Chapter 6
AI-Enabled Accessible Travel Plan for People With Disabilities

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ABSTRACT

Accessible travel for people with disabilities remains a challenge due to mobility, sensory, and cognitive barriers. AI can improve travel by providing real-time assistance, intelligent navigation, and personalized route planning. This chapter examines the role of AI in addressing mobility challenges and enhancing transportation systems. It describes key barriers in existing travel solutions and introduces AI-driven approaches. It discusses computer vision for obstacle detection, NLP for voice-based travel support, and machine learning for route optimization. It explores the use of the Internet of Things and smart infrastructure to improve accessibility in public transportation. AI-based mapping services and assistive technologies are included as case studies. Future developments such as AI-integrated wearable

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devices and autonomous vehicles are considered. The chapter concludes with policy suggestions to support AI-enabled travel systems for people with disabilities. It provides insights for researchers, policymakers, and technology developers working to improve mobility.

1. INTRODUCTION

Travel is an important aspect of humanity as it holds the power to transform a person's brain through the ideas of exploration and comprehension of the various societies we encounter. However, it cannot be regarded as an inclusive activity and people with different physical disabilities find traveling to be a tedious task in their life. According to a recent survey by the *World Health Organisation (WHO)*, about a million people are living with some or other form of physical disability, which clocks to about 15% of the total human population (World Health Organization & World Bank, 2011). There have been technological advancements to make the world a better place for them and support them in carrying out the basic activities as easily as anyone can but there is a long way to go before, we can make traveling an inclusive concept. This chapter is motivated by the ethical and social responsibility to design a feasible plan that would help in bringing about a change toward the betterment of the lives of the disabled ones. The accessible travel plans are focused on improving the quality of life for many and align with the *Goal 10- Reduced Inequalities* and *Goal 11- Sustainable Cities and Communities* of the United Nations Sustainable Goals (World Health Organization & World Bank, 2011). The plans are also intended to bring a boost to the travel and tourism industry which would favour the economic aspect of the society (United Nations Department of Economic and Social Affairs, 2018).

The global tourism market looks forward to more inclusivity which would directly account for their monetary growth. As per the report released by the World Travel and Tourism Council (WTTC), the tourism industry is growing at a commendable pace. This can be reflected in the 4% Compound *Annual Growth Rate (CAGR)* in the tourism market (Ronen, 2024). The world is trying to bounce back after the pandemic and the tourism industry which faced a significant amount of loss is encouraging inclusivity for their industry. In accordance with the recent analysis conducted by Allied Market Research, the global tourism market is valued at USD 58.2 billion in the year 2022 and is predicted to grow to USD 120.8 billion by the year 2032, resulting in the growth of CAGR to 7.5% in the forecasted period. The supportive government policies, increased disposable income among disabled individuals, and a rise in disability awareness are predicted to play key roles in the growth of CAGR (United Nations Department of Economic and Social Affairs, 2018; Ronen, 2024).