TECH OFFER

Indoor Living-Body Presence Detection Using Wi-Fi

KEY INFORMATION

TECHNOLOGY CATEGORY:
Infocomm - Wireless Technology
Infocomm - Internet of Things
Personal Care - Wellness & Spa

TECHNOLOGY READINESS LEVEL (TRL): TRL5
COUNTRY: SINGAPORE
ID NUMBER: TO175172

OVERVIEW

With the rise of IoT (Internet of Things), companies worldwide are leveraging various sensing data to create innovative services. Among the various methods for detecting the presence of individuals, Wi-Fi sensing is being utilized, leveraging Wi-Fi as the standard wireless infrastructure. The aim is to develop new, precise services tailored to users while maintaining privacy protection.

Unlike traditional methods that may involve cameras or other invasive technologies, Wi-Fi sensing technology operates without cameras, detecting individuals through Wi-Fi signal interactions. This non-intrusive approach is well-suited for applications such as energy-saving systems, elderly care and more. By integrating multiple modules, these sensors meet predetermined performance criteria, effectively detecting individuals around Wi-Fi-enabled devices without compromising user comfort or privacy.

The technology owner is seeking research collaboration with chipset and module vendors, as well as application developers.

TECHNOLOGY FEATURES & SPECIFICATIONS

The technology comply with IEEE 802.11bf standard.

- Designed to detect human presence about 3 meters away from the Wi-Fi adapter.
- Does not require the use of cameras or wearable devices.
- Possible in sensing human presence even in low-light conditions or when individuals are partially obstructed by objects. This makes it highly effective for a range of applications where traditional sensing methods might fall short.

POTENTIAL APPLICATIONS

- Detects the presence of individuals near the Wi-Fi device and activates a response when someone approaches. When no one is detected nearby, the device automatically switches to an energy-saving mode.
- By placing multiple Wi-Fi devices, effectively monitor room occupancy and pinpoint which areas or exhibits are drawing the most attention.
- In elderly care facilities or for elderly individuals living alone, the system automatically records their daily activities and routines (sleeping, waking up, getting out of bed etc.), providing caregivers with valuable insights into their well-being and helping them better support the residents.

MARKET TRENDS & OPPORTUNITIES

IEEE 802.11bf, known as Wi-Fi Sensing, is scheduled for release in 2025. The technology is poised for growth, driven by increasing demand for smart home devices, energy-saving systems, and elderly care solutions. Opportunities include its integration into IoT ecosystems, enhanced privacy features, and expanding applications across industries like security, healthcare, and retail, making it highly versatile.

UNIQUE VALUE PROPOSITION

- **Enhanced Accuracy**: Advanced signal processing provides precise detection of human presence and movement within indoor environments.
- **Non-Intrusive Operation**: Operates effectively without cameras or wearables, ensuring privacy and minimizing intrusion
- **Energy Efficiency:** Intelligent operation modes, including energy-saving features when no one is detected, optimize energy use.
- **Versatile Applications:** Suitable for various settings, including smart homes/buildings, elderly care facilities, and retail environments, providing insights into occupancy, activity patterns, and more.
- **Future-Proof Technology:** Compliant with the latest IEEE 802.11bf standard, ensuring compatibility with future advancements and maintaining cutting-edge performance.