition, we used the thermoplastic bands because they are light and we are reinforcing it with aluminum parts in order to make the bands very enough strong. Another requirement is that the project needs to be adjusted to a wide range of the ages and sizes, and that was the reason why we made different sizes of the foot portion, so it fits the most of the 7-12 years old kids. Also, another engineering requirement is that the foot portion must be low profile and inserted into the normal kid's shoes. We met that requirement and we show it to the class during our last midpoint presentation and how does the foot portion inserted easily to the normal shoes. We also did the another side of the requirements engineering of our project which is to minimizing the skin irritation and that is why we used the thermoplastic and aluminum because they do not cause irritation. On the other hand, for the EE system our PCB will put it in the top of our project and connect it to the motor and the motor will be above the knee to not impede movement. We have in the EE system FSR, Micro-controller, Blue-tooth, Torque Sensors, Li-Po Battery, resistor, INA-125, and motor controller. So these part will connect to each other as you can see on the EE system image at the bottom and resistor will protect the PCB from the battery and the battery will be the bower source and the FSR will send command to the micro-controller and the micro-controller will send command to the motor controller to move the motor back and forth.
Finally, the system needs to be easy to don and doff, and we accomplished that by using simple screws and bands. The kid will only need to open the bands that closing the thermoplastic bands and by that he or she can simply remove the system of his or her legs.

EE system