A MOBILE APPLICATION FOR DISABLED TO ACCESS THEIR FACILITIES IN UNKNOWN LOCATION

A MINOR PROJECT-III REPORT

Submitted by

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BACHELOR OF ENGINEERING

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M.KUMARASAMY COLLEGE OF ENGINEERING

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BONAFIDE CERTIFICATE

Certified that this**18ECP105L - Minor Project III** report "A MOBILE APPLICAGION FOR DISABLED TO ACCESS THEIR FACILITIES IN UNKNOWN LOCATIONS**"** is the Bonafide work of "**AJAY D(927622BEC005), AKSHAI B(927622BEC008), DHARSHAN T(927622BEC035), EZHIL RAGAVAN A(927622BEC048)** who carried out the project work under my supervision in the academic year 2024 - 2025 **ODD**.

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This report has been submitted for the **18ECP105L – Minor Project III** final review held at

M. Kumarasamy College of Engineering, Karur on   .

PROJECT COORDINATOR

INSTITUTION VISION AND MISSION

Vision
To emerge as a leader among the top institutions in the field of technical education.

Mission

M1: Produce smart technocrats with empirical knowledge who can surmount the global challenges.

M2: Create a diverse, fully -engaged, learner -centric campus environment to provide quality education to the students.

M3: Maintain mutually beneficial partnerships with our alumni, industry and professional associations

DEPARTMENT VISION, MISSION, PEO, PO AND PSO

Vision

To empower the Electronics and Communication Engineering students with emerging technologies, professionalism, innovative research and social responsibility.

Mission

M1: Attain the academic excellence through innovative teaching learning process, research areas & laboratories and Consultancy projects.

M2: Inculcate the students in problem solving and lifelong learning ability.

M3: Provide entrepreneurial skills and leadership qualities.

M4: Render the technical knowledge and skills of faculty members.

Program Educational Objectives

PEO1: **Core Competence:** Graduates will have a successful career in academia or industry associated with Electronics and Communication Engineering

PEO2: **Professionalism:** Graduates will provide feasible solutions for the challenging problems through comprehensive research and innovation in the allied areas of Electronics and Communication Engineering.

PEO3: **Lifelong Learning:** Graduates will contribute to the social needs through lifelong learning, practicing professional ethics and leadership quality

Program Outcomes

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

PSO1: Applying knowledge in various areas, like Electronics, Communications, Signal processing, VLSI, Embedded systems etc., in the design and implementation of Engineering application.

PSO2: Able to solve complex problems in Electronics and Communication Engineering with analytical and managerial skills either independently or in team using latest hardware and software tools to fulfil the industrial expectations.

Abstract	Matching with POs,PSOs
Navigation, **Location,** **Accessibility,** **Voice assistance**	**PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO10,** **PO11, PO12, PSO1, PSO2**

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ABSTRACT

Navigating unfamiliar locations can be a significant challenge for individuals with disabilities. This project aims to develop a user-friendly mobile application designed to assist disabled individuals in accessing facilities and services in unfamiliar locations with ease. The application leverages cutting-edge technologies such as GPS, real-time mapping, and artificial intelligence to provide tailored navigation, accessibility information, and recommendations.

Key features of the application include:

- Personalized Navigation: Offers barrier-free routes based on the user's specific disability, such as wheelchair accessibility or audio guidance for the visually impaired.

- Accessibility Database: Provides detailed information about nearby facilities, such as ramps, elevators, restrooms, and accessible parking spots.

- Voice Assistance: Enables hands-free operation with voice commands for seamless interaction.

- Crowdsourced Updates: Allows users and organizations to contribute real-time updates on accessibility conditions.

- Emergency Assistance: Integrates with emergency services and contacts for quick support in critical situations.

The proposed application focuses on empowering users by enhancing their mobility and independence. By combining intuitive design with advanced technology, the app strives to create a more inclusive and accessible environment for individuals with disabilities, helping them navigate and access essential services confidently.

