

# Yottacontrol

## A-9N

*Fanless Edge Computing Controller*



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PM

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# Agenda

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A-9N

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Demo

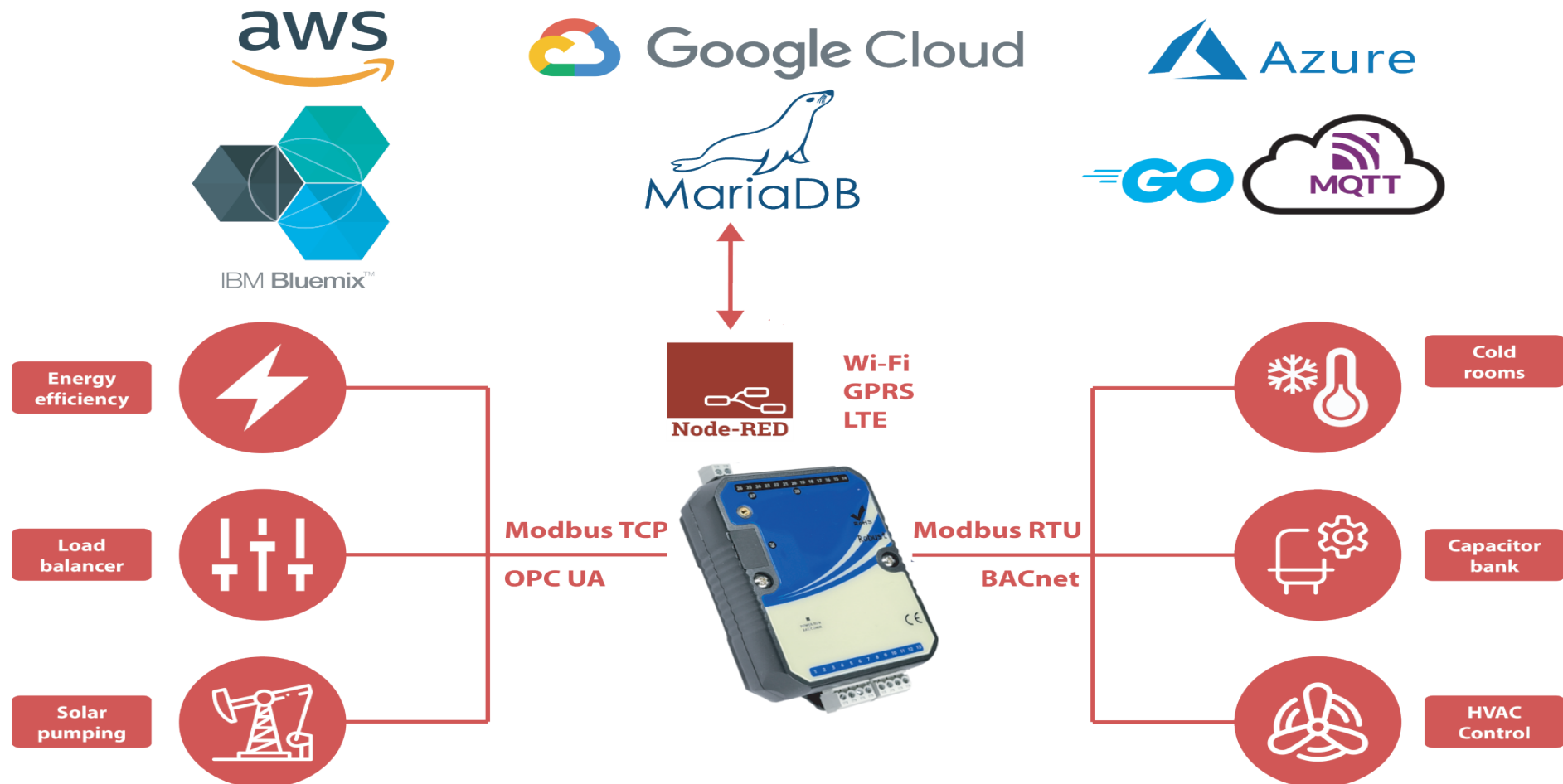
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Q&A

# Path to A-9N

- ☒ The A-9N provided by Yottacontrol is a Fanless Edge Computing Controller for Ethernet and RS-485 serial port.
- ☒ Support more than 7,000 function blocks, and quickly complete various functions without self-development.
- ☒ A-9N can complete Ethernet data transmission to public and private clouds and various databases through third-party 4G/5G communication modules.
- ☒ Quickly apply functions such as machine learning and Open AI or use cloud AI servers.
- ☒ Many communication formats are supported to meet the requirements of gateway applications, and WEB HMI can be used for complex graphic control.



