

Design and Development of an Electric Mobility Vehicle for Physically Challenged Peoples

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Abstract: *Mobility is one of the major challenges faced by physically challenged individuals in their day-to-day life, especially when moving independently outside their homes. Many existing mobility solutions are either costly, complex to operate, or not suitable for short-distance outdoor travel. The Single Person Electric Vehicle for Handicap Users is designed to provide a safe, affordable, and user-friendly transportation solution that enables physically challenged users to move comfortably and independently. This project focuses on developing a compact electric vehicle that can be easily operated by a single person with minimal physical effort. The proposed system integrates both mechanical design and electrical systems to achieve smooth and reliable operation. The mechanical structure is designed using lightweight materials and includes components such as a strong frame, rotating wheels, steering mechanism, gears, and proper balancing support to ensure stability and safety. Special attention is given to ergonomic design so that users can operate the vehicle comfortably. On the electrical side, the vehicle is powered by a rechargeable battery connected to an electric motor that drives the wheels through a suitable transmission mechanism. Basic electrical components such as motor controllers, wiring, switches, and safety circuits are used to ensure efficient power delivery and easy control. This project aims to improve the quality of life for handicap users by offering an eco-friendly, low-maintenance, and easy-to-use electric mobility solution. The designed vehicle can be used for short-distance travel such as moving within residential areas, campuses, hospitals, or nearby markets. Overall, the project demonstrates how mechanical fabrication and electrical integration can be combined effectively to develop a practical assistive mobility device that promotes independence, accessibility, and social inclusion for physically challenged individuals.*

Keywords: Electric Vehicle, Rechargeable Battery, Handicap Users, Mechanical Design, Fabrication, Hardware Components, Gears, Steering, Rotating Wheels, Electrical Components Battery, Motor, Wires, etc

