Using NVIDIA® Jetson™ AI on the Edge

How DiGiCOR and ADLINK Empowered SenSen's Smart City Vision
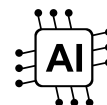
Company

Sensen

Location

Australia

Industry

Artificial Intelligence (AI)
and Data Analytics

Overview

In 2020, SenSen reconnected with DiGiCOR, a long-standing partner, to support their cutting-edge smart city project. SenSen required Jetson AGX Xavier devices embedded with NVIDIA GPUs to meet the rigorous demands of their initiatives.

Objectives

- Support SenSen's smart city project with real-time analytics for number plate recognition, parking management, and driving distraction detection.
- Provide Jetson AGX Xavier systems with 32 GB RAM, Gigabit Ethernet, and NVIDIA GPUs to meet performance demands.

Results

- Enabled real-time processing of number plates in seconds, improving efficiency.
- Delivered reliable performance for critical operations with seamless network thresholds.
- Achieved key project goals, strengthening the partnership between SenSen and DiGiCOR.

The Challenge

SenSen's smart city project demanded high-performance hardware to support complex tasks such as real-time number plate recognition, parking management, and driving distraction detection. In order to fulfill our client's specifications, a thorough analysis of their requirements was needed. This facilitated a comprehensive understanding of their needs, enabling us to deliver a tailored solution that precisely aligned with SenSen's business objectives.

To achieve this, Jetson AGX Xavier devices with the following specifications were needed:

- 32 GB RAM and diverse storage capacities for heavy data loads.
- Gigabit Ethernet for maintaining high frame rates and superior network performance.
- NVIDIA GPUs for rapid video processing and real-time analytics, critical for roadside number plate recognition.

Each system needed to efficiently handle data from six to eight cameras while delivering reliable, real-time performance to meet the project's goals.

How We Helped

DiGiCOR supplied SenSen with 15 **ADLINK RQX-580, an expandable ROS 2 robotic controller powered by NVIDIA® Jetson™ AGX Xavier series module.** tailored to their specific requirements:

- Each device was equipped with NVIDIA GPUs to process video at 24 frames per second, enabling rapid data analysis and real-time number plate recognition.
- The robust configuration of 32 GB RAM and Gigabit Ethernet ensured seamless performance even under demanding conditions.

These systems played a pivotal role in several aspects of SenSen's smart city project:

- **Energy Conservation:** Integrating streetlight sensors to reduce energy usage.
- **Smart Traffic Management:** Collaborating with government services to detect and penalise distracted drivers.
- **Heavy Vehicle Monitoring:** Supporting the National Heavy Vehicle Regulator with speed and number plate recognition.

> *"We have worked with DiGiCOR for 10 years and that has always been a good experience. The support has been brilliant and we're very happy with what we've got."*
>
> *- **Paul Cundy,** Project & Business Development Manager*

Results

The integration of ADLINK RQX-580 led to several significant achievements for SenSen's smart city project:

- **Real-Time Efficiency:** The systems enabled cameras to capture and process number plates in mere seconds, vastly improving operational speed and accuracy.
- **Network Reliability:** The hardware configuration maintained superior network thresholds, ensuring seamless performance for tasks like parking management and detecting driving distractions.
- **Impactful Applications:** Key contributions included energy conservation via streetlight sensors, enhanced traffic management in collaboration with government services, and advanced heavy vehicle monitoring for regulatory purposes.

SenSen was highly satisfied with DiGiCOR's support and praised the tailored solutions provided, reinforcing their long-standing partnership.

Conclusion

DiGiCOR's delivery of ADLINK RQX-580 devices equipped with NVIDIA GPUs was instrumental in the success of SenSen's smart city initiatives. By meeting the technical demands of real-time data processing and network performance, these systems enabled SenSen to effectively execute their project objectives. This collaboration not only strengthened the trust between SenSen and DiGiCOR but also highlighted DiGiCOR's commitment to delivering innovative, high-performance solutions aligned with client needs.

Featured Solution

ADLINK RQX-58 Series

- Powerful AI computing for intelligent robotics development
- Excellent performance per watt with the power consumption of AGX Xavier module as low as 30 W
- Ruggedised, secure connectivity with locking USB ports
- Comprehensive I/O for connecting a wide range of devices
- Frame synchronisation among GMSL2 cameras for RQX-58G SKU

About SenSen

Founded in Melbourne, Australia, SenSen has evolved from a small company into an international enterprise over the past 15 years, employing over 200 people across Malaysia, Singapore, Canada, North America, and New Zealand. Their mission is to revolutionise the world using video technology and analytics, focusing on three core business areas:

- Casino Solutions: delivering large-scale data insights, including facial recognition for bet tracking and loyalty programs.
- Drive-Off Solutions: Preventing theft at petrol stations by identifying offenders.
- Smart City Initiatives: Managing parking operations, recognising number plates, detecting driving distractions, and enhancing various retail services.

About DiGiCOR

DiGiCOR was founded in 1997 with the goal of becoming a major player in the niche ICT infrastructure market in Australia and New Zealand. Our focus is in providing server, data storage, workstation, networking, edge computing, and IoT solutions. From designing IT infrastructure to deploying the solution, we cover the whole journey for our customers. Traditionally, we were known for Supermicro solutions, but in recent years we have expanded our partnerships to include servers, storage, workstations, and networking from Supermicro, ASUS, Chenbro, Seagate, iXsystems, Hitachi-Vantara, and Juniper Networks.

What can DiGiCOR do for Your Business?

DiGiCOR has helped SenSen's smart city vision with cutting-edge technology. It's your turn to take action.

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