

Case Study: The Need for a Smart Wheelchair in Airports - Tayseer Project

Introduction

Airports can be overwhelming environments for people with disabilities due to long distances, crowded terminals, and the heavy reliance on human assistance. Based on direct interviews with airport staff, it is evident that a more independent and respectful solution is needed.

Tayseer proposes a smart wheelchair system supported by a mobile application that enables disabled and elderly travelers to navigate the airport independently, safely, and with dignity.

Observed Challenges (Based on Field Interviews from King Abdulaziz Airport - Jeddah)

1. Lack of Self-Service Options

Airport staff noted that travelers with disabilities often wish to move independently without relying entirely on staff assistance.

Tayseer's Solution: A smart wheelchair that allows the user to control their movement freely through an intuitive interface, promoting self-service and autonomy.

2. Discomfort in Asking for Help

Many travelers with disabilities feel shy, embarrassed, or hesitant to ask for help repeatedly.

Tayseer's Solution: A seamless integration between the smart wheelchair and the mobile application enables users to get assistance discreetly, eliminating the need for awkward or uncomfortable interactions.

3. Inconsistent Staff Treatment & Overcrowding

The level of care from airport staff often depends on the individual's mood or how busy the airport is - especially during rush hours (e.g., late afternoons). This inconsistency can negatively impact the emotional state of travelers with disabilities.

Tayseer's Solution: Travelers gain complete control over their airport journey, reducing reliance on inconsistent human support and increasing their comfort and psychological well-being.

4. Security Concerns - Battery Restrictions

Security often restricts entry of battery-powered devices into certain areas (e.g., security checkpoints).

Tayseer's Proposal: Collaborate with airport authorities to facilitate access for Tayseer users. For reference, similar systems already exist (e.g., TSA regulations in the U.S.). Tayseer chairs can be designed to meet approved safety standards.

5. Language Barriers

A significant number of international travelers - particularly pilgrims and elderly visitors - face difficulties due to language barriers when asking for help.

Tayseer's Solution: Multilingual support integrated into the Tayseer app to accommodate the main languages used by pilgrims and Umrah visitors.

6. External Pickup Challenges

Current wheelchair services operate only inside the airport. There's a challenge in reaching users at the car drop-off zones and knowing when they arrive.

Tayseer Offers Two Solutions:

Option 1: If location permission is granted, the system automatically detects when the traveler is five minutes away and dispatches the chair to the car area.

Option 2: The traveler notifies the system manually via the app five minutes before arrival.

Conclusion

Tayseer is not just a mobility service - it is a dignified experience tailored for travelers with disabilities. From arrival to boarding, Tayseer enhances independence, safety, and comfort. The insights gathered from real airport environments reinforce the urgent need for a smart, scalable solution like Tayseer.