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LIST OF ABBREVIATIONS

ACRONYM		ABBREVIATION
GPS	-	Graphical Positioning System
ADA	-	Americans with Disabilities Act
WCAG	-	Web Content Accessibility Guidelines
IoT	-	Internet of Things
AI	-	Artificial Intelligence

CHAPTER 1

INTRODUCTION

People with disabilities often face significant barriers when navigating unfamiliar environments. Accessibility challenges, such as the absence of ramps, elevators, or clear directions, can hinder their mobility and limit their ability to explore new locations independently. Despite advancements in urban planning and technology, there is still a critical need for inclusive solutions that address the diverse needs of individuals with physical, visual, auditory, or cognitive impairments. This project focuses on developing a mobile application to bridge this gap, enabling disabled individuals to access facilities and services seamlessly in unknown locations. By leveraging technologies such as GPS, real-time mapping, voice recognition, and user-friendly interfaces, the application aims to provide tailored navigation and comprehensive accessibility information. Navigating unfamiliar locations presents significant challenges for individuals with disabilities due to various physical, informational, and environmental barriers. Accessibility issues such as the absence of ramps, elevators, clear signage, or reliable information about accessible services can hinder their mobility and independence. Despite advancements in technology and urban planning, the need for inclusive solutions tailored to the diverse needs of individuals with physical, visual, auditory, or cognitive impairments remains critical. To avoid this critical situation we can use this application.

1.1 OBJECTIVES

The objectives of this moblie application are...

- **Real-Time Navigation:** Offers step-by-step guidance based on users' specific accessibility needs, ensuring safe and efficient movement.
- **Accessibility Database:** Provides detailed information on nearby accessible facilities such as ramps, tactile paving, elevators, braille-enabled services, and restrooms.
- **Personalized Profiles:** Customizes recommendations and navigation based on the user's specific disability.
- **Crowdsourced Updates:** Allows users and organizations to contribute real-time updates, keeping the data accurate and reliable.
- **Assistive Technology Integration:** Supports voice commands, screen readers, and other tools for seamless interaction.
- **Emergency Support:** Includes quick access to emergency services and pre-defined contacts for critical situations.

1.2 PROJECT OVERVIEW

The proposed project is a mobile application designed to empower individuals with disabilities by enabling them to navigate and access facilities in unfamiliar locations seamlessly. Accessibility remains a persistent challenge for disabled individuals, as many environments lack the necessary accommodations to support their needs. This application aims to address these challenges by providing a comprehensive, user-friendly solution that leverages technology to promote independence and inclusivity. This project represents a step forward in ensuring that people with disabilities can navigate the world around them with the same ease and confidence as anyone else.

CHAPTER 2

LITERATURE SURVEY

A literature survey provides a foundation for understanding the existing research and technologies related to the proposed project. This section reviews previous studies, applications, and technological advancements that address the challenges faced by disabled individuals in accessing facilities and navigating unfamiliar   environments.

2.1 Existing Navigation Systems for Disabled

Several navigation applications cater to general users, but only a few focus on the unique needs of disabled individuals.,

- **Google Maps Accessibility Features:** Google Maps has integrated features such as identifying wheelchair-accessible routes and facilities. However, its scope is limited, and real-time updates regarding temporary obstacles are not always reliable.

- **BlindSquare:** Designed for visually impaired users, this app uses GPS to provide audio guidance for navigating public spaces. While effective for specific disabilities, it does not address the needs of users with mobility impairments.

- **Wheelmap:** A crowdsourced application that maps wheelchair-accessible places. However, it lacks real-time navigation and integration with other assistive technologies.

These applications highlight the need for a more comprehensive solution that combines navigation, accessibility data, and customization for diverse disabilities.

2.2 Challenges in Accessibility Mapping

Studies reveal that accurate mapping of accessible facilities is a major hurdle. Key challenges include:

- Limited availability of detailed accessibility data.
- Dynamic changes in infrastructure (e.g., temporary closures or construction).
- Lack of community involvement in updating accessibility information.

Research suggests that crowdsourcing can enhance data accuracy and completeness. However, ensuring data reliability remains a concern.

2.3 Assistive Technologies

Advancements in assistive technologies have opened new possibilities for inclusive solutions.,

- **Voice Assistants and Screen Readers:** Tools like Siri, Alexa, and NVDA have demonstrated the potential for voice-based and hands-free interaction, which is critical for users with visual or physical impairments.
- **AI in Accessibility:** AI-driven solutions like object detection and context-aware recommendations can improve navigation experiences by providing tailored suggestions based on user needs.
- **Wearables and IoT:** Devices like smart glasses and IoT-enabled infrastructure have been explored to assist disabled individuals in navigating physical spaces more effectively.

