Wheelchair Guidance and Assistance System App

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Abstract*: This research paper focuses on the development of a wheelchair guidance and assistance system app designed to enhance the mobility and independence of individuals with disabilities. The app utilizes advanced technology such as GPS tracking, mapping, and real-time communication to provide users with optimal routes, accessibility information, and assistance in navigating obstacles. The study explores the impact of the app on the quality of life, safety, and autonomy of wheelchair users. Data collection methods include surveys, interviews, and user testing to evaluate the effectiveness and usability of the app. Findings suggest that the wheelchair guidance and assistance system app has the potential to significantly improve the mobility and overall well-being of individuals with disabilities.*

Keywords: Android Application, Bluetooth Module, Wifi Module, Obstacles Avoidance, Safety

I. INTRODUCTION

Individuals with physical disabilities face numerous challenges in their daily lives, particularly when it comes to mobility and navigation. Traditional wheelchair users often encounter barriers such as inaccessible routes, lack of information about accessible facilities, and limited support in unfamiliar environments. In response to these challenges, technological advancements have paved the way for innovative solutions to enhance the independence and quality of life of individuals with disabilities. One such solution is the development of a wheelchair guidance and assistance system app, which leverages GPS tracking, mapping, and real-time communication to provide users with customized support in navigating their surroundings.

II. LITERATURE SURVEY

In today's world there are many disabled persons who find it difficult to perform movements or perform daily activities. This types of persons are mainly dependent on others for their assistance. But they can become self-independent and perform some daily activities on their own with the help of assistive devices.

The most widely used assistive devices are Wheelchairs. Wheelchairs is basically a chair fitted with wheels, which can help people move around who cannot walk because of illness, disability or injury. But there are many disabled people with weak limbs and joints who cannot move the wheelchair. Thus, Smart Wheelchair can benefit a lot to them and everyone in society. Smart Wheelchairs are electric powered wheelchairs with many extra components such as a computer and sensors which help the user or guardian accompanying wheelchair to handle it easily and efficiently. The recent development in the field of Artificial Intelligence, Sensor technologies and Robotics help the growth of wheelchairs with new features. This paper is to review the current state of art of Smart Wheelchairs and discuss the future research in this field.

• **Proportion of Disabled Population by Type of Disability India, 2011**

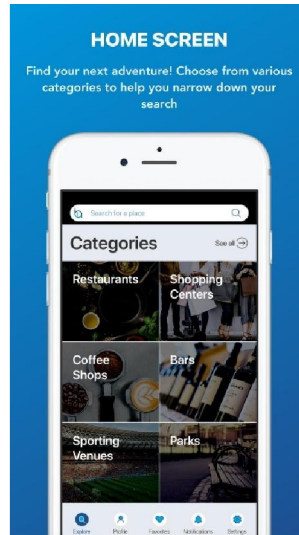| Sr. No.	Types of Disabilities	Male	Female	Total
1	In Seeing	17.6	20.2	18.8
2	In Hearing	17.9	20.2	18.9
3	In Speech	7.5	7.4	7.5
4	In Movement	22.5	17.5	20.3
5	Mental Retardation	5.8	5.4	5.6
6	Mental Illness	2.8	2.6	2.7
7	Any Other	18.2	18.6	18.4
8	Multiple Disability	7.8	8.1	7.9
	Total	100.00	100.00	100.00

Fig. 1 . Above Image Shows Home Screen of Wheelchair Guidance and Assistance System Application.
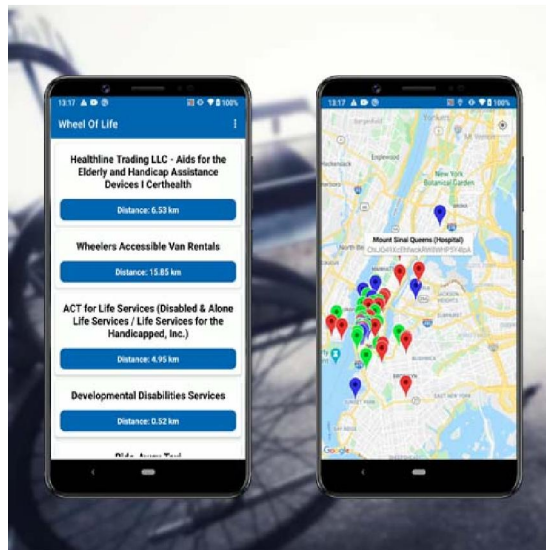

Fig. 2. Above Image Shows Different Locations on Mobile Application

Designed to be user friendly, This Wheelchair Guidance & Assistance System assists disabled individuals with finding the nearest:

- Wheelchair Accessible Toilets
- Vendors of wheelchairs and other medical equipment
- Wheelchair repair shops
- NGOs
- Hospitals
- Police Stations

III. CONCLUSION

In conclusion, the Wheelchair Guidance and Assistance System App presents a promising solution for enhancing the mobility and independence of wheelchair users. With its navigation assistance, obstacle detection, and user-friendly interface, it addresses key challenges faced by users. However, further evaluation regarding user feedback, technical

reliability, and potential areas for improvement would be valuable to ensure its effectiveness and usability in real-world scenarios.

IV. ACKNOWLEDGMENT

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[3]. **"Assistive Technology for Individuals with Disabilities:** A Review and Synthesis of the Literature" by Marcia J. Scherer. This book offers a comprehensive overview of assistive technology, including wheelchair guidance and navigation systems, and discusses their impact on the lives of individuals with disabilities.

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