# Hardware Architecture

## Specifications

### CPU

- ◆ TI Cortex-A8 ARM

### Memory

- ◆ DDR3 512MB onboard

### Storage

- ◆ eMMC 8GB onboard

### Expansion

- ◆ 1 x USB 2.0 Host for Wi-Fi module / USB-HUB / KEY-board ....

### I/O Interface-Front

- ◆ 1 x Power LED
- ◆ 1 x RJ-45 10/100M fast Ethernet with LED
- ◆ 1 x USB Host 2.0 type A
- ◆ 1 x Phoenix connector for power (24~36VDC)/GND/ignition input

### I/O Interface-Rear

- ◆ 1 x HDMI for 1920 x 1080@60Hz output
- ◆ 3 x RS-485

### Power Consumption

- ◆ Max 10W

### Power Management

- ◆ Auto Boot

### Operating System

- ◆ Linux (Debian 11.5)
- ◆ Built-in NODE-RED

### Dimensions

- ◆ 72mm (W) x 118mm (D) x 34mm (H)

### Weight

- ◆ 0.2kg

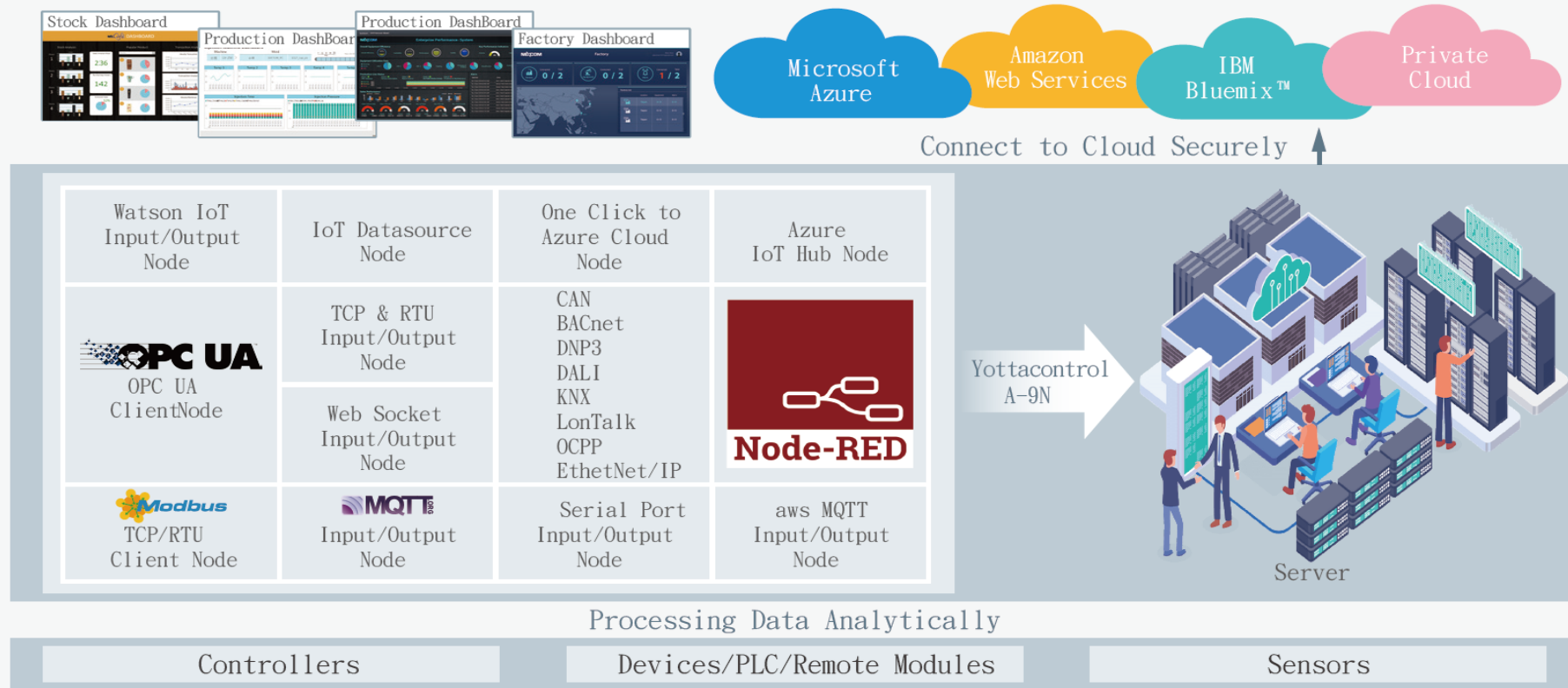
### Environment

- ◆ Operating temperatures: -10°C to +55°C
- ◆ Storage temperatures: -20°C to +85°C
- ◆ Relative humidity: 90% (non-condensing)





# Software Architecture



## Main Features

- ◆ Ready-to-use IoT gateway to accelerate IoT project deployment
- ◆ Open architecture support both ARM-based IoT gateway
- ◆ One-click deployment to cloud
- ◆ Cloud SCADA presentation
- ◆ Real-time information response
- ◆ Support Modbus, OPC-UA, MQTT, SQL, BACNET.....

# Software Architecture

The screenshot shows the Node-RED web interface in a browser. The address bar indicates the URL is 192.168.174.143:1880/#flow/a8dfc2c1.e5203. The interface includes a sidebar with a search bar and a list of nodes categorized by type (common, function, network, input, output, sequence, parser, storage, analysis, advanced, LINE, modbus, formats, weather, dashboard, giant, machine learning, ai). The main workspace displays a flow named 'Flow 1' with two nodes: 'timestamp' and 'msg.payload'. The 'debug' console on the right is empty.

