Press release
Communiqué de presse
Comunicato stampa
新闻稿 / 新聞稿
プレスリリース
보도자료

T4711D

STMicroelectronics introduces advanced Human Presence Detection solution to enhance laptop and PC user experience

- *New technology delivers more than 20% power consumption reduction per day in addition to improved security and privacy*
- *ST solution combines market leading Time-of-Flight (ToF) sensors and unique AI algorithms for a seamless user experience*

Geneva, Switzerland, June 17, 2025 -- STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, introduces a new Human Presence Detection (HPD) technology for laptops, PCs, monitors and accessories, delivering more than 20% power consumption reduction per day in addition to improved security and privacy. ST's proprietary solution combines market-leading FlightSense™ Time-of-Flight (ToF) sensors with unique AI algorithms to deliver a hands-free fast Windows Hello authentication; and delivers a range of benefits such as longer battery lifetime, and user-privacy or wellness notifications.

*"Building on the integration of ST FlightSense technology in more than 260 laptops and PC models launched in recent years, we are looking forward to see our new HPD solution contributing to make devices more energy-efficient, secure, and user-friendly," s*aid **Alexandre Balmefrezol, Executive Vice President and General Manager of the Imaging Sub-Group at STMicroelectronics**. *"As AI and sensor technology continue to advance, with greater integration of both hardware and software, we can expect to see even more sophisticated and intuitive ways of interacting with our devices, and ST is best positioned to continue to lead this market trend."*

"Since 2023, 3D sensing in consumer applications has gained new momentum, driven by the demand for better user experiences, safety, personal robotics, spatial computing, and enhanced photography and streaming. Time-of-Flight (ToF) technology is expanding beyond smartphones and tablets into drones, robots, AR/VR headsets, home projectors, and laptops. In 2024, ToF modules generated $2.2 billion in revenue, with projections reaching $3.8 billion by 2030 (9.5% CAGR). Compact and affordable, multizone dToF sensors are now emerging to enhance laptop experiences and enable new use cases," said **Florian Domengie, PhD Principal Analyst, Imaging at Yole Group.**

The 5th generation turnkey ST solution

By integrating hardware and software components by design, the new ST solution is a readily deployable system based on FlightSense 8x8 multizones Time-of-Flight sensor (VL53L8CP) complemented by proprietary AI-based algorithms enabling functionalities such as human presence detection, multi-person detection, and head orientation tracking. This integration creates a unique ready-to-use solution for OEMs that requires no additional development for them.

This 5th generation of sensors also integrates advanced features such as gesture recognition, hand posture recognition, and wellness monitoring through human posture analysis.

ST’s Human Presence Detection (HPD) solution enables enhanced features such as:

- **Adaptive Screen Dimming** tracks head orientation to dim the screen when the user isn’t looking, reducing power consumption by more than 20%.
- **Walk-Away Lock & Wake-on-Attention** automatically locks the device when the user leaves and wakes up upon return, improving security and convenience.
- **Multi-Person Detection** alerts the user if someone is looking over their shoulder, enhancing privacy.

Tailored AI algorithm
STMicroelectronics has implemented a comprehensive AI-based development process that from data collection, labeling, cleaning, AI training and integration in a mass-market product. This effort relied on thousands of data-logs from diverse sources, including contributions from workers who uploaded personal seating and movement data over several months, enabling the continuous refinement of AI algorithms.

One significant achievement is the transformation of a Proof-Of-Concept (PoC) into a mature solution capable of detecting a laptop user's head orientation using only 8x8 pixels of distance data. This success was driven through a meticulous development process that included four global data capture campaigns, 25 solution releases over the course of a year, and rigorous quality control of AI training data. The approach also involved a tailored pre-processing method for VL53L8CP ranging data, and the design of four specialized AI networks: Presence AI, HOR (Head Orientation) AI, Posture AI, and Hand Posture AI. Central to this accomplishment was the VL53L8CP ToF sensor, engineered to optimize the Signal-To-Noise ratio (SNR) per zone, which played a critical role in advancing these achievements.

Enhanced user experience & privacy protection
The ToF sensor ensures complete user privacy without capturing images or relying on the camera, unlike previous versions of webcam-based solutions.

Adaptive Screen Dimming:
- Uses AI algorithms to analyze the user's head orientation. If the user is not looking at the screen, the system gradually dims the display to conserve power.
- Extends battery life by minimizing energy consumption.
- Optimizes for low power consumption with AI algorithms and can be seamlessly integrated into existing PC sensor hubs.

Walk-Away Lock (WAL) & Wake-on-Approach (WOA):
- The ToF sensor automatically locks the PC when the user moves away and wakes it upon their return, eliminating the need for manual interaction.
- This feature enhances security, safeguards sensitive data, and offers a seamless, hands-free user experience.
- Advanced filtering algorithms help prevent false triggers, ensuring the system remains unaffected by casual passerby.

Multi-Person Detection (MPD):
- The system detects multiple people in front of the screen and alerts the user if someone is looking over their shoulder.
- Enhances privacy by preventing unauthorized viewing of sensitive information.
- Advanced algorithms enable the system to differentiate between the primary user and other nearby individuals.

Technical highlights: VL53L8CP: ST FlightSense 8x8 multizones ToF sensor.
https://www.st.com/en/imaging-and-photonics-solutions/time-of-flight-sensors.html
- AI-based: compact, low-power algorithms suitable for integration into PC sensor hubs.
- A complete ready-to-use solution includes hardware (ToF sensor) and software (AI algorithms).

About STMicroelectronics
At ST, we are 50,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An integrated device manufacturer, we work with more than 200,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of cloud-connected autonomous things. We are on track to be carbon neutral in all direct and indirect emissions (scopes 1 and 2), product transportation, business travel, and employee commuting emissions (our scope 3 focus), and to achieve our 100% renewable electricity sourcing goal by the end of 2027.

Further information can be found at www.st.com.

INVESTOR RELATIONS
Jérôme Ramel
EVP Corporate Development & Integrated External Communication
Tel: +41.22.929.59.20
jerome.ramel@st.com

MEDIA RELATIONS
Alexis Breton
Corporate External Communications
Tel: +33.6.59.16.79.08
alexis.breton@st.com