


AIoT

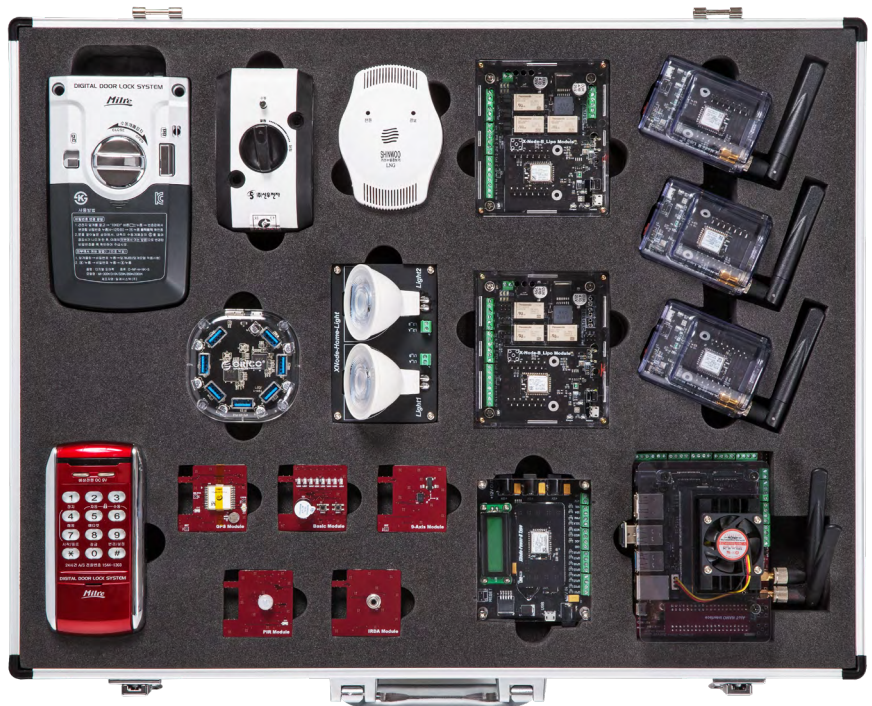
IT EDUCATION PLATFORMS

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XNode Home

IoT connectivity application practical training equipment based on wireless personal area network (WPAN)



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Product specifications and appearance of this catalog are subject to change without notice.

v2.0.0

XNode Home



Product Features

- IoT connectivity application training equipment based on wireless personal network (WPAN)
- By using the mesh network method, it can be used in large quantities in a wide range of areas such as wireless control and monitoring, and a wide range of communication is possible
- Provides an environment for building a smart home with devices used in real home appliances such as door locks, gas circuit breakers, gas detectors, fans, and LED lights
- DC power is supplied and measured by the XNode Power board, and the measured usage can be monitored remotely
- Provides sensors such as GPS, IrThermo, IMU, and PIR in addition to the Basic Module
- The sensor node provides a 2100mA battery so that it can be operated independently, and also provides an LED for an indicator, and a light sensor and temperature/humidity sensor based on lux units
- Provided sensor node supports interpreter-style Python 3 to write control programs easily and concisely
- Visual Studio Code-based integrated development environment for professional application development
- Provides training contents for Python-based sensor nodes



Software Specifications

List	Specifications
Node B	MicroPython 3 (built in node)
	VSCoDe4Soda
	Configuration Software (compatible with Linux, OS X and Windows)
	Remote Terminal & Remote Desktop support
Pop Library	Output Object: LED, Buzzer Input Object: Switch, PIR, Thermopile, 9Axis IMU, GPS



Hardware Specifications

List	Specifications	List	Specifications
XNode Power	RAM: 128KB	XNode Auto	RAM: 128KB
	Flash Memory: 1MB		Flash Memory: 1MB
	Interface: UART, SPI, I ² C, ADC, PWM, GPIO		Interface: UART, SPI, I ² C, ADC, PWM, GPIO
	Indicator: LED		Indicator: LED
ZigBee 3.0	Frequency: 2.4GHz Range: Max 3200m (Outdoor), Max 90m(Indoor)	ZigBee 3.0	Frequency: 2.4GHz Range: Max 3200m (Outdoor), Max 90m(Indoor)
	Data Rate: 250kbps Sensitivity: 103dBm Output Power: 19dBm Receiver Sensitivity: 100dBm Bluetooth Support		Data Rate: 250kbps Sensitivity: 103dBm Output Power: 19dBm Receiver Sensitivity: 100dBm Bluetooth Support
	Measure: DC Current		Relay: 3ch DC: 5A/30VDC AC: 5A/250VAC
	Power Output: DC 12V x 3EA		Motor Driver: Dual FullBridge Driver(4A/46V)
Size: 93.5 x 76(mm)		Size: 103 x 89(mm)	