The screenshot shows the Node-RED Library website. The header includes navigation links for home, about, blog, documentation, forum, flows, and github. A search bar is located in the top right. The main content area features a large red banner with the text 'Node-RED Library' and 'Find new nodes, share your flows and see what other people have done with Node-RED.' Below the banner, there are three sections: 'Recent nodes', 'Recent flows', and 'Recent collections'. Each section displays a list of items with their names, descriptions, and version numbers.

## Node-RED Library

Find new nodes, share your flows and see what other people have done with Node-RED.

### Recent nodes

see more (4396) ▶

- node-red-contrib-energy-meter**  
A Node-RED node to read modbus data from Easton energy meter and present it into Human readable format  
v0.0.1 0 5.0 node
- node-red-contrib-ocpp**  
A set of nodes to communicate via OCPP to a compatible charge box or central system  
v1.3.5 61 5.0 node
- @ba47/node-red-queue**  
Message queue with timed or event driven output.  
v0.5.4 2 node

### Recent flows

see more (2442) ▶

- Smart Farming IoT - Moisture Content Dashboard**  
The provided Node-RED flow is designed to create a moisture content dashboard for smart  
lkdhaker flow
- K-means clustering flow**  
This is a flow that represents an Openwhisk function that returns clusters with three centroids for any given input, using the k-  
vasKatevas flow
- drowsiness**  
drowsiness detection and alerting system  
Jumana-2002 flow

### Recent collections

see more (818) ▶

- PHYSICS pattern flows for Cloud/Edge and Openwhisk**  
The collection contains a set of pattern subflows that aim to aid in various aspects of a  
gkousiouris 5.0 collection
- alamosCollection**  
Alamos Collection for test purposes  
Ma394x collection
- Huawei FusionSolar**  
Huawei FusionSolar (solar panel inverter) production retriever.  
businessapplicationbuilder collection


