CAN *Newsletter Online*

SPS 2021

Eyes and brain for robots

Neural networks and artificial intelligence enable new approaches in industrial imaging. However, these methods require high computing power. For this purpose, ifm developed the O3R platform edge architecture. CAN interfaces ensure integration into the architecture of a mobile robot.

The company is part of the 30 SPS 2021 in Nuremberg, Germany (hall 7A, stand 302 and hall 5, stand 360) (Source: ifm)

Currently, one of the most important markets for industrial imaging is the field of mobile robotics. In production environments and in intralogistics especially, the share of autonomous vehicles is on the rise. For the latter to be able to determine their position and to avoid collisions, the data of various sensors, including image processing data, have to be combined. An edge architecture is a promising approach in view of facilitating both this sensor data fusion and the use of AI (artificial intelligence) methods for mobile robots, said the company. A suitable edge device can be used to record the data of connected sensors and process them directly.

The following requirements have to be fulfilled for this purpose: high computing power and the possibility to connect a variety of sensors, explained the company. With its hardware platform, ifm presented such an edge device to which up to six 3D cameras and numerous other sensors can be connected, at the Vision trade fair in Stuttgart. The company is also part of the SPS 2021 exhibition in Nuremberg, Germany (with other products), and can be found in hall 7A, booth 302 and hall 5, stand 360.

The platform is ideal for neural networks and other AI applications. While the camera connection is made via FDP link (Flat Panel Display Link), GigE interfaces are available for the other sensors. CAN interfaces ensure integration into the architecture of a mobile robot. A Linux system equipped with an Nvidia video processing unit forms the hardware basis for sophisticated AI applications, explained the company. The performance of this GPU (graphics processing unit) is scalable and can thus be adapted to the respective application. With the available ROS2 drivers, the system can be integrated into robotics applications.

As the O3R concept transfers the image processing to the edge device, hardly any data processing is required in the camera, making them inexpensive, the company continued. In the future, a complete suite of solutions for a variety of areas will be created on this basis of the platform. A typical example will be featureless navigation to provide orientation for mobile robots.

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