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## Internet of Things based multi-sensor fusion for assistive mobility devices

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### Abstract

Internet of Things has had a tremendous effect in several fields, including the healthcare sector, to enhance network operation and users' quality of experience. In healthcare applications, people with cognitive, mental, and physical impairment rely on some form of assistive mobility device for their mobility needs and a better quality of life. The traditional wheelchairs are effective for physical impairments but poorly suited for individuals with a combination of physical and cognitive or perceptual impairments. To accommodate users with cognitive impairment, several researchers have used technologies originally developed for mobile robots to create smart mobility devices. With this significant interest, real-time autonomous navigation for the healthcare sector still requires more attention. This paper presents a review of the different existing literature on the internet of things frameworks and multi-sensor fusion techniques for assistive mobility devices (smart wheelchair). An Internet of things framework that takes into consideration scalability and security is proposed. A multi-sensor fusion pipeline for accurate localization and monitoring of assistive mobility devices for navigation purposes is also proposed.