**Goals**
The purpose of our walker is the user can use to assist them at any time of day and help relieve stress on the user’s legs.

**User Needs**
- Comfortable
- Aesthetically Pleasing
- Durable
- Faster than walking pace

**Design Input**
Goals of the System:
- Make the user get to where they need to be faster
- Help the user be at ease knowing they can get from one place to another
- Allow the user to go places they couldn’t before due to walking abilities
- Constraints:
  - Must allow the user to be safe
  - Sturdy, Strong and Light

**Design Output**
- Four Wheels instead of four legs
- Lightweight aluminum frame
- Battery powered electric motor
- Rim brakes
- The device will have a handlebar to hold onto that will contain the controls for speed and direction.
- The device will also be barricaded by railings for the safety of the user.
- The wheels will be placed in the gaps on the sides. The top of the designed device opens to reveal a box that will house the wires and electrical components.

**Validation Plan**
- Speed test
  - Test’s the max speed of device to ensure it will not exceed 5 mph.
- Battery Life Test
  - To determine the battery —life of the lithium-ion battery used in the device.

**Verification Matrix**

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight (l)</th>
<th>Cost($)</th>
<th>Tensile strength (psi)</th>
<th>Corrosiveness</th>
</tr>
</thead>
</table>
| Titanium  | 4.5 Light  | 6.61 Expensive | 63000 | Good | corrosion resistant
| Aluminum  | 2.7 Light  | 0.017 Cheap   | 45000 | Decently Strong | Good |
| Beryllium | 1.84B Light| 5.30 Expensive| 53700 | Strong | Corrosion resistant |
| Steel     | 7.9 Too heavy | 0.002 Cheap | 53700 | Strong | Corrodes under certain circumstances |

**Future Plans**
- We plan to add a seat to our walker so the user can either choose to stand or sit down, this will allow a more comfortable ride.
- We would also like to add suspensions to our walker in the future. This will allow the user to ride more comfortably, safely, and will cause less damage to the walker itself.

**References**