

Enhance Factory Floor Safety with AI-Powered Gear Inspections Using MediaTek Genio 700 SoC

Enabling Workplace Safety and PPE Compliance

Case Study



Application

AI-Driven Safety Monitoring Device

Background

Workplace safety is a top priority in manufacturing environments where workers must always wear personal protective equipment (PPE) properly throughout their shifts. Compliance failures can lead to severe injuries, downtime, and increase insurance costs. However, manual safety checks are time-consuming, require additional personnel, and are prone to human error. A more efficient approach is necessary to maintain impeccable safety standards on the factory floor.

To combat these problems, VIA Technologies developed the VIA VAB-5000, an AI-powered safety gear monitoring device. It ensures PPE compliance, improves workplace security, and reduces the need for human intervention. Powered by MediaTek's Genio 700 SoC, the device enhances real-time monitoring and operational efficiency.

Challenge

- **Real-time Safety Monitoring:** Tracking PPE compliance, including helmets, vests and belts in real-time.
- **Posture and Movement Analysis:** Ensuring proper positioning, postures and movements for workplace safety.
- **Role-Based Safety Checks:** Identifying operators for role-based and tailored safety checks.
- **Multiple AI Model Support:** Ability to run object detection, skeleton detection, human recognition and edge computing simultaneously.

Results

- **Real-Time PPE Compliance Monitoring:** Ensures compliance with safety guidelines through AI analysis.
- **Comprehensive and Tailored Safety Checks:** Uses AI to verify identity, posture, position and equipment.
- **Flexible Connectivity:** Supports HD cameras, HDMI, and multiple input-output options.
- **Cost Efficiency:** Reduces expenses related to injuries and additional monitoring staff.
- **24/7 AI Surveillance:** Continuous AI-monitoring minimizes human errors and security risks.



Solution Partner

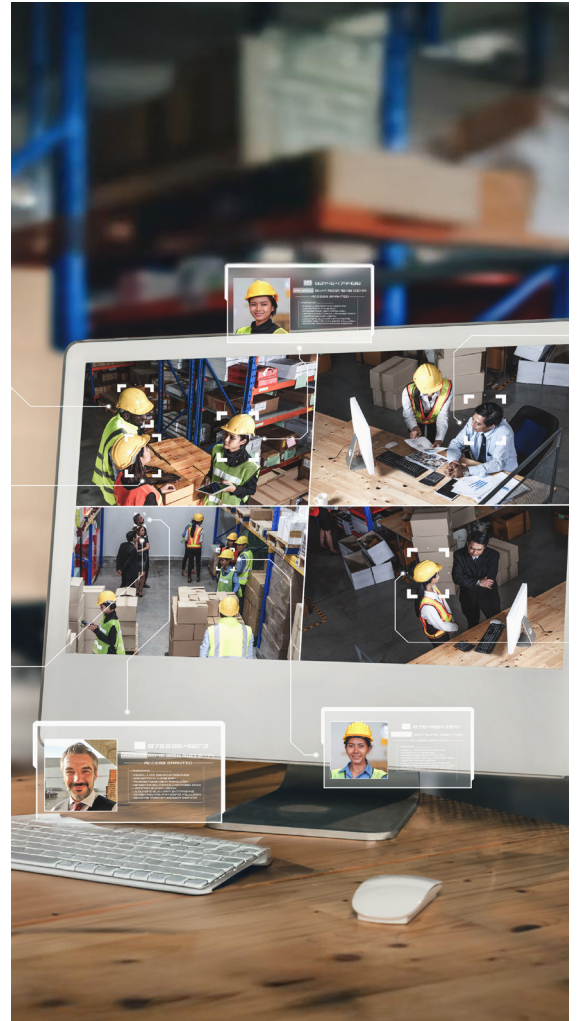
VIA Technologies Inc. specializes in AI-driven security and automation solutions, enhancing workplace safety and efficiency in industrial environments.

Solution

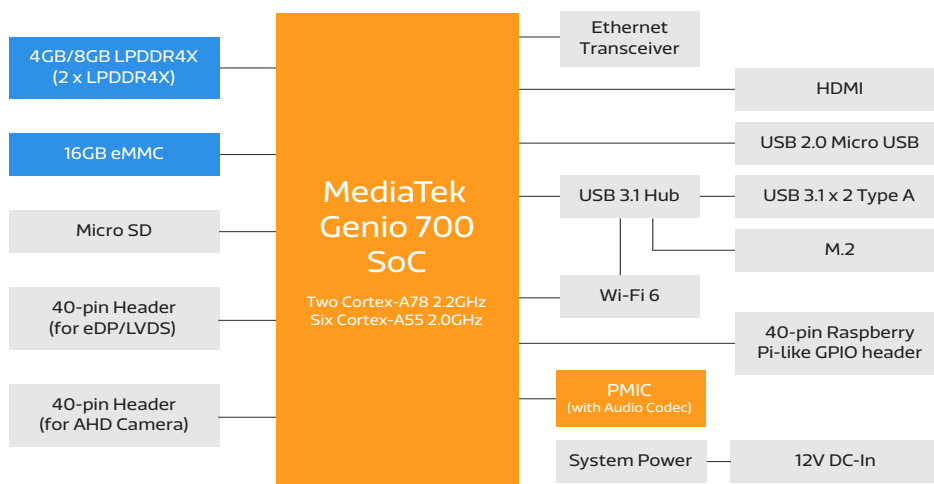
To power the VAB-5000, VIA selected MediaTek's efficient and multifunction Genio 700 SoC. It features an 8-core CPU with 2 Arm® Cortex® A-78 running at 2.2 GHz and 6 Arm® Cortex® A-55 running at 2 GHz, along with a high-end tri-core GPU. The configuration enables incredible AI performance and advanced multimedia capabilities. With flexible high-speed input/output interfaces, it supports robust vision processing and seamless integration with the factory systems. The advanced Neural Processing Unit (NPU) allows optimized edge computing resulting in real-time processing. Its dual-band Wi-Fi 6 support ensures network stability. The SoC is also energy-efficient as it can cater to the long operational hours of the factory floor.

How MediaTek's Genio 700 SoC Meets the Requirements?

- **Advanced Processing Power:** The octa-core architecture of the Genio 700 enables efficient multi-tasking and the simultaneous running of several AI models while supporting real-time analysis.
- **Deep Learning Accelerator for AI-Powered Safety Monitoring:** The Genio 700 can run several AI models simultaneously such as object detection, skeleton detection, and human recognition along with vision processing, providing all-round safety vigilance.
- **Versatile and Flexible Input-Output Options:** The Genio 700 has flexible input-output options, including high-definition video and HDMI support. As a result, it enables smooth integration, and sharp visual for enhanced monitoring.
- **Robust Edge AI Capabilities:** The NPU of the Genio 700 provides robust edge AI capabilities supporting rapid and real-time analysis without disruptions, making the device a reliable safety inspector.



Solution Block Diagram



Learn about **MediaTek Genio 700**



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