WINSTAR

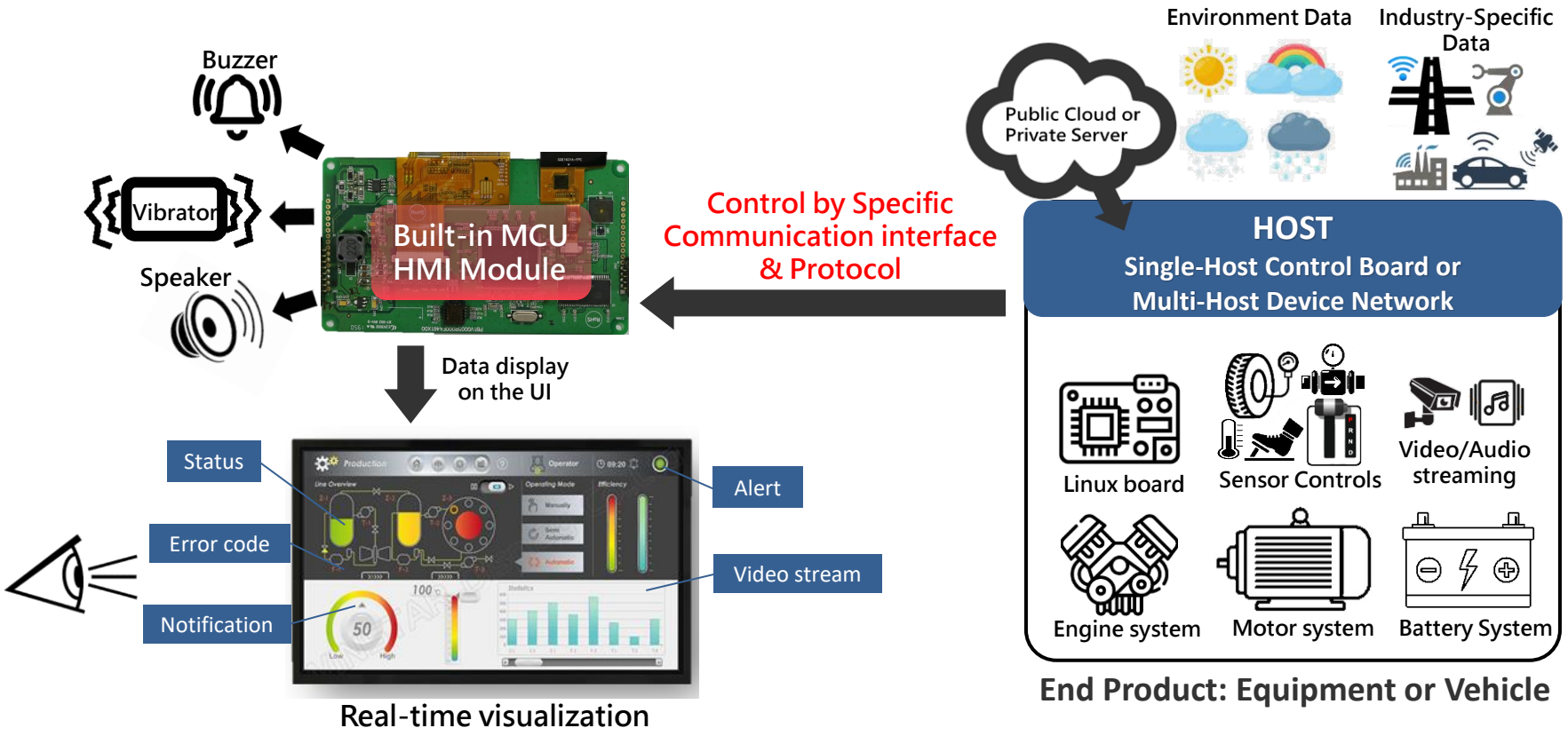
WINSTAR Display

Smart Display Introduction

