Chapter 6
Smart Gesture Controlled Systems Using IoT

C. V. Suresh Babu

 https://orcid.org/0000-0002-8474-2882
Hindustan Institute of Technolgy and Science, Chennai, India

Rithika Purushothaman
Hindustan Institute of Technology and Science, India

K. Anusha
Hindustan Institute of Technology and Science, India

Shri Sakthi
Hindustan Institute of Technology and Science, India

ABSTRACT

A new technology called a smart gesture-controlled system enables users to interact with devices and systems by moving their hands or body. It interprets specific user motions into commands that control the system or device utilizing sensors, machine learning algorithms, and software interfaces. This technology has the potential to alter how we interact with technology by making it more approachable to a wider range of users. Gesture recognition systems have been used in human-computer interaction for many years. On the other hand, recent developments in sensors and machine learning algorithms have made it possible to create highly accurate and responsive gesture detection systems.

1. INTRODUCTION

Smart gestures controlled switches are innovative devices that have revolutionized the way we interact with our home appliances. They offer a convenient and intuitive

way to control switches, lights, fans, and other home appliances without the need for physical contact. In this article, we will introduce you to the concept of smart gestures controlled switches, their benefits, and how they work. Innovative gadgets like gesture-controlled switches have completely changed how we interact with household equipment. They provide a simple and convenient way to operate fans, switches, lights, and other home appliances without making direct physical touch. We'll explain the idea of clever gesture-controlled switches in this article, along with its advantages and workings. Users of smart gesture-controlled switches can operate their household appliances by using hand motions. To recognize and understand hand motions, these switches employ cutting-edge sensor technologies, such as motion sensors and infrared sensors. They may be trained to interpret various gestures, including waving, pointing, and swiping, into precise orders. The energy efficiency of smart gesture-controlled switches is another advantage. When there is no movement detected in a room, they can be set to automatically switch off, using less energy and costing less to operate. Smart gesture-controlled switches analyze hand motions using a mix of artificial intelligence and sensor technologies. Motion is detected by the sensors, which translate it into precise commands. To turn on the lights, for instance, wave your hand in front of the switch; to turn them off, swipe your palm over the switch.

Machine learning techniques are also used in intelligent gesture-controlled switches to increase the precision of gesture identification. To provide a customized experience, they pick up on the user's activities and adjust to their particular gestures and motions. Users must install smart gesture-controlled switches in their houses and link them with a smartphone app or a smart home hub to utilize them. Users may set up various motions and customize the switches using the app or hub, which serves as a control panel.

2. RATIONAL BACKGROUND

This study suggests Similar to the home automation system's voice command feature. For the system, you can use a camera as a sensing device that can detect your hand movements and send a signal to the cloud, which in turn sends a signal to the appliance. They offer a quick and easy way to control switches, lights, fans, and other home appliances without having to make direct physical contact. Switches that can be operated with intelligent gestures are simple, touchless, and energy-efficient. They offer a fresh way to connect with home appliances and give any space a modern, streamlined appearance. Thanks to their cutting-edge sensor technology and artificial intelligence, they can precisely recognize and comprehend hand movements, providing a personalized and straightforward user experience. A smart gesture-controlled switch is a gadget that enables hand motions to control switches. The system is built using motion sensors that can recognize and understand the

Related Content

Virtual Reality Enhanced Robotic Systems for Disability Rehabilitation

Wei Wei (2016). *Virtual Reality Enhanced Robotic Systems for Disability Rehabilitation (pp. 48-68).*

www.irma-international.org/chapter/virtual-reality-enhanced-robotic-systems-for-disability-rehabilitation/143475

Concepts for Enhancing Content Quality and eAccessibility: In General and in the Field of eProcurement

Christian Galinskiand Helmut Beckmann (2014). *Assistive Technologies: Concepts, Methodologies, Tools, and Applications (pp. 180-197).*

www.irma-international.org/chapter/concepts-for-enhancing-content-quality-and-eaccessibility/80612

Hand Exercising Exoskeleton: An Aging Assistive Device for Rehabilitation

Soumya Kanti Manna, Prasanna Kumar Lenkaand Subhasis Bhaumik (2016). *Optimizing Assistive Technologies for Aging Populations (pp. 78-96).*

www.irma-international.org/chapter/hand-exercising-exoskeleton/137789

Internet of Medical Things in Secure Assistive Technologies

B. Santhosh (2023). *AI-Based Digital Health Communication for Securing Assistive Systems (pp. 244-270).*

www.irma-international.org/chapter/internet-of-medical-things-in-secure-assistive-technologies/332964

Strategies to Successfully Implement Assistive Technology for Post-Secondary Education Programs and Beyond

Kathryn Abrams, Mykala Anglinand Donald D. McMahon (2022). *Technology-Supported Interventions for Students With Special Needs in the 21st Century (pp. 177-205).*

www.irma-international.org/chapter/strategies-to-successfully-implement-assistive-technology-for-post-secondary-education-programs-and-beyond/300027