

# Design Report #1 - Defining your Problem Space

MIE 1080H, Group 5

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## Observations

- Some people have difficulty walking or moving, they encounter a range of physical limitations that can significantly impact their daily lives.
- Limited training for the use of assistive robots, in addition to a lack of education for the public about these technologies.
- High costs of obtaining and maintaining mobility aid devices, making economic accessibility a significant barrier to good mobility assistance.
- Limited integration between smart technologies that address mobility assistance and lack of ergonomics and comfort.

## Population

- Older adults and people with disabilities that affect their mobility.
- Injured people with injuries that cause temporary mobility impairment or individuals recovering from surgeries that require temporary mobility assistance.
- Healthcare professionals and caretakers who are involved in supporting people who require mobility assistance.

## Problem

- Limited independence due to mobility challenges, leading to frequent or dangerous falls or inability to satisfy daily needs.
- Limited affordability and availability of assistive devices and hiring a caretaker.
- Negative social perception around the effectiveness and practicality of assistive robots.

## Outcome

- Ensured the completion of daily needs through an intuitive user interface.
- Enhanced the quality of life with good safety and security.
- Reduced burden on therapists and healthcare workers.
- Promoted self-reliance and a sense of control over daily life.

## Need Statements

- A way to address limited independence for older adults to enhance their quality of life with good safety and security.
- A way to increase independence for people with lower limb injuries to promote self-reliance and a sense of control over daily life.
- A way to address the over-burden on healthcare workers and therapists to enhance the overall quality of life for individuals with mobility difficulties.