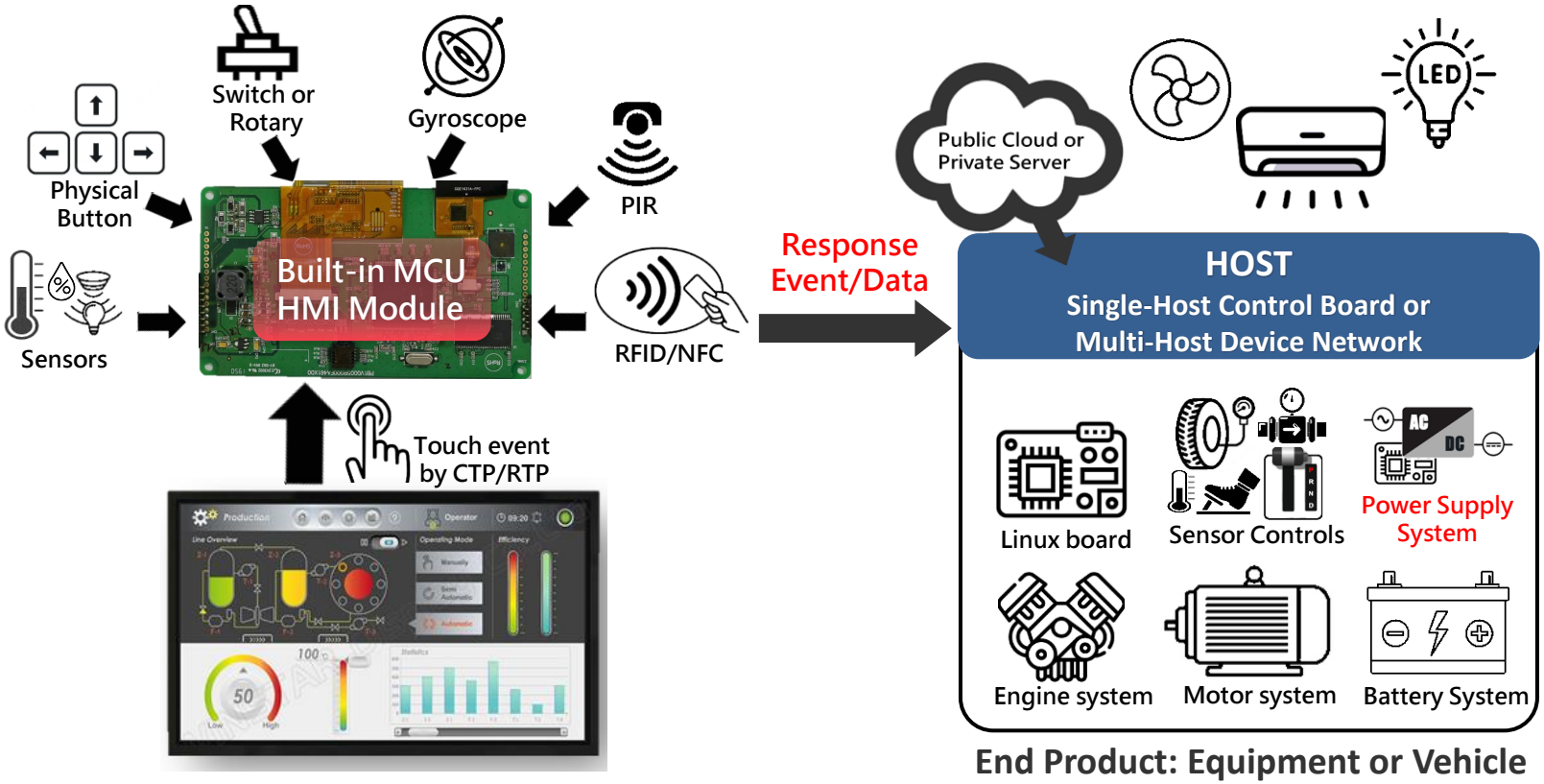
2023.07

How Winstar HMI works?

