

Enhancing Accessibility: A Comprehensive Study of Current Apps for Enabling Accessibility of Disabled Individuals in Buildings

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ABSTRACT

In the digital age, mobile applications are powerful tools that significantly improve accessibility and inclusivity, particularly for people with disabilities. These applications offer various features that enhance the quality of life and independence of individuals with disabilities, especially in settings like teT-TE--Στο-b-anuildings. However, understanding the current landscape of accessibility applications and their effectiveness in creating inclusive environments is crucial for progress.

This research focuses on exploring mobile applications designed to enhance accessibility within buildings for individuals with disabilities. This study aims to identify trends, improve existing apps, and assess their impact on inclusiveness and empowerment. Objectives include application identification, evaluating their strengths, exploring their impact on independence and quality of life, and identifying areas for future development.

This study reviews existing literature to understand accessibility applications tailored for disabled individuals in built environments, including universal design concepts and challenges. A thorough comparative analysis of accessibility applications reveals a need for a unified evaluation framework to assess accessibility. Such a framework ensures consistency, reliability, and transparency, promoting user trust, informed decisions, and innovation in empowering disabled individuals.

The study's findings provide insights into current accessibility apps for built environments. Highlights strengths, weaknesses, and potential improvements, offering valuable resources for developers, policymakers, and disabled individuals seeking effective accessibility tools. By promoting understanding of these apps, this research contributes to an inclusive society where disabled individuals can navigate and participate effortlessly.

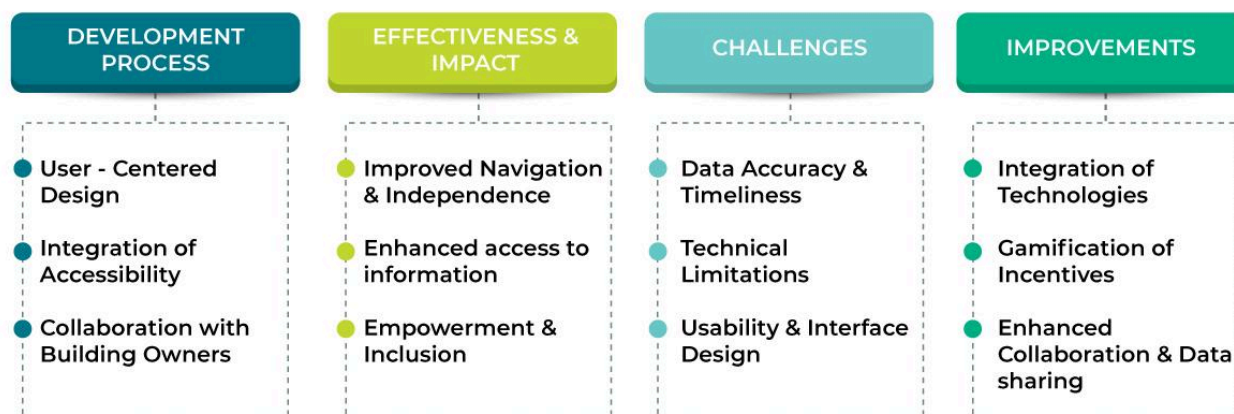
1 INTRODUCTION

In today's rapidly evolving digital era, mobile applications have revolutionized various aspects of our lives, offering enhanced convenience, connectivity, and productivity. They have transformed how we communicate and entertain ourselves, but their potential extends even further, particularly in improving accessibility for individuals with disabilities, especially within buildings. People with disabilities often face challenges when accessing public and private structures, limiting their participation in education, employment, and social activities. However, mobile applications

designed for accessibility in buildings have emerged as a solution. These apps provide critical information about accessible entrances, elevators, ramps, and other facilities, along with real-time navigation assistance and user-generated reviews. By empowering disabled individuals to navigate spaces independently, these apps have the potential to bridge the accessibility gap, complementing architectural modifications and building codes' progress in recent years.

The principle of Design for All, focused on equality, accessibility, usability, flexibility, safety, aesthetics, and user involvement, underpins the development of apps for disabled individuals. These apps have demonstrated positive impacts on navigation, access to information, empowerment, and inclusion. To further enhance their functionality and impact, it is essential to address challenges such as data accuracy, technical limitations, and interface design. By integrating emerging technologies and fostering collaboration, inclusive smart buildings and smart cities hold the potential to revolutionize the quality of life for people with disabilities. This comprehensive research study aims to investigate current accessibility apps' strengths, weaknesses, and potential areas for improvement while assessing their impact on creating inclusive environments for disabled individuals in buildings. Through a literature review and comparative analysis of these apps, the study seeks to promote inclusive design practices and contribute to a more inclusive society where disabled individuals can navigate and participate fully.

NEEDS AND CHALLENGES FOR APPS FOR DISABLED INDIVIDUALS



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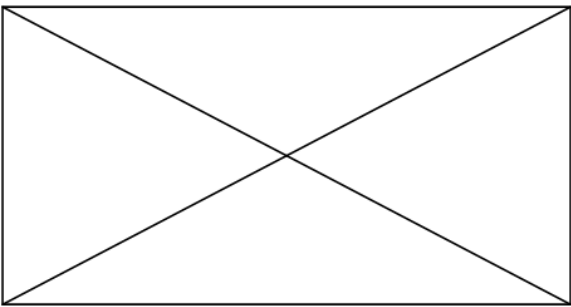


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Thus, the total failure probability, Q_t , of component in a common cause group of m components is:

$$Q_t = \sum_{k=1}^m \binom{m-1}{k-1} Q_k^{(m)} \quad (2)$$

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