IARJSET

ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 11, Issue 7, July 2024

DOI: 10.17148/IARJSET.2024.117103

GPS GEO-FENCING

Omkar N B[1], Abhishek T S[2], Bhuvana H[3], Aishwarya.A[4]

Dept of ECE KSIT, Bangalore, India[1-4]

Abstract: This paper presents a study on a voice-controlled wheelchair system enabled with Arduino and Bluetooth technology, which receives commands from an Android app. The system provides high-security communication, allowing users to control wheelchair movement via voice commands. The wheelchair can be easily navigated and monitored using Internet of Things (IoT) technology. The system comprises two main components: hardware and software. The hardware includes an Arduino Uno, a Bluetooth module, and a motor driver. The software utilizes a voice recognition app on an Android device. Users can control the wheelchair through voice commands sent from their mobile phones. The prototype system was tested in various environments, and results showed accurate response to voice commands and reliable control of the wheelchair. Keywords- Voice control, wheelchair, Arduino, Bluetooth, internet of things.

I. INTRODUCTION

Assistive technologies and mobility aids have always been essential tools for improving the quality of life for individuals with disabilities. Advancements in electronics have led to revolutionary changes in these fields. Controlling a wheelchair is a serious issue faced by many individuals with mobility impairments. Traditional control methods can be cumbersome and inaccessible for some users. A voice-controlled wheelchair system offers a clear solution for enhancing mobility and independence. The goal is to develop a system that employs voice recognition and Bluetooth communication to control a wheelchair. This system would comprise several key components combining microcontroller and wireless communication technologies to relay voice commands from a user's mobile device to the wheelchair.

II. DISCUSSION

The system has been tested for its reliability, functionality, stability, and accuracy. The results were separated into two parts: hardware and software. The hardware components used were the Arduino Uno, a Bluetooth module, and a motor driver. For the software, a voice recognition app on an Android device was used as a platform for this system. The hardware was tested for its efficiency, functionality, and compatibility with the software. The whole system was then tested for the stability of the hardware and software interfacing with one another. The system was tested in real-time to ensure that the functionality of the hardware and software was in a stable condition.

III. SUMMARY

This paper proposes a voice-controlled wheelchair system enabled with Arduino and Bluetooth technology to navigate and control the wheelchair via voice commands. The system consists of hardware and software components. The hardware includes an Arduino Uno, a Bluetooth module, and a motor driver. The software uses a voice recognition app on an Android device. Users can control the wheelchair through voice commands sent from their mobile phones. The system was tested in various environments, demonstrating accurate response to voice commands and reliable control of the wheelchair. The hardware components worked efficiently and compatibly with the software. The whole system was stable and functioned properly in real-time testing, demonstrating the reliability of the voice-controlled wheelchair system.

IV. CONCLUSION

The proposed voice-controlled wheelchair system efficiently navigates a wheelchair by integrating multiple communication technologies, including hardware and software components. The system allows users to control the wheelchair through voice commands sent via Bluetooth from an Android app, displaying excellent results during testing. It can accurately interpret and execute voice commands, offering enhanced mobility and independence for individuals with disabilities. This positioning and navigation capability offers significant utility for improving the quality of life for users who rely on wheelchairs for mobility.

IARJSET

ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 11, Issue 7, July 2024

DOI: 10.17148/IARJSET.2024.117103

REFERENCES

[1]. Salgia, Aakash Sunil, K. Ganesan, and Ashwin Raghunath. "Smart Wheel chair." Indian Journal of Science and Technology 8, no. S2 (2015): 189-194.

[2]. Mukund, S., and N. K. Srinath. "Design of Automatic Wheel chair." Indian Journal of Science and Technology(2012). pp.251-257.

[3]. George, Meria M., Nimmy Mary Cyriac, and Tess Antony Sobin Mathew. “Voice controlled wheel chair." Journal for Research| Volume 2, no. 01 (2016). pp. 102-104.

[4]. S. Huang, H. Chang, Y. Jhu and G. Chen, "The intelligent Wheel chair," 2014 IEEE International Conference on Consumer Electronics - Taiwan, Taipei, 2014, pp. 235-236. doi: 10.1109/ICCE-TW.2014.6904076.