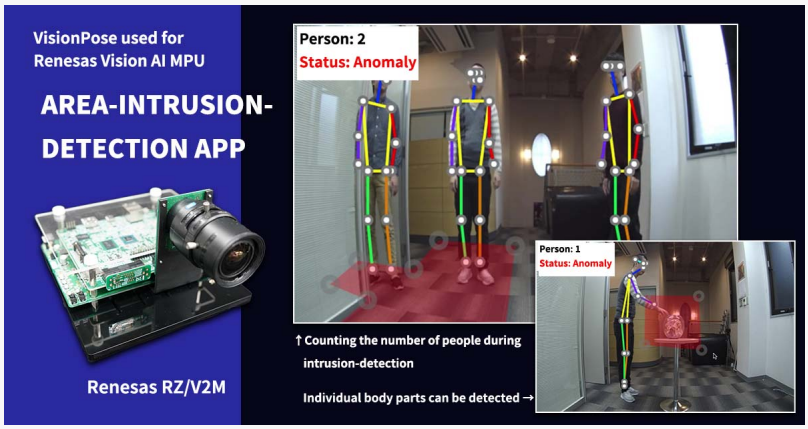
NEXT-SYSTEM Implements Their Pose Estimation AI Engine “VisionPose” Into Renesas’ Image Recognition AI Microprocessor

Advanced Pose Estimation Through Edge-Side IoT Devices – Expanding Supported Platforms for Development in the Edge AI Field



Renesas x VisionPose Area Intrusion Detection Application

FUKUOKA CITY, FUKUOKA PREFECTURE, JAPAN, November 30, 2021 /EINPresswire.com/ -- NEXT-SYSTEM implemented their independently developed pose estimation AI engine “VisionPose” into Renesas’ RZ/V2M microprocessor (MPU) for AI image recognition and develops an area intrusion detection application that sends out alert notifications when a specific body part of a person enters a designated area.

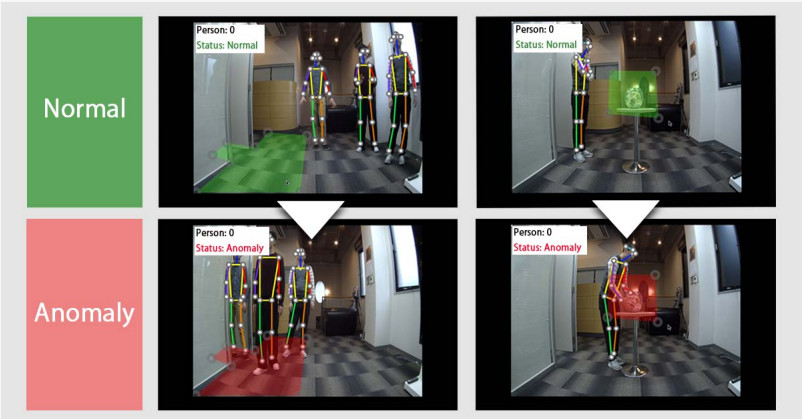
> “This will enable our customers to accelerate system development and contribute to the spread of edge AI.””
>
> *Renesas Electronics Corporation Senior Executive Manager, Mr. Shigeki Kato*

The Vision AI MPU is a semiconductor that has functions to speed up arithmetic processing with mechanisms to perform machine learning and deep learning. By using Renesas' RZ/V2M MPU, which combines high-speed AI inference with low power consumption, it is possible to run the pose estimation AI engine, which requires a huge amount of computational processing on the edge side. Now that VisionPose can run on this MPU, various IoT devices equipped with it will be able to perform advanced AI processing such as pose estimation and behavior analysis.

- Simplifying The Use of Vision AI MPUs in IoT Devices by Implementing Pose Estimation Technology

AI processing requires a huge amount of computational processing compared to conventional

software. When using AI for embedded applications, conventional solutions that use CPUs and GPUs are difficult to use due to their high-power consumption, heat generation, and limited installation space. VisionPose is no exception, and in order to perform pose estimation on IoT devices and edge devices, the corresponding hardware is essential. To address these challenges, Renesas launched the Vision AI RZ/V2M MPU with a built-in AI accelerator that offers both high performance and low power consumption, as well as the flexibility to respond to high system requirements.



Area Intrusion Detection Application Example Image


Evaluation Board for Renesas Vision AI MPU "RZ/V2M"

The RZ/V2M MPU features the DRP-AI (Dynamically Reconfigurable Processor), Renesas' exclusive vision-optimized AI accelerator that delivers flexibility. The DRP-AI performs not only AI inference processing but also pre- and post-processing, which is essential for AI image processing. In addition, it can also achieve high power efficiency at the same time. NEXT-SYSTEM implemented the pose estimation AI "VisionPose" into Renesas' RZ/V2M MPU, and as a first project, developed an area intrusion detection application. The expansion of Renesas' RZ/V2M platform has made it easier to support VisionPose in embedded products in the IoT and edge AI fields. This makes it easier for more customers to use this pose estimation technology.
Information page on Renesas' Vision AI MPU "RZ/V2M"

- What is VisionPose?
VisionPose is an AI engine that detects human skeleton information on camera images, still images and videos, without the need for markers or special equipment. As an all-around SDK package, it can be applied to various fields in development and research. With the "Standard" edition of VisionPose and the use of 2 cameras, high-precision skeleton detection in 3D coordinates can be performed, and by using the VisionPose "Single 3D" edition, skeleton detection with only one camera is possible. With this, NEXT-SYSTEM provides two SDK packages for all-around purposes. Sales outside of Japan have started with two products, VisionPose Standard Windows C# and C++, but the number of supported platforms will be expanded sequentially.

- What is the Demo App “Area Intrusion Detection”
Through implementing VisionPose, this application detects and sends out a notification when a specific body part (such as hand or leg) of a person enters a specified area. Different from object detection technology, which only roughly captures objects, pose estimation technology makes judgments based on the skeletal information of a person, thus detailed settings can be configurated for each part of the human body.
"Area Intrusion Detection" Demonstration Video

- Comment from Renesas’ Mr. Shigeki Kato, Vice President of the Enterprise Infrastructure Business Division
“We are delighted that our Vision AI RZ/V2M MPU has been equipped with "VisionPose", a pose estimation AI engine developed by NEXT-SYSTEM. By combining RZ/V2M, designed to deliver a combination of real-time AI inference and industry-leading power efficiency, and "VisionPose", any IoT devices can be implemented with AI image recognition technology regardless of their installation location. This will enable our customers to accelerate system development and contribute to the spread of edge AI.”

- About NEXT-SYSTEM Co., Ltd.
NEXT-SYSTEM is a Japanese IT company founded in Fukuoka City in 2002, and since then has been focused on the research of behavior analysis through AI technology, ergonomic system development and research, development of cutting-edge systems, such as xR (AR/VR/MR), and the development and sales of their Pose Estimation AI Engine "VisionPose" and AR Signage System "Kinesys".

For more information, see NEXT-SYSTEM’s official website.

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