



Powering Future-Ready Classrooms at the AI Education Center in Korea

Overview

The AI Convergence Education Center in Incheon is designed for digital learning in AI and software convergence technologies. LG HelloVision developed the future classroom platform, Ring School. Students receive a laptop or smart pad with access to platforms like Entry for coding, CoSpace for VR/AR, and Arduino hands-on projects. Teachers deliver lessons via electronic whiteboards through Ring School, while the Chloe robot interacts with students, answers questions, guides visitors, and supports activities.

All activities are digital, with most devices connected via wireless networks. To ensure reliability, Zyxel Networks deployed high-performance WiFi and a 10G wired backbone with the Nebula networking solution, providing secure and stable connectivity. Nebula enables remote monitoring of devices and maintenance tasks, such as configuration changes and firmware upgrades, without the need to visit the site.

Challenges

The center faced the challenge of providing dedicated WiFi networks for classrooms and public spaces, each with specific requirements. Classrooms required unique IP bands to support the Ring School platform, while public areas needed separate networks for the Chloe robot, business operations, and visitors, all securely isolated. It also had to support simultaneous high-demand activities, including students accessing learning websites, conducting exercises, streaming videos, and sharing screens from laptops to electronic whiteboards in real time. The network had to ensure stable, high-speed WiFi and seamless roaming across the center to maintain reliable, interactive learning in every space.

Solutions

For enhanced security, a single access point uses multi-SSID and tagging features to broadcast multiple WiFi networks, tailoring connectivity to each environment. The cloud-managed platform allows IT staff to assign tags so APs can broadcast the same signal or restrict WiFi to specific areas. A dedicated guest network ensures visitors have internet access only, preventing unauthorized access to sensitive educational and business systems. Likewise, the educational and business networks are isolated from visitors, maintaining a secure learning environment.

Customer

AI Convergence Education Center

Industry

Education

Location

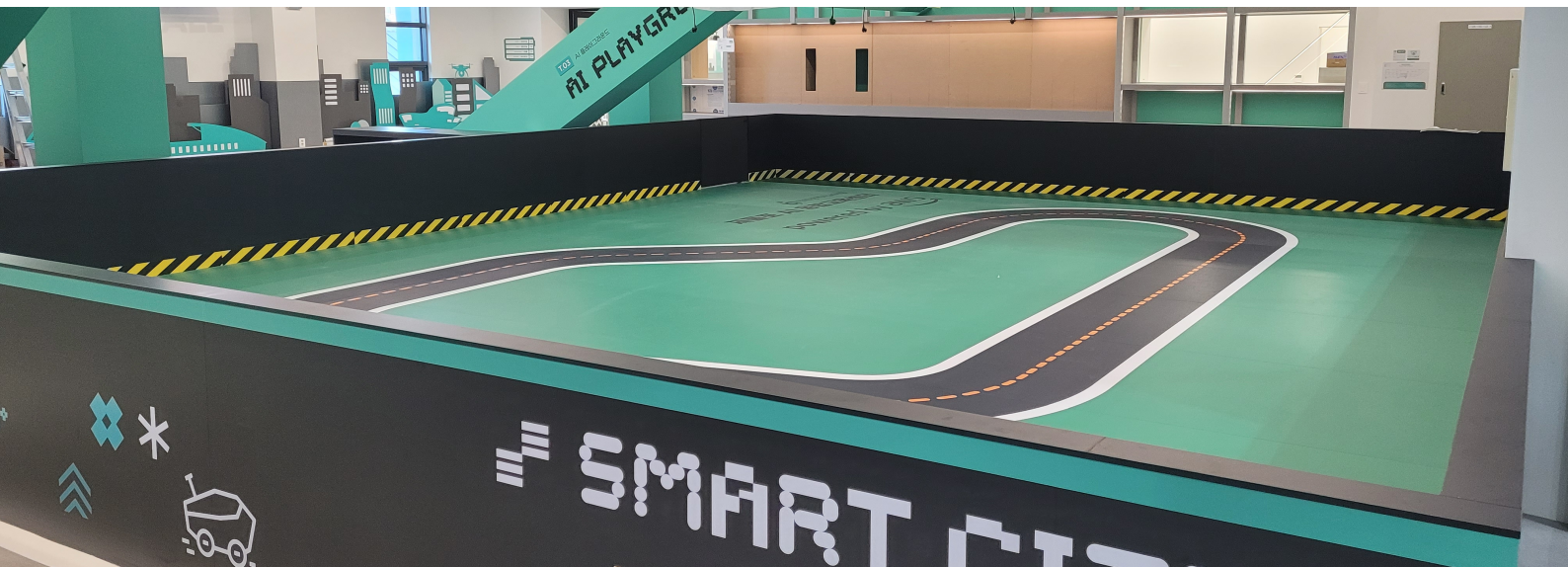
Incheon, South Korea

Partner

LG HelloVision

Customer Background

The AI Convergence Education Center in Incheon, opened in 2025, is dedicated to AI and digital convergence education. It has four classrooms for 120 students, a Running Zone for learning, and a Tech Zone for interactive technology experiences. The center offers AI and software convergence education, covering programming, coding, VR/AR projects, and Arduino practice, with support from a Chloe robot that guides and assists participants.



Solutions

In digital education, students often use laptops simultaneously to access learning sites, stream videos, share screens to electronic whiteboards, or view the teacher's screen in real time. Wireless networks have limited frequency resources, and heavy usage slows connectivity for others. To prevent this, QoS features are applied to prioritize traffic for each user, while independent QoS policies for educational, work, and guest SSIDs customize the network environment. Load balancing is implemented to evenly distribute users across APs, ensuring a stable wireless network.

In public spaces, seamless WiFi roaming is essential, as Chloe robots and visitors need to move freely throughout the center. The network is configured with a single SSID and Smart Steering, combined with 802.11k/r/v features, so devices automatically connect to the strongest AP signal. This ensures consistent connectivity and a smooth network experience for all users, including mobile devices and the Chloe robot.

To handle frequent video streaming and large file transfers, the network is built around a high-performance backbone switch that supports 10 Gbps speeds, with the connected L2 switches supporting 10 Gbps uplinks. This setup ensures stable, high-speed transmission of HD video, real-time screen mirroring, VR/AR, and large practice data. Additionally, Zyxel Networks' Nebula cloud management provides administrators with centralized device control and real-time monitoring. The Automatic Network Topology feature offers a visual, actionable map of the network.

Product List



- WAX610D WiFi 6 Access Point



- XS3800-28 L3 Aggregation Switch
- XGS2220-30 L3 Access Switch
- GS1920-8HPv2/24HPv2 Smart Managed PoE Switch



- USG FLEX 500 Firewall

Results

The collaboration between LG HelloVision and Zyxel Networks delivers a fast, secure, and reliable digital learning environment. The integrated wired and wireless network provides one-touch connectivity among systems, electronic whiteboards, personal devices, and group screens. It creates an interconnected digital education platform designed to remain stable and uninterrupted, even when dozens of laptops and tablets are connected at once. It also enables efficient network management to support optimal teaching and administrative operations.

- Secure networks for visitors, education, and business use
- Seamless WiFi performance and roaming throughout the center
- Stable digital learning environment and smooth operations supported by a high-performance 10G network
- Centralized cloud management for real-time monitoring and simplified maintenance