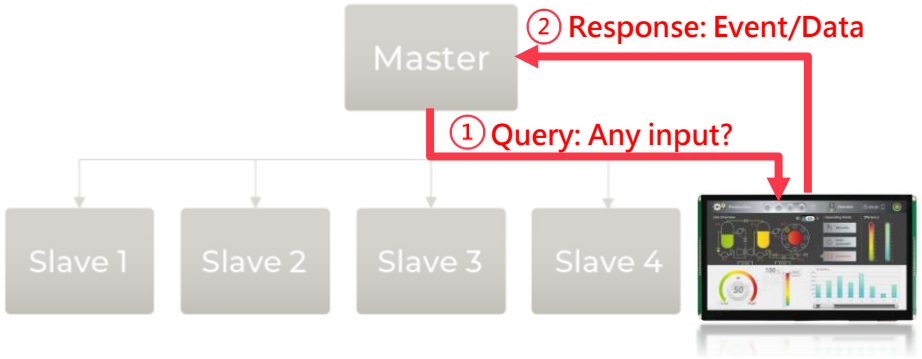
Schematic of Winstar HMI function_Conrol & Display (Output)



Schematic of Winstar HMI function_Feedback (Input)



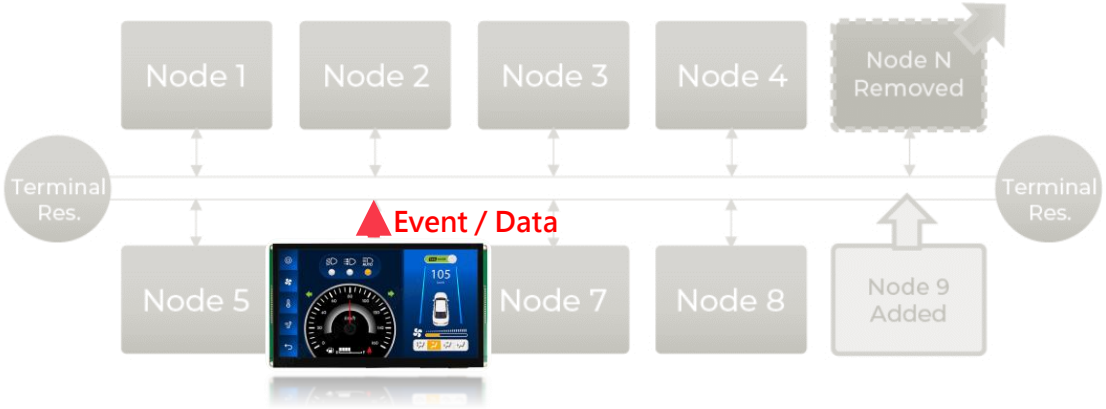
Network Structure: Single Host vs Multiple Hosts



Single-Host

The master device controls every slave device, and each slave device can send messages **only with the permission of the master device.**

Ex: RS485, RS422, RS232, UART(1by1)



Multi-Host

Each device can communicate with the others directly without a master device. It's also flexible to instantly add/remove devices in the network.

Ex: CAN bus、Wireless

Target Segment & Advantages

Winstar MCU-based HMI target segments

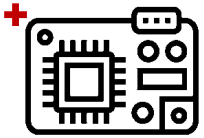
Winstar alternatives | System+ Display

$ Cost

- ✓ Not only support you a display with higher performance
- ✓ But also provide entry options for display+ MCU

MCU HMI module

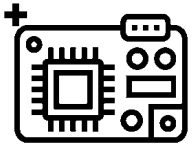
+



MCU main board

Low End Display module

+

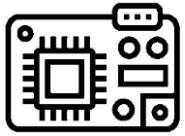


MCU main board

✓ Share the loading with your Main board !

