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UPES Engineering Students Develop Revolutionary Gesture-Controlled Wheelchair

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New Delhi, Updated on Jun 21, 2024 15:21 IST

Students from the UPES School of Advanced Engineering have created a clever wheelchair aimed at improving mobility for elderly individuals and those with lower limb disabilities. Check details here



Gesture-Controlled Wheelchair

Students at UPES School of Advanced Engineering have created an innovative wheelchair aimed at improving mobility for the elderly and individuals with lower limb disabilities. This wheelchair features a modular design incorporating advanced functionalities such as hand-gesture recognition through inertial measurement units, a dual motor control system for four-wheeler-like steering, and fall detection capabilities, among other essential features. This cutting-edge technology upgrades conventional mechanical wheelchairs into electronic versions capable of responding to electronic sensory inputs, marking a significant advancement in mobility aids.

Design of Gesture-Controlled Wheelchair

The wheelchair's modular design integrates critical functionalities like hand-gesture recognition via inertial measurement units and a dual motor control system that mimics four-wheeler steering, along with fall detection, among others. This device redefines conventional manual and joystick wheelchairs by enhancing user independence and affordability. Specifically designed for individuals with severe limb mobility impairments, it allows control through hand and finger movements alone. Furthermore, the inclusion of a differential axle for efficient power distribution, coupled with the hand-gesture control interface, represents a unique and significant innovation in this field.

Team Behind Gesture-Controlled Wheelchair

The team, consisting of two final-year students from electronics and communication engineering, Kriti Chauhan and Anubhav Tyagi, along with their mentor Prof. Piyush Kuchhal, has applied for a patent for their innovative and economical solution. By integrating motors with these features, their innovation provides users with a versatile and responsive mobility solution. The intuitive control system enables users to navigate effortlessly using basic hand gestures. The project was completed within 8 months, from initial concept to implementation and testing.



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