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## Patent Search

Invention Title	ENHANCING MOBILITY AND CARE FOR DISABLED PERSON: A SMART WHEELCHAIR WITH HEALTH MONITORING AND PHYSIOTHERAPY I
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**Abstract:**

As the global population ages and mobility impairments rise due to age, accidents, and congenital conditions, the need for enhanced solutions in mobility aids becomes increasingly critical. In the United States, approximately 13.7% of adults face mobility disabilities, with 2.7 million using wheelchairs. This trend is mirrored globally, with 1 billion people living with disabilities and 75 million needing wheelchairs. Traditional wheelchairs often fall short by lacking integrated health monitoring, therapeutic support, and autonomous navigation, resulting in increased health risks and limited independence for users. To address these issues, this paper proposes the development of an innovative multifunctional smart wheelchair. This innovative design features a comprehensive health monitoring system for continuous vital parameter assessment, a one-touch mechanism to convert the chair into a bed for added comfort, autonomous mobility for ease of navigation, automated physiotherapy functions for personalized rehabilitation, and a seamless virtual consultation interface for immediate medical support. The proposed system aims to significantly enhance the quality of life, independence, and overall well-being of individuals with mobility and health challenges, providing a holistic solution that overcomes the limitations of existing traditional wheelchairs.

**Complete Specification**

**Description:**The objective of this proposal is to design and develop an advanced, multifunctional smart wheelchair that enhances the quality of life and independence of individuals with mobility and health challenges.

This innovative solution integrates comprehensive health monitoring systems, allowing continuous assessment of vital parameters to ensure the well-being of the user. The smart wheelchair has featured a one-touch transformation mechanism that converts the chair into a bed, providing immediate comfort for rest or sleep. Additionally, it has been equipped with autonomous mobility capabilities, enabling the user to navigate their environment effortlessly shown in figure 1.

The system also incorporated automated physiotherapy functions, offering personalized therapeutic activities directly from the chair to aid in rehabilitation and physical health maintenance, and included a seamless virtual consultation interface, activated by a single button press, facilitating real-time communication with healthcare professionals for immediate medical support and consultation. Aimed to deliver a comprehensive, user-friendly solution that addresses the multifaceted needs of individuals requiring both mobility assistance and continuous health care management.

**4. Methodology**

The methodology for developing the multifunctional smart wheelchair involved several key phases. Initially, requirements gathering includes assessing user needs through surveys and literature reviews to identify essential features. In the design phase, a comprehensive system architecture is developed, integrating health monitoring, physiotherapy, and telemedicine functionalities.

The smart wheelchair allows users to navigate independently from one location to another using a joystick for manual control. Additionally, it features voice-control and Bluetooth functionality, enabling hands-free operation for greater convenience. This dual control system enhances user autonomy and confidence, making mobility

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