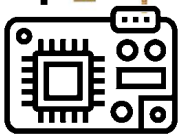
MCU HMI module

+



ARM MPU/SOC mainboard with Linux

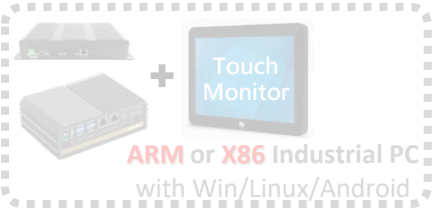
+



ARM MPU/SOC mainboard with Linux

Mass production approach

ARM or X86 AIO (all-in-one) / Pad with Win/Linux/Android



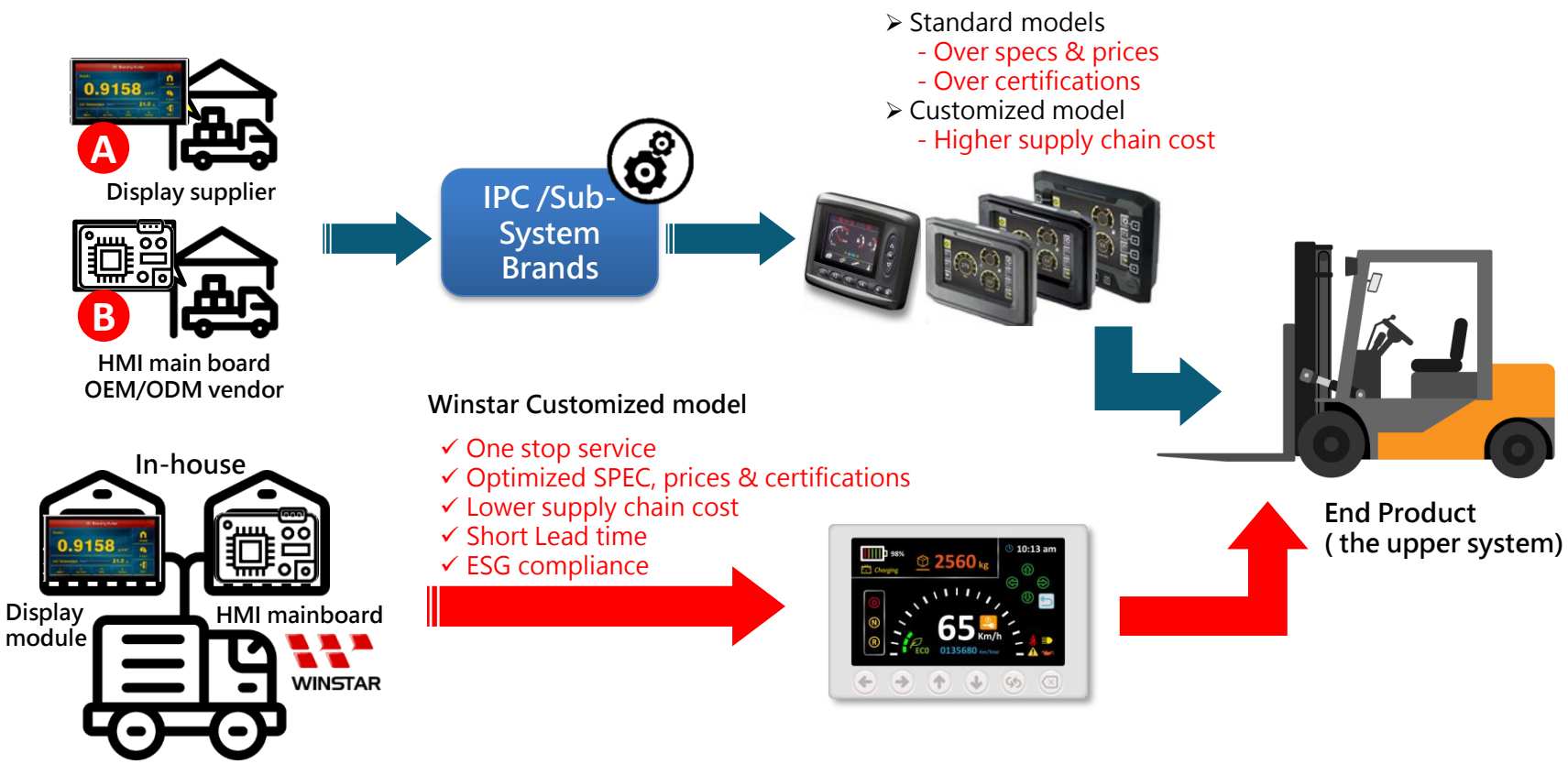
ARM or X86 Industrial PC with Win/Linux/Android