2.4 Crowdsourcing and Community Participation

Research emphasizes the role of community participation in maintaining up-to-date accessibility data. Crowdsourced platforms like OpenStreetMap and Wheelmap have shown that involving users in reporting and validating data can significantly improve coverage. However, gamification or incentives might be required to sustain user engagement.

2 .5 Accessibility Standards and Guidelines

International standards such as the Web Content Accessibility Guidelines (WCAG) and Americans with Disabilities Act (ADA) highlight the importance of creating user-friendly and inclusive interfaces. These guidelines serve as benchmarks for designing accessible mobile applications, ensuring compatibility with assistive tools and compliance with legal requirements.

2.6 Impact

By bridging the gap between technological advancements and accessibility needs, the application promotes social inclusion and independence for disabled individuals. It enables users to explore new environments confidently, fostering a sense of empowerment and enhancing their overall quality of life. Furthermore, it contributes to creating a more inclusive society by encouraging businesses and communities to prioritize accessibility.

2.7 Gaps Identified

Based on the review, the following gaps have been identified:

- Lack of a unified platform that combines navigation, real-time updates, and accessibility features for diverse disabilities.
- Insufficient customization options to address the specific needs of different disability types.
- Limited integration of crowdsourced data with AI-driven recommendations.
- Absence of emergency assistance features in most existing applications.

CHAPTER 3
EXISTING SYSTEM

Creating a mobile application to assist disabled individuals in accessing facilities in unfamiliar locations is a commendable initiative. Here's an outline of the existing system you might be referring to, or need to develop as part of your project.

3.1 For Accessibility Assistance

Navigation and Wayfinding Tools

- Google Maps (Accessibility Features):
    - Offers wheelchair-accessible routes.
    - Highlights accessible entrances, elevators, and pathways.
- Wheelmap.org:
    - A crowd-sourced map specifically for wheelchair users.
    - Allows users to rate places based on their accessibility.
- BlindSquare:
    - A GPS application designed for visually impaired users.
    - Offers audio navigation and description of nearby points of interest.

Assistive Mobile Apps

- Be My Eyes:
    - Connects visually impaired users with volunteers for real-time assistance.
    - Helps with identifying surroundings or reading signs.
- Aira:
    - A paid service providing live, professional assistance for visually impaired individuals.
    - Agents help users navigate environments using a smartphone camera.

- AccessNow:
  - Crowdsourced data about accessible locations worldwide.
  - Provides filters for specific accessibility needs.

3.2 Key Features Missing in Existing Systems

- Personalized recommendations based on disability type and individual preferences.
- Real-time updates on facility availability (e.g., elevator outages, reserved accessible parking).
- Offline functionality for areas with poor internet connectivity.
- Integration with emergency assistance services.

3.3 DRAWBACK OF GOOGLE MAPS

The main drawback of google maps is that the application show only that the place is accessible for the disabled people or not .
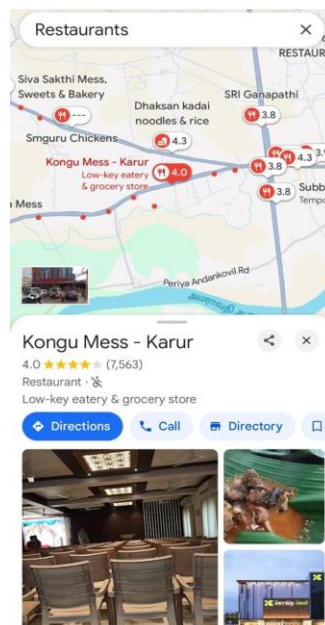

Fig. 1: Google maps outlook

CHAPTER 4
PROPOSED SYSTEM

The proposed system aims to provide a seamless experience for disabled individuals to locate and access facilities in unfamiliar locations. It will address the gaps in existing solutions by incorporating advanced features, personalized assistance, and real-time updates. Here's the overview of the Proposed System.