# Software Architecture

Node-RED

homeaboutblogdocumentationforumflows

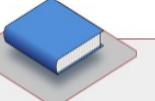
docs

## Documentation




### Getting Started

Everything from first install to deploying flows



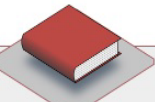
### User Guide

The definitive guide to using Node-RED




### Frequently Asked Questions

And hopefully some answers



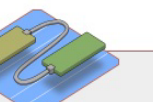
### Tutorials

Examples of what you can do, taken one step at a time



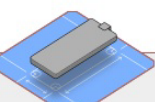
### Cookbook

Recipes to help you get things done with Node-RED



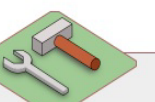
### Developing Flows

Best practices for creating clear and reusable flows




### Creating Nodes

How to create nodes to extend the Node-RED palette



### Developing the core

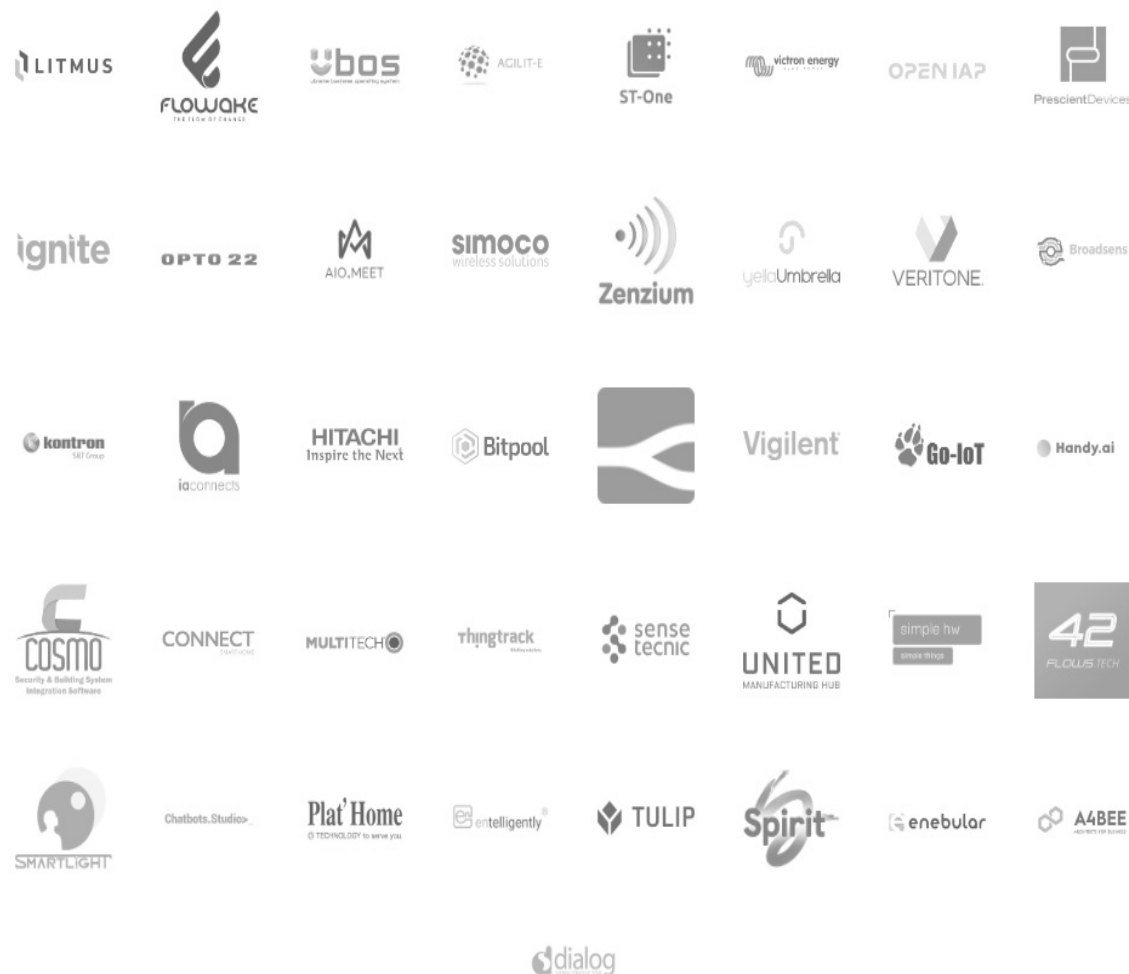
Help to develop the core of Node-RED



### API Reference

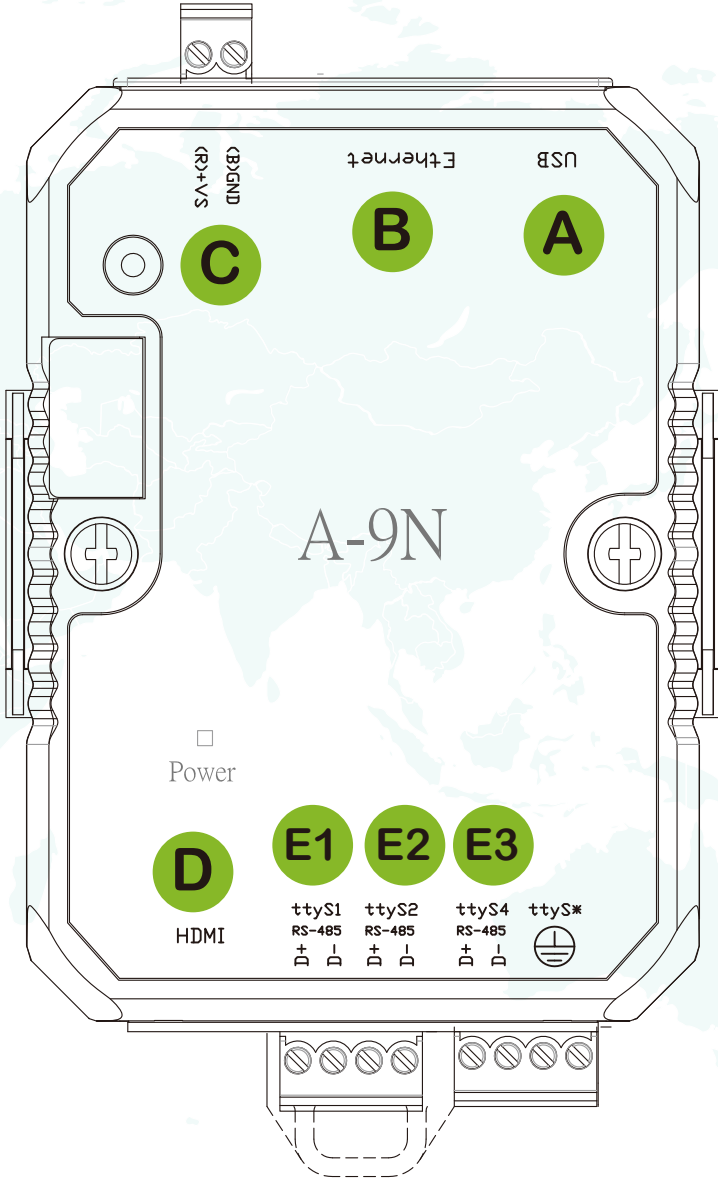
Admin, runtime and storage APIs

誰在使用 Node-RED ?

