



Customer Needs:

Improved Design of Mobility Devices

Team 526

Group Members:

Michael Beech

Dionsse Carti

Chase Craft

Leah Fiedler

Submission Date: 9/24/2018

3.0 Customer Needs

3.1 Sponsor Requirements

After meeting with Dr. Devine, our sponsor, the specific requirements that we were expected to meet were determined. Dr. Devine specified that the device needed to hold some or all of a person's weight and require some sort of cardiovascular activity.

3.2 Customer Personas

To identify specific needs that actual customers have had, the most common problems experienced by people with limited mobility were researched online and idealized through various constructed personas.

Betty

Betty is a senior citizen with limited mobility challenges from a recent hip injury from falling. She still wants to be independent and therefore uses a walker to get around. Betty has experienced various issues with her walker that are listed below.

- Hindered her from walking up and down hills
- Has dramatically slowed her walking pace down
- Difficulty transporting walker in car
- Hard time maneuvering in tight spaces or over various terrain
- Cannot take walker up steps (even 1)

Charles

Charles is a senior citizen who has arthritis in his right knee that causes him severe pain when he tries to walk. To relieve some of this pain, Charles uses a cane to walk. The cane does in fact take some weight off of his knee, but has also caused him numerous issues that are listed below.

- Retaining balance when tripped
- Limited usage both hands
- Has affected his walking pattern
- Shoulder and back pain from constant weight on arm

Tony

Tony is a college student who was diagnosed with amyotrophic lateral sclerosis (ALS) and has regressed enough that he currently relies on a wheelchair. Since being in a wheelchair Tony has started to experience a number of issues that are listed below.

- Much faster rate of muscular regression in his legs
- Increased health issues due to lack of cardiovascular activity
- Loss of self dependency
- Serious discomfort from sitting
- Financial burden from wheelchair expenses

3.3 Customer Need Interpretation

The key issues highlighted by the individuals above were analyzed to determine what the customer actually wants/needs. These customer needs were interpreted into technical terms that the product will be designed around.

- Maintain natural gait
- Comfortably support body weight
- Aid in balance
- Reduce or protect from falls
- Have relative price to walkers/canes
- Require feasible cardiovascular exercise
- Ease of maneuverability in various terrains (ex: ground cover, sloped terrains, tight spaces)
- Improved overall mobility relative to current devices