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Smart Glove for Sign Language Translation

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Abstract: *The communication gap between hearing-impaired individuals and the broader community presents significant challenges, highlighting the need for effective assistive technologies. Smart gloves, combined with the Internet of Things (IoT), have emerged as innovative solutions for sign language translation, offering real-time, scalable, and accessible communication tools. This review explores the evolution of assistive devices, emphasizing the role of IoT in enhancing the functionality of smart gloves. Key components, such as flex sensors, motion detectors, and microcontrollers, are discussed alongside their integration into an IoT- enabled system architecture.*

The paper delves into data acquisition, processing techniques, and the use of machine learning algorithms for accurate gesture recognition and sign-to-text conversion. Applications of smart gloves span from personal communication aids to educational tools and potential integration with augmented reality environments.

Despite their promise, challenges such as sensor accuracy, cost-effectiveness, and user acceptance remain barriers to widespread adoption. Ethical considerations and privacy concerns in IoT implementation are also examined. Future directions suggest advancements in sensor technology, ergonomic design, and enhanced user interfaces, with opportunities for integrating wearable technologies like AR glasses. This review underscores the transformative potential of IoT- enabled smart gloves in fostering inclusivity and accessibility, advocating for continued innovation in this critical domain..

Keywords: Internet of Things

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