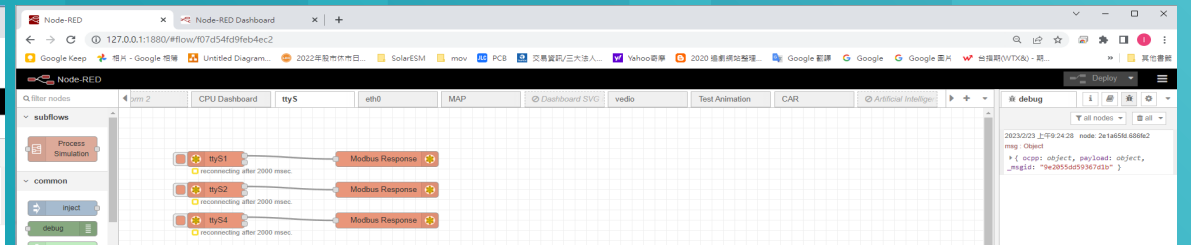
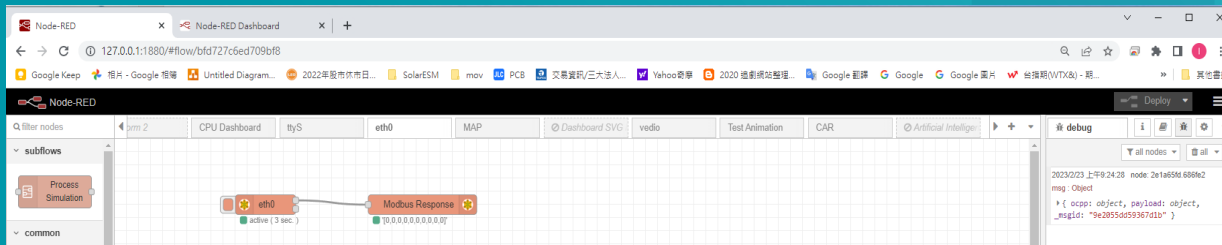
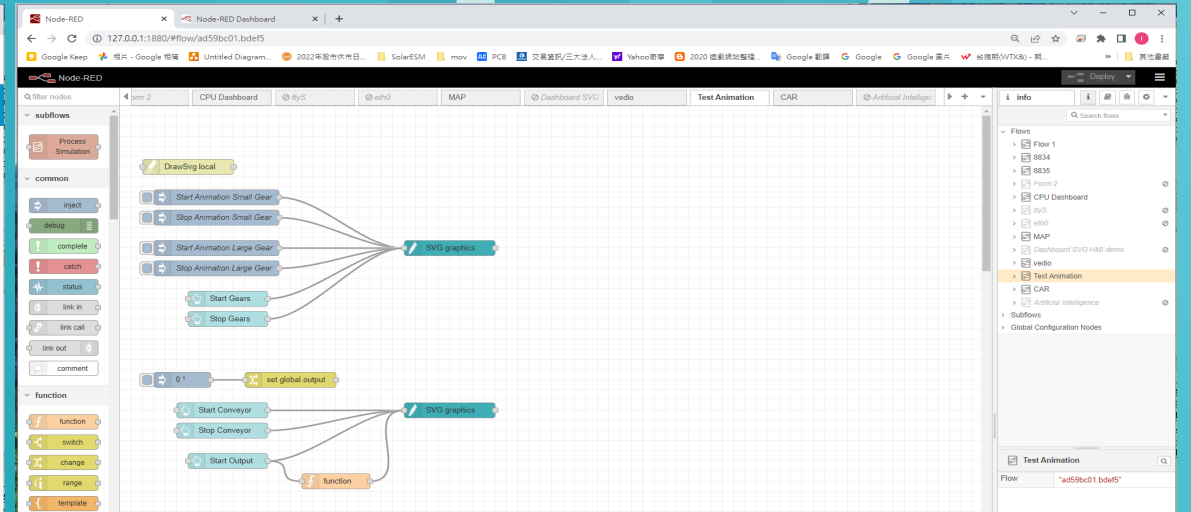
