Accessibility Improvement for Air Travel

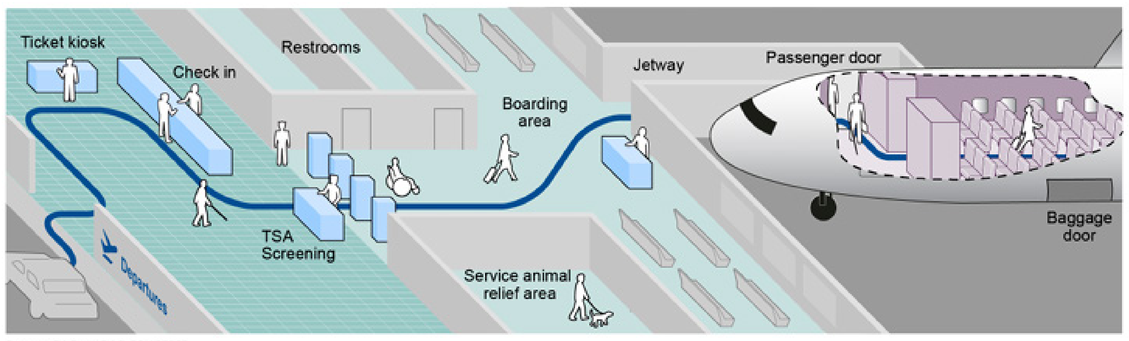
Mr PANG Hei Tung, BEng (Hons) in Aircraft Engineering, Department of Construction, Environment and Engineering
Supervisor: Dr YUEN Tat Cheong, Frank, Assistant Professor

Background

To make the experience of flying easier for those with disabilities.

Prejudice, inefficient boarding, and lacking facilities causes troubles for them.

The goal is to provide answers to these issues by offering innovative means and updates to help everyone have access to air travel.



Source: GAO. | GAO-23-106358

Research Objectives

- To come up with helpful and new approaches to make air travel more accessible for people with disabilities.
- Design a wheelchair specially for use inside the flight cabin to solve issues concerning structure and safety.
- To enhance the travel experience while promoting inclusion for all passengers, particularly those with disabilities.

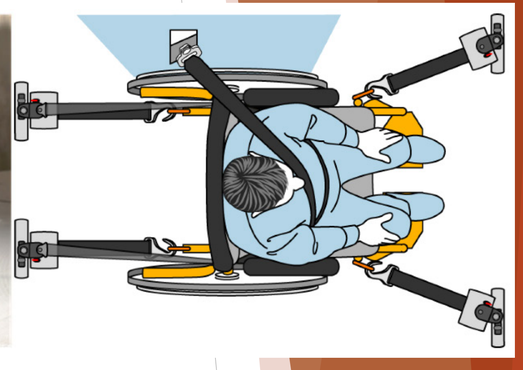
Methodology

Knowledge is gathered by studying industry procedures and relevant writings about the difficulties that passengers with disabilities face when flying.

According to the research, an improved wheelchair was designed using aluminum and titanium alloys for better strength and safety.

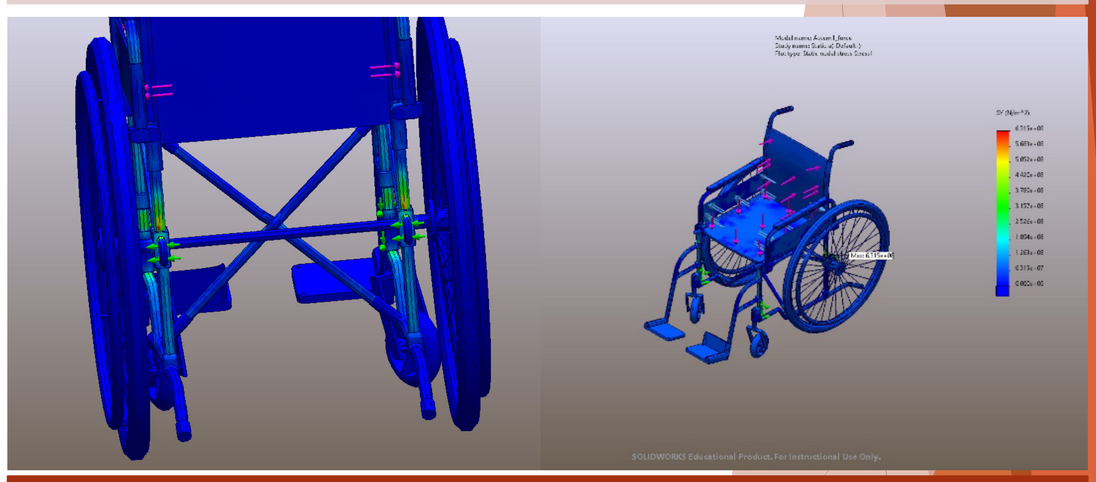
The goal of the design was to solve issues with ineffective boarding routines and restricted access in aircraft cabins.

SolidWorks simulations were run to see how the wheelchair would respond to various loads, the limit on force, and what accidents it could withstand.



Findings

Solidworks simulations of the wheelchair model designed using aluminum and titanium alloys proved that it will work properly and protect passengers if an emergency landing occurs. The wheelchair was made with secure anchor points, restraints, and guidelines for crash safety to ensure the safe travel of wheelchair users. It was confirmed that the design helped make traveling safer and more comfortable for disabled passengers.



Conclusions

A wheelchair was designed using SolidWorks, incorporating lightweight components and tested under various loads and emergency scenarios.

With an accessible lavatory and adjustable seat, Delta reduces the amount of space needed in the cabin, making travel more convenient for everyone.

Despite fewer seats and additional costs, the government can support by funding or take action to facilitate the installation of these features.

The project suggests improving disable people's access to air travel, and it can be achieved with modern technology and new regulations, together with solving financial issues and cooperating with airlines.