Project-based approach

- 720p/1080p/4K video playback
- Multiple communication interfaces
- 4G LTE/5G connectivity
- Local data server
- Edge computing

HOST Main Board Required Performance

Advantages of Winstar Solution

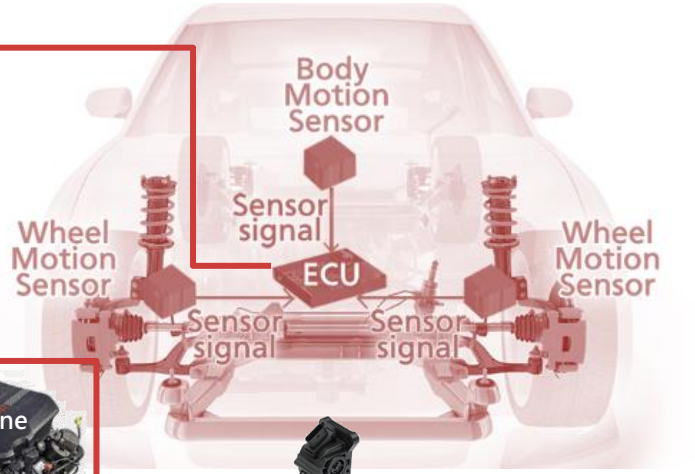


Winstar Target Industries

Winstar HMI solution for **vehicle system** structure