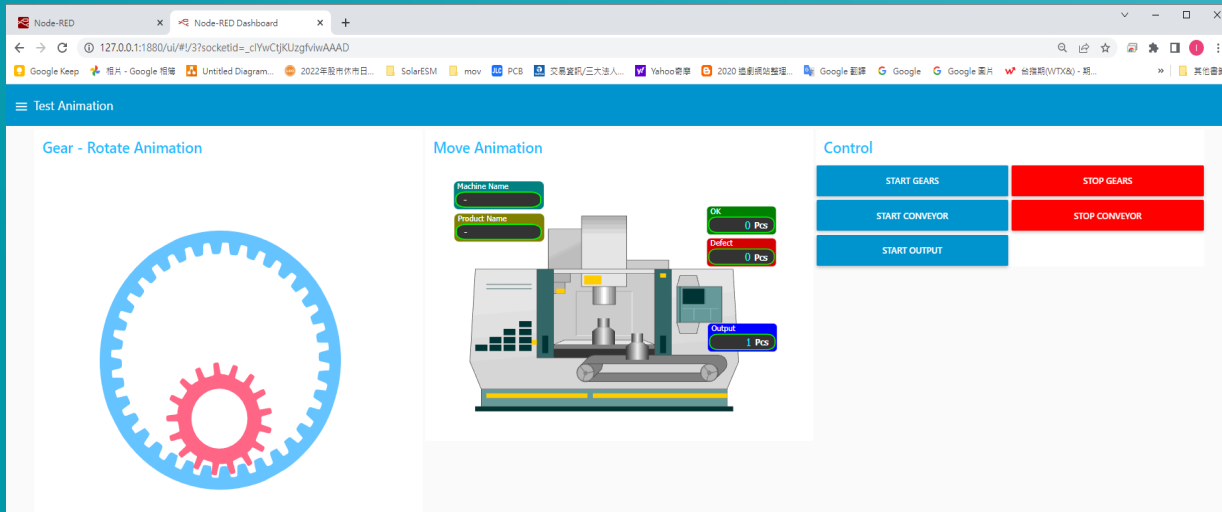
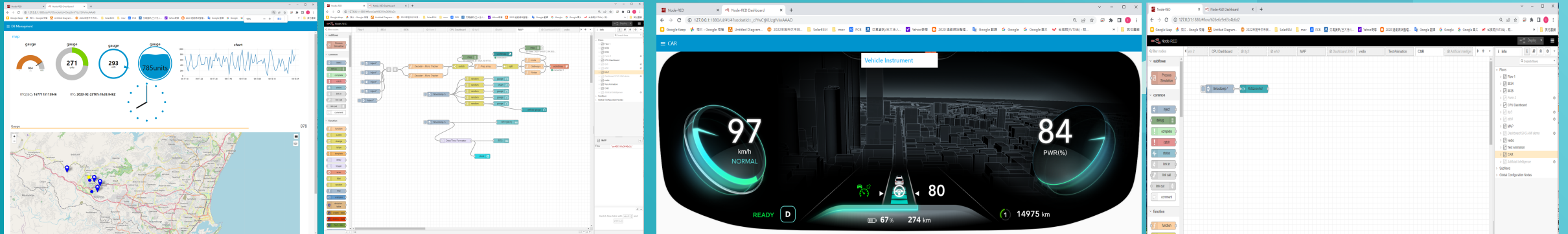