Hardware Specifications

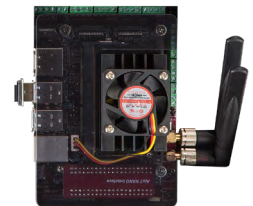
List	Specifications	List	Specifications
Node B (3a)	RAM: 128KB	Expansion Module	PIR Sensor
	Flash Memory: 1MB		Infrared Thermometer
	Interface: UART, SPI, I ² C, ADC, PWM, GPIO		GPS Module
	Indicator: LED		Door Lock
	ZigBee 3.0		Gas Sensor
	Light Sensor		Gas Circuit Breaker
Expansion Module	Humidity & Temperature Sensor	MR16 LED	FAN
	Power		
	Basic		
Expansion Module	9axis Sensor		



Edge Server [Option]

Edge server supports sensor node control and artificial intelligence convergence programming in a web browser environment through Soda OS, an AIoT-only operating system, and Pop Library

Edge server supports mDNS/DNS-SD, SSH, SFTP, SMB/CIFS, MQTT, NXX Window protocol Soda OS and Pop Library, an AIoT-only operating system are provided



Edge Server
Option



Software Specifications

List	Specifications
Edge Server (Gateway)	Linux Kernel
	Lightweight Desktop
	CLI
	Tool Chain
	IDE
	Multimedia
	Data Science & AI
	Jupyter Lab
	Multimedia Object
	Voice Assistant Object
Pop Library	AI Object

Hardware Specifications

List	Specifications	
Edge Server (Gateway)	CPU	6-core NVIDIA Carmel ARM v8.2 64-bit 6MB L2 + 4MB L3
	CPU Max Freq	2-core@1900MHz, 4/6-core@1400MHz
	GPU	384-core NVIDIA Volta™ GPU with 48 Tensor Cores GPU Max Freq: 1100MHz
	Memory	8GB 128-bit LPDDR4x@ 1600MHz
	Storage	16GB eMMC 5.1
	Video Encoder	2x464MP/sec(HEVC), 2x4k@ 30(HEVC) 6x 1080p@ 60(HEVC), 14x 1080p@ 30(HEVC)
	Video Decoder	2x690MP/sec(HEVC), 2x4k@ 60(HEVC), 4x4k@30(HEVC) 12x1080p@ 60(HEVC), 32x 1080p@ 30(HEVC), 16x 1080p@30(H.264)
	CSI Camera	Up to 6 Cameras(36 Via Virtual Channels) 12 Lanes MIPI CSI-2, D-PHY 1.2(up to 30 Gbps)
	Connectivity	Dual Band Wireless Wi-Fi 2GHz/5GHz Band, 867Mbps, 802.11ac Bluetooth 4.2 10/100/1000 Base-T Ethernet
	Display	2 multi-mode DP 1.4/eDP 1.4/HDMI 2.0
	USB	4x USB 3.0, USB 2.0 Micro-B

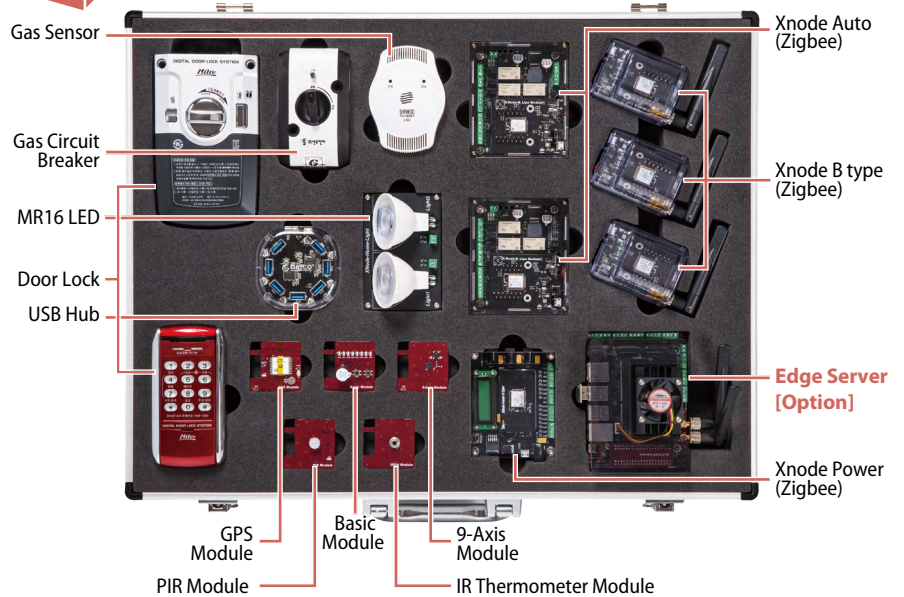
Training Contents

1. Components and Concepts of Sensor Network
2. Sensor Network Platform
3. Sensor Network Protocol
4. Sensor Network Development Environment
5. Basic Sensor Control
6. Extension Module Control
7. Zigbee Basic Communication
8. Zigbee Communication Extension
9. Zigbee and BLE
10. Sensor Network Application Project

Appendix

1. Visual Studio Code Add-on
2. Edge Server Initialization
3. Python

Layout



Composition



Composition

