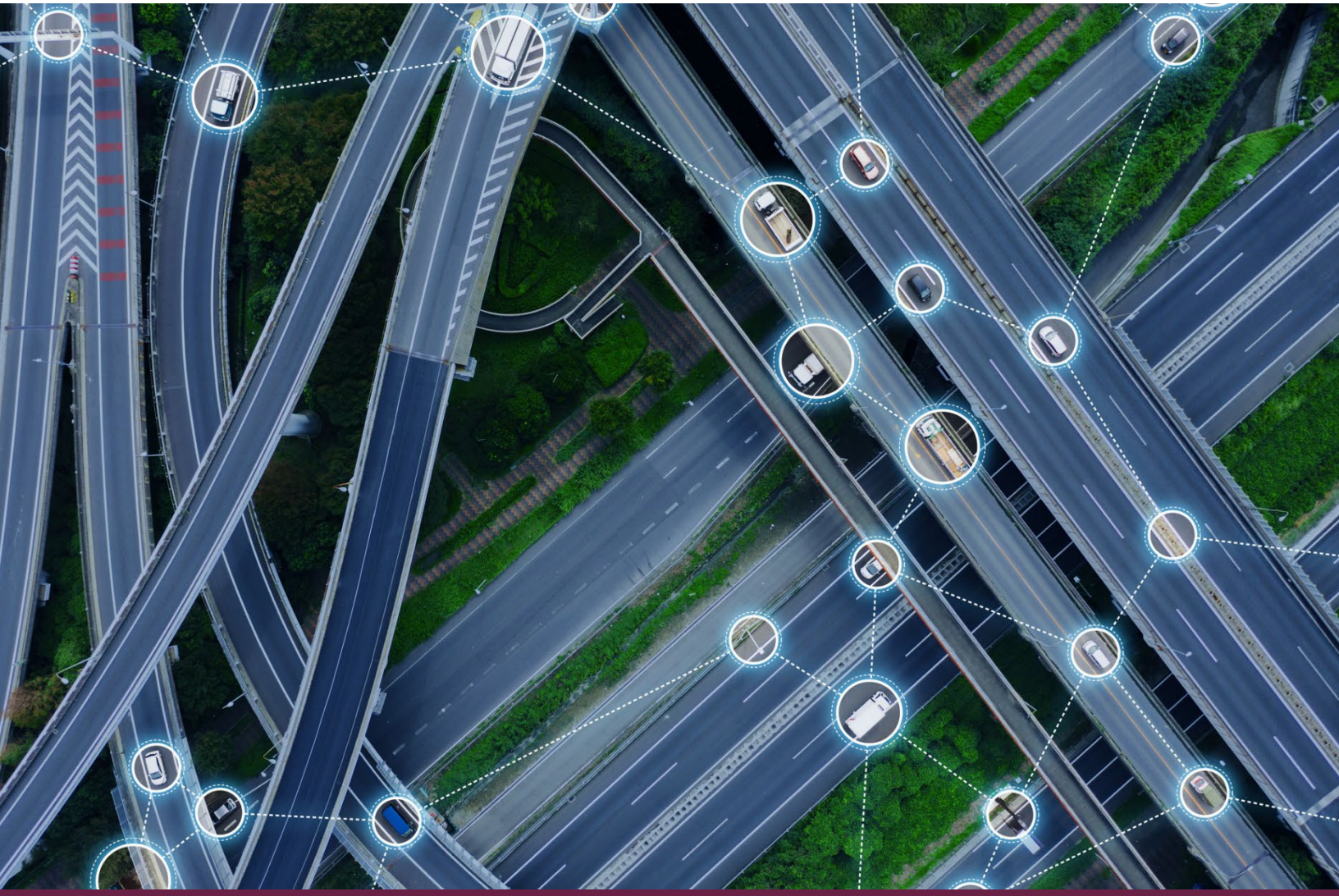

Case Study

Edge Computing for Traffic Analysis

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Deploying artificial intelligence to optimize the traffic flow in the urban areas

Today, around the world there are more than 50% of the population lives in urban areas; the percentage is expected to keep growing. The high number of commuters has resulted in the unavoidable daily massive traffic congestion. Traffic is deemed as a domain for artificial intelligence to monitor, analyze and help discover a solution to clear the traffic flow according to different situations to realize a convenient smart city.