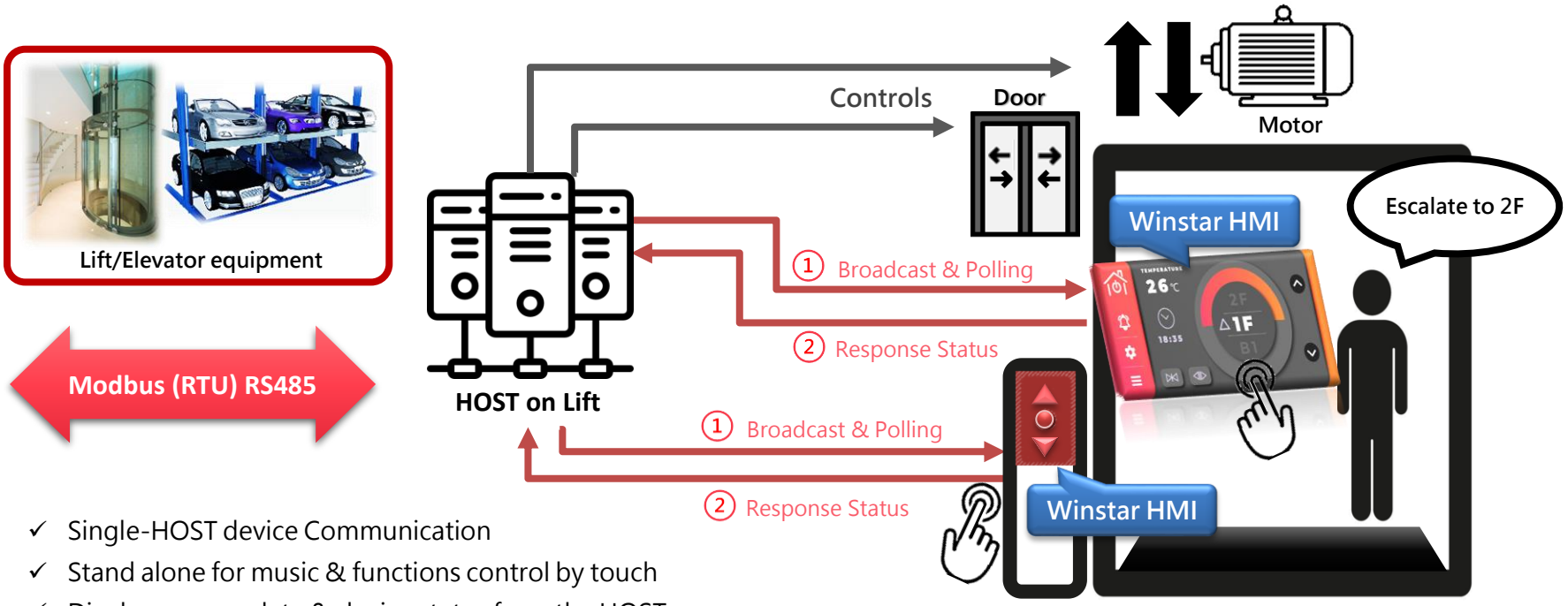
CAN bus

Most of the **sub-system** in vehicle is also MCU-based



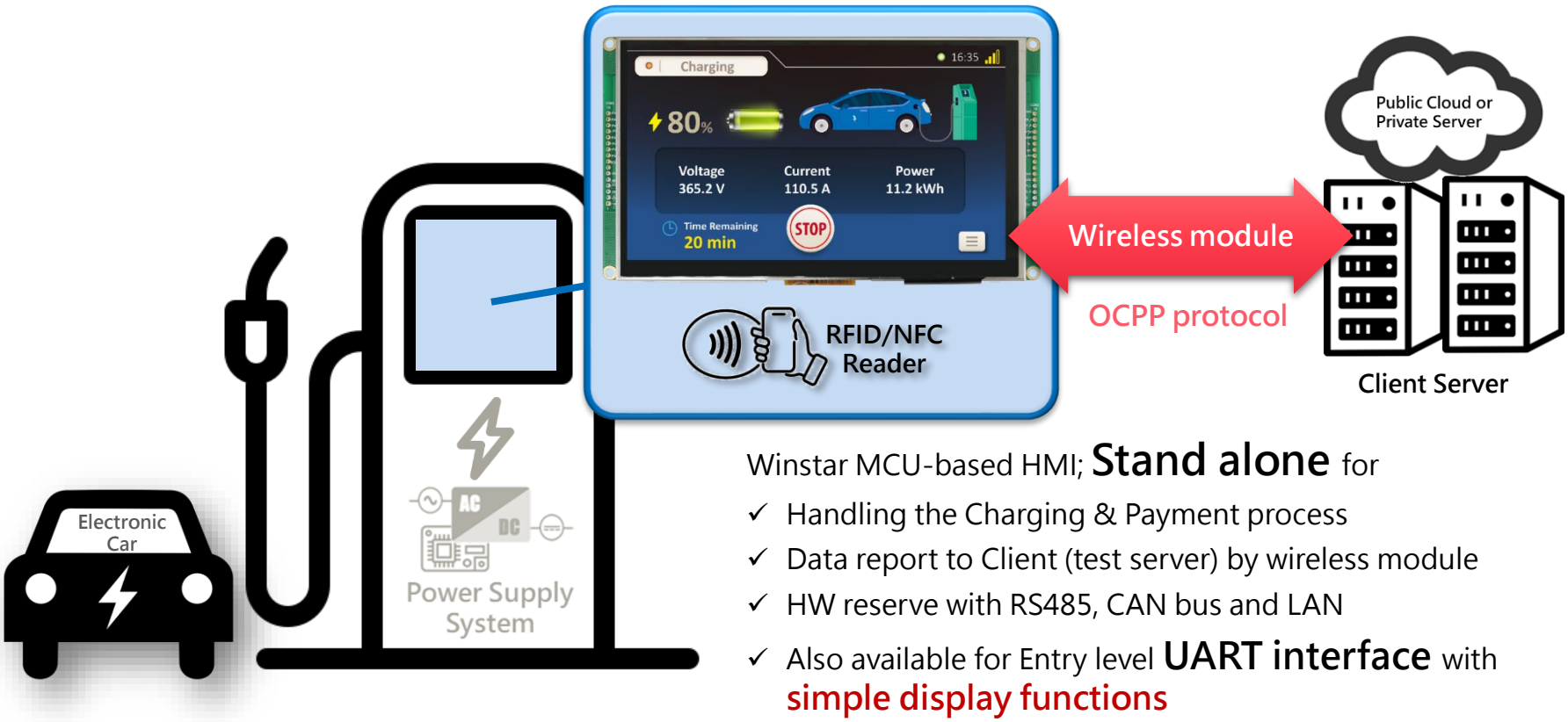
- ✓ Multi-HOST device Communication Network
- ✓ Controlled and displayed data & status from network
- ✓ Responses event & data to network
- ✓ ME design
- ✓ EMI Pre-scan