4.1 APPLICATION

Here, we are designed this application only to help for the disabled people to access their facilities. For that, we created this by feed the famous location that contain the facilities which are helpful to them.
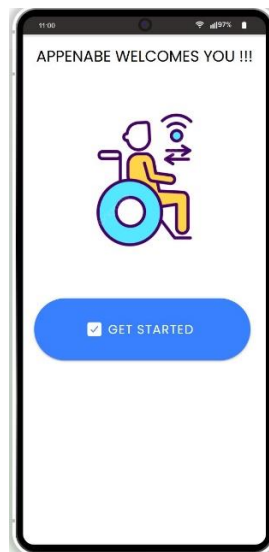
i) Welcome page :

Fig. 2: Application's welcome page

This is the welcome page for this application,click the get started option…
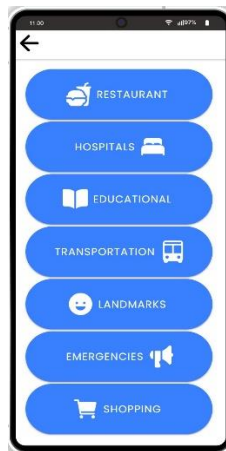
ii) Locations :

Fig. 3: Page with Locations

This are the location displayed after clicking the get started option, Here click any option to get or know the facilities.For example: click the landmarks option…

iii) Sorted Location :

Fig. 4: Page of Location

This is page of the sorted locations when we touch on landmarks option,like these very option having a sorted locations to help easily to the disabled…
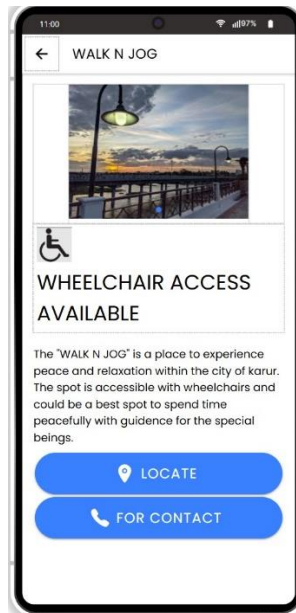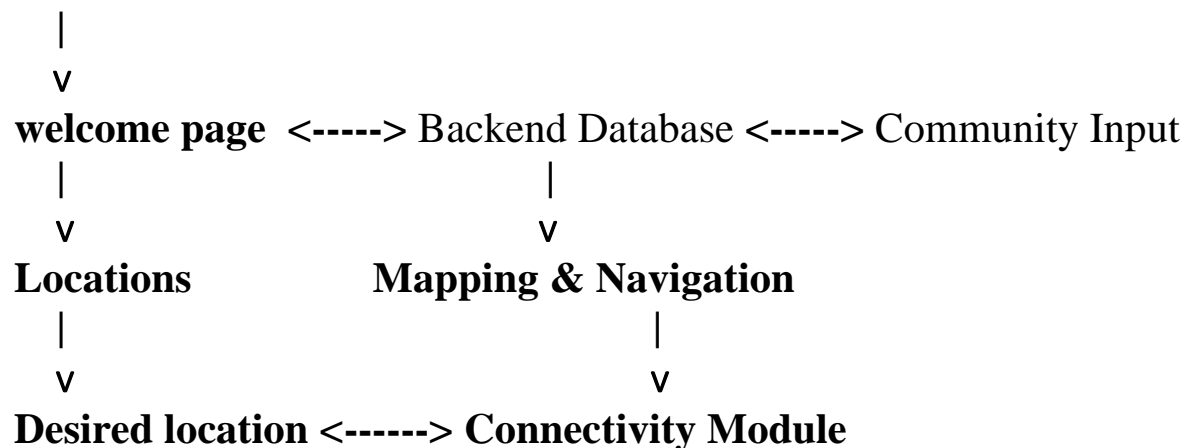
iv) Desired location :

Fig. 5: Page of Desired Location

This page displays the desired location where the person want to go… after this page,if we click on the locate option,it will move on to the maps…

4.2 Block Diagram

Block diagram in the text representation…

User Interface (UI)
 |
 v
welcome page **<----->** Backend Database **<----->** Community Input
 | |
 v   v
Locations   **Mapping & Navigation**
 | |
 v   v
Desired location <------> Connectivity Module

CHAPTER 6

RESULT

The result of implementing this mobile application for disabled individuals will lead to tangible and impactful benefits across multiple dimensions. Here's a breakdown of the expected outcomes.

The outcomes are….

- Enhanced Independence for Disabled Users

- Greater Awareness of Accessibility

- Real-Time Problem Solving

- Improved Safety

- Community and Social Impact

- Global Scalability and Usability

- Quantifiable Results

CHAPTER 7

CONCLUSION

The application will provide disabled individuals with the confidence and tools to navigate unfamiliar locations with ease, while also fostering a more inclusive and accessible society. Over time, it can contribute to a significant improvement in the quality of life for users and act as a catalyst for systemic change in how accessibility is prioritized globally.

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OUTCOME