# Bosch Sensortec unveils advanced IMU technology for gesture control in wearables



In recent developments within the wearable technology sector, Bosch Sensortec has introduced a groundbreaking inertial measurement unit (IMU)-based technology designed to enhance gesture control in devices that are poised to revolutionise user interaction. This innovation targets a range of wearables, including augmented and virtual reality headsets, smart glasses, and AI pins, which require intuitive user interfaces capable of interpreting complex gestures, such as air pinches or finger drags.

As outlined by Embedded.com, the primary challenge in designing these devices lies in maintaining a compact form factor while ensuring that the user experience remains seamless and user-friendly. Traditionally, gesture recognition has relied heavily on camera-based systems or Time-of-Flight (ToF) technologies. However, these systems necessitate a clear line of sight and often struggle with issues related to high processing requirements and environmental interference. In contrast, Bosch Sensortec’s IMU solutions offer a more efficient and reliable alternative.

The advantages of employing IMU-based gesture control are manifold. Firstly, the BHI360, one of Bosch Sensortec’s flagship products, utilises motion tracking coupled with on-sensor processing. This innovative approach minimises both latency and energy consumption, contributing to improved battery longevity and a reduction in charging frequency—qualities highly sought after in wearable technology.

Moreover, IMUs function effectively even in challenging conditions that undermine camera systems, such as poor lighting or physical obstacles, thus providing a level of flexibility unattainable by traditional methods. These compact sensors can be seamlessly integrated into small devices like smartwatches, enhancing versatility without sacrificing performance. Additionally, the integration of on-sensor artificial intelligence facilitates real-time and highly responsive gesture recognition.

The technology further distinguishes itself through gesture intensity detection, whereby sensors can measure the amplitude of accelerometer signals. This feature allows devices to discern the force of a gesture, such as the intensity of a pinch or a wrist flick, thereby enabling more context-aware interactions.

Cost efficiency is another pivotal benefit; IMU-based systems are considerably less expensive than their camera-based counterparts, making sophisticated gesture control accessible to a broader range of consumer devices. They can also be employed to augment existing camera systems, lending increased accuracy to gesture recognition without incurring significant additional costs.

An exemplary application of this technology can be witnessed in Bosch Sensortec's partnership with Doublepoint, a firm renowned for its expertise in human-machine interface (HMI) technology. Together, they have created a gesture recognition platform that is directly integrated into the BHI360 sensor system. By employing AI-driven algorithms, this solution delivers ultra-low latency and optimal energy efficiency, allowing for continuous gesture detection in contemporary wearable devices.

The advancements in IMU-based gesture control reflect a significant shift in how manufacturers can enhance user interfaces in wearable technologies, heralding a new era of immersive and intuitive interactions.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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