Winstar HMI solution for **elevator/equipment** system



- ✓ Single-HOST device Communication
- ✓ Stand alone for music & functions control by touch
- ✓ Displays sensor data & device status from the HOST
- ✓ Responses event & data to the host

Winstar HMI solution for **EV charger & power equipment**



Winstar MCU-based HMI; **Stand alone** for

- ✓ Handling the Charging & Payment process
- ✓ Data report to Client (test server) by wireless module
- ✓ HW reserve with RS485, CAN bus and LAN
- ✓ Also available for Entry level **UART interface** with **simple display functions**

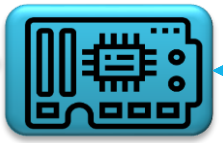
Winstar HMI solution for **energy storage system or UPS**

Winstar MCU-based HMI

- Display data, status from HOST
- Response event & data to HOST

RS485

Modbus



Customer HOST
(MCU or MPU control board)

Pack 1

BMS Control Board

Pack 2

BMS Control Board

Pack 3

BMS Control Board

Pack 4

Li-ion Battery Module

Li-ion Battery

Li-ion Battery Module

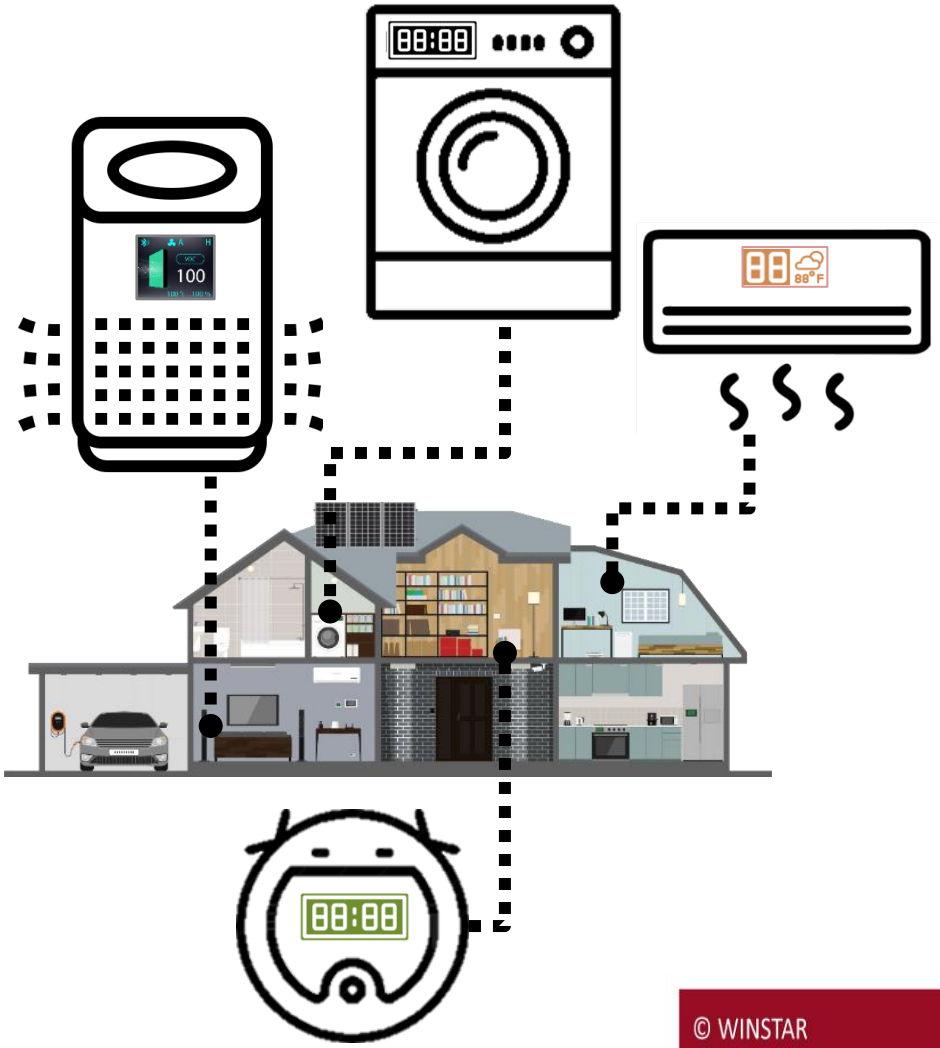
Li-ion Battery Module

EMS, Energy Management System

Winstar HMI solution for **Smart Home devices**

Winstar defined protocol

Bluetooth



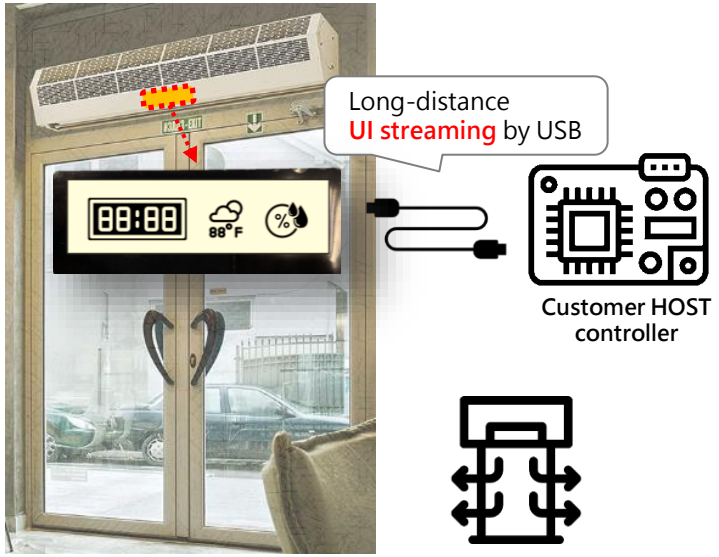
MCU-based smart control panel (HMI module)

- ✓ Build in Winstar HMI for Smart Home devices
- ✓ Display the machine status
- ✓ Controlled by Smart Phone via Bluetooth
- ✓ Response the status to Smart Phone via Bluetooth
- ✓ Sample code for test app

Winstar special-purpose MCU-based touch screen

Additional 2nd touch screen via USB

Data Monitor for Smart TV,
Smart PC or Smart White Board