# Demo Setup

- A** USB/USB hub(external power supply) for mouse and keyboard  
USB dongle for WIFI(2.4G) wireless network connection
- B** Ethernet(RJ45) for local wire network connection
- C** External power supply(such as Yottacontrol ASPS)
- D** “Micro” HDMI port for monitor display
- E1** Extended RS485 slave (such as Yottacontrol A-10x/12x/51x/52x/53x)
- E2** Extended RS485 slave (such as Yottacontrol A-10x/12x/51x/52x/53x)
- E3** Extended RS485 slave (such as Yottacontrol A-10x/12x/51x/52x/53x)



# Demo



# Compare Table

Brand Name	Country	Module Name	Type of Module	OS and Source	Software Compatibility	CPU	I/O
巨控(Yottacontrol)	Taiwan	A-9N	Fanless Edge Computing Controller	Linux+Node-Red	Fully compatible	ARM Cortex-A8 1000MHz	HDMI*1/Ethernet*1/RS-485*3/USB*1
四零四(MOXA)	Taiwan	UC-2101-LX	ARM PC	Linux+Node-Red	Fully compatible	ARM Cortex-A8 600MHz	Ethernet*1/RS-485*1
研華(advantech)	Taiwan	ADAM-6700	Intelligent IoT I/O gateways	Linux+Node-Red	Fully compatible	ARM Cortex-A8 1000MHz	Ethernet*2/RS-485*2/USB*1
泓格(ICPDAS)	Taiwan	GRP-2841M-5GE	5G Fanless Edge Computing Controller	Linux+Node-Red	Fully compatible	ARM Cortex-A53 1600MHz	VGA*1/Ethernet*2/RS-485*4/USB*2/5G*1
衛勒米勒Weidmüller	Germany	IOT-GW30-4G-EU	IoT Gateway	Linux+Node-Red	Fully compatible	TBD	Ethernet*2/RS-485*1/USB*1/4G*1
施耐德(Schneider)	France	Modicon M262	IIoT logic and motion controllers	Linux+Node-Red+IEC61131-3	Fully compatible	TBD	Ethernet*2/RS-485*1/USB*1

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# Q&A





# Additional Material

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# A-9x series and family



## • A-9C

### Fanless Edge Computing Controller

code-server source (IoT development tool using browser interface)



## A-9H

### Intelligent HMI

ARM Cortex-A53 4-Core CPU  
Ethernet \*2  
RS-485 \*4  
USB\*2  
HDMI\*1  
16G eMMC  
2G RAM



## A-9W

### Industrial Computer

Intel 4-Core CPU  
Ethernet \*2  
RS-485/RS-232/RS-422 \*4  
USB\*2  
HDMI\*1  
64G eMMC  
4G RAM