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Patent Search

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Inventor

Name	Address	Country	Natior
Dr. V Lakshmi Devi	Professor & Head, Department of EEE, Sri Venkateswara College of Engineering	India	India
Kumar K	Sri Venkateswara College of Engineering, Tirupati	India	India
Dr. S Murali Krishna	Professor & Head, Department of IT, Sri Venkateswara College of Engineering	India	India
Dr. Santhapalli Gautami	Professor, Department of Management Studies, Sri Venkateswara College of Engineering	India	India
Dr. A Sudhakar	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering	India	India
B. Ramakantha Reddy	Assistant Professor, Department of CSA, Sri Venkateswara College of Engineering	India	India
Dr. Damodhar Reddy	Assistant Professor, Dept. of EEE, Institute of Aeronautical Engineering, Dundigal, Hyderabad.	India	India
Dr. K Harshavardhana Reddy	Professor APJ Abdul Kalam school of Engineering Garden City University Bangalore	India	India
C Keerthi	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering	India	India
P Venkata Varaprasad	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering	India	India

Applicant

Name	Address	Country	Natior
Kumar K	Sri Venkateswara College of Engineering, Tirupati	India	India
Dr. V Lakshmi Devi	Professor & Head, Department of EEE, Sri Venkateswara College of Engineering	India	India
Dr. S Murali Krishna	Professor & Head, Department of IT, Sri Venkateswara College of Engineering	India	India
Dr. Santhapalli Gautami	Professor, Department of Management Studies, Sri Venkateswara College of Engineering	India	India
Dr. A Sudhakar	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering	India	India
B. Ramakantha Reddy	Assistant Professor, Department of CSA, Sri Venkateswara College of Engineering	India	India
Dr. Damodhar Reddy	Assistant Professor, Dept. of EEE, Institute of Aeronautical Engineering, Dundigal, Hyderabad.	India	India
Dr. K Harshavardhana Reddy	Professor APJ Abdul Kalam school of Engineering Garden City University Bangalore	India	India
C Keerthi	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering	India	India
P Venkata Varaprasad	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering	India	India

Abstract:

This invention introduces an AI-driven smart electric wheelchair designed to revolutionize accessible transportation by merging advanced robotics, artificial intelligence, and sensor technologies. Featuring a robust hardware platform, the wheelchair utilizes autonomous navigation algorithms, real-time obstacle detection, and user-customizable mobility profiles for optimal maneuverability. Equipped with user-friendly multimodal interfaces, remote monitoring capabilities, and extensive safety measures, this novel mobility aid caters to diverse user needs while promoting energy efficiency, reliability, and peace of mind. Moreover, AI capabilities foster continuous improvement by learning from user habits, environmental cues, and personal preferences, ultimately elevating the quality of life for disabled individuals seeking greater autonomy, dignity, and independence.

Complete Specification**Description:DESCRIPTION**

The following specification particularly describes the invention and how it is to be performed.

Technical Field of the Invention:

[001] The technical field of the invention for an AI-driven smart electric wheelchair is primarily related to Assistive Technologies, Robotics and Artificial Intelligence. These types of wheelchairs typically use various advanced technologies.

[002] Motor Control Systems: To manage the movement and speed of the wheels.

[003] Battery Management Systems: To ensure safe charging and discharging of the battery.

[004] Sensors: Such as ultrasonic or infrared sensors that detect nearby objects for collision prevention.

[005] Machine Learning Algorithms: That can learn from past experiences and improve the performance over time.

[006] User Interface Design: Allows users to interact with the chair easily and intuitively.

[007] Computer Vision Techniques: For more complex environments where the chair needs to recognize specific landmarks or navigate through narrow spaces.

[008] Connectivity Features: Like Bluetooth or WiFi, which enables remote monitoring and control by caregivers or healthcare professionals.

[009] The development of an AI-driven smart electric wheelchair involves interdisciplinary knowledge spanning across several fields like mechanical engineering, electrical engineering, computer science, ergonomics, and human factors.

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