Challenges

DeepMentor was looking for a compact and high-performance platform to run a variety of AI algorithms for smart traffic solution, such as traffic flow monitoring, speeding, accident detecting or plate number identification, and real-time analysis at the edge. Also, the edge AI platform would be deployed outdoors, so it must be small and can withstand extreme weather conditions.

Main Requirements

- High performance for running multiple AI algorithms simultaneously
- Durability for the outdoor environment and year-round operation
- Compact size for easy installation

About DeepMentor

DeepMentor
The Best Green Edge AI Total Solution Provider

DeepMentor provides Edge AI hardware + software total solutions to save AI construction costs and precious time. DeepMentor's patented miniaturization technology (MAT) provides the most cost-effective customized solutions for smart healthcare, smart retail, smart transportation, and smart home.

Visit the Website

The purpose-built platform for smart city provides high performance

Axiomtek has proposed the palm-sized AI platform, the RSC101, to run the analysis algorithm. The fanless platform features the Intel® Celeron® processor J6413 (code name: Elkhart Lake) and Hailo-8™ AI accelerator chip with up to 26 TOPS of AI performance. Even in a small form factor measuring 150 x 111 x 49.4 mm, the RSC101 has a unique thermal design enabling a wide operating temperature from -10°C to +60°C.

The platform is equipped with multiple expansion interfaces for wireless data transmission, including an M.2 Key E 2230 for Wi-Fi/Bluetooth, an M.2 Key B 3052 for 5G and a SIM card slot. It also has one M.2 Key B 2242 SSD slot (SATA3) to meet the customer's diverse storage needs. Then, there is a wafer for RS-232/485 as well. The RSC101 supports 12 to 24 VDC wide voltage input. In terms of I/O, it provides one HDMI, two GbE LAN, two USB, and 8-CH DI/DO.

Application

The edge computing platform enhances the traffic with AI algorithms

The RSC101 has been installed at the expressway to get an overlooking view with IP cameras day and night. The solution is multifunction and the analysis by the AI algorithm includes speeding detection, traffic flow monitoring, and accident warning. The data acquired by the solution can be analyzed and used for emergent traffic control and displaying a real-time warning for a smooth and safe ride. The data is analyzed at the edge by the RSC101 with less latency and faster outcomes and transmission.

System Configurations of the RSC101

- Hailo-8™ AI processor, up to 26 TOPS
- Palm size with high AI computing performance
- Supports dual GbE LAN for cameras
- Supports Wi-Fi/Bluetooth/5G/LTE wireless connection
- Wide operating temperatures from -10°C to +60°C
- Wide voltage input from 12 to 24 VDC
- Supports Linux
- Ideal for edge AI smart city applications

*For detailed specifications, please visit www.axiomtek.com or go to Products > Systems & Platforms > Machine Vision for > Edge AI System for RSC101

Why Axiomtek

As an experienced leader in industrial PC, Axiomtek possesses the know-how of IoT and has various purpose-built production lines for different domains. In addition to reliable platforms, Axiomtek is known for its flexibility in customization, allowing both major and minor changes to the system to meet customer needs.

“Axiomtek’s RSC101 is the perfect choice for our smart traffic system to analyze the real-time video streaming at the edge. Moreover, it supports the Hailo-8™ AI processor, making it one of the few compact edge AI systems on the market that combine advanced performance with competitive prices. Axiomtek’s high-quality products no doubt meet our needs. We are glad to work with Axiomtek and look forward to future cooperation,” said *Jack Wu, CEO of DeepMentor.*

About Axiomtek Co., Ltd.

Axiomtek has experienced extraordinary growth in the past 30 years because of our people, our years of learning which resulted in our tremendous industry experience, and our desire to deliver well-rounded, easy-to-integrate solutions to our customers. These factors have influenced us to invest in a growing team of engineers including software, hardware, firmware, and application engineers. For the next few decades, our success will be determined by our ability to lead with unique technologies for AIoT and serve our key markets with innovatively-designed solution packages of hardware and software – coupled with unmatched engineering and value-added services that will help lessen the challenges faced by our systems integrator, OEM and ODM customers and prospects alike. We will continue to enlist more technology partners and increase collaborations with our growing ecosystem who are leaders in their fields. With such alliances, we will create synergy and better deliver solutions, value, and the expertise our customers need.

Axiomtek is a Member of the Intel IoT® Solutions Alliance. A global ecosystem of more than 800 industry leaders, the Alliance offers its members unique access to Intel technology, expertise, and go-to-market support—accelerating the deployment of best-in-class solutions.