

Roborock uses hybrid Time-of-Flight technology by Infineon and pmd

For advanced sweeping and mopping robots.

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September 5, 2024 – Roborock, a global leader in intelligent home robotics, has launched the intelligent sweeping and mopping all-in-one robot Qrevo Slim at IFA 2024 in Berlin, equipped with an innovative 3D camera module for navigation and obstacle avoidance using the REAL3™ Time-of-Flight (ToF) technology by Infineon Technologies (FSE: IFX / OTCQX: IFNNY). The technology allows to reduce size and increase reliability. Compared to the body height of traditional sweeping and mopping robots of around 100 mm, the overall height of the Qrevo Slim is only 82 mm, allowing it to pass through lower and narrower spaces while providing high reliability.

“The integration of our REAL3 ToF into Roborock’s cleaning robot is a great example of how Infineon technology is used to accelerate product innovation in the smart home sector,” said Andreas Kopetz, Vice President Ambient Sensing at Infineon. “Our hybrid ToF solution targets a rapidly growing consumer robotic market, enabling customers to develop unique robot designs while reducing system costs and complexity.”

Roborock has teamed up with Infineon, pmdtechnologies and Ofilm to develop a next generation robot solution that uses hybrid Time-of-Flight (hToF) to replace the traditional laser distance scanner (LDS) module and obstacle avoidance module. hToF is a combination of Infineon's REAL3 ToF imager, a dual infra-red illumination sources and pmd's processing technology to provide a powerful solution for consumer-grade robots. It supports simultaneous localization and map building (SLAM), obstacle avoidance and cliff detection functions in one camera module manufactured by Ofilm.

“At pmd, we are proud to have played a leading role in the development and optimization of the hybrid Time-of-Flight (hToF) technology that powers Roborock's latest innovation. By contributing our advanced 3D pixels, our expertise in infra-red illumination, and our processing technology into the hToF module, we've been able to create a highly efficient, compact solution that significantly enhances navigation and obstacle avoidance capabilities,” said Jochen Penne, Managing Director at pmdtechnologies ag.

The high-resolution depth and vision data is perfectly suited for robust obstacle avoidance algorithms while the open-source SLAM algorithm based on hToF depth data generates high-precision maps, ensuring accurate and reliable navigation. In addition, hToF is working in darkness and strong sunlight. It is computationally efficient and streamlined, requiring e.g. only one Cortex A55 processor core for depth processing and SLAM computation tasks out of eight available cores.

Pioneers from the very beginning.

Roborock has been using the LDS technology since 2016 and promoting it as the standard configuration for sweeping robots. The company has now begun to adopt and promote the hToF technology as the core technology standard for a new generation of sweeping robots.

Availability

Further information on the REAL3 ToF imager solution from Infineon is available at: <https://www.infineon.com/cms/en/product/sensor/tof-3d-image-sensors/tof-3d-image-sensors-for-consumer>

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About pmdtechnologies ag

pmdtechnologies ag, a fabless IC company headquartered in Siegen, Dresden and Ulm/Germany with subsidiaries in the USA, China and Korea, is the worldwide leading 3D Time-of-Flight CMOS-based digital imaging technology supplier. Started up in 2002, the company owns over 450 worldwide patents concerning pmd-based applications, the pmd measurement principle and its realization. Addressed markets for pmd's 3D sensors are industrial automation, automotive and the wide field of consumer applications like smartphones.

Further information is available at pmdtec.com.

About Infineon

Infineon Technologies AG is a global semiconductor leader in power systems and IoT. Infineon drives decarbonization and digitalization with its products and solutions. The company has around 58,600 employees worldwide and generated revenue of about €16.3 billion in the 2023 fiscal year (ending 30 September). Infineon is listed on the Frankfurt Stock Exchange (ticker symbol: IFX) and in the USA on the OTCQX International over-the-counter market (ticker symbol: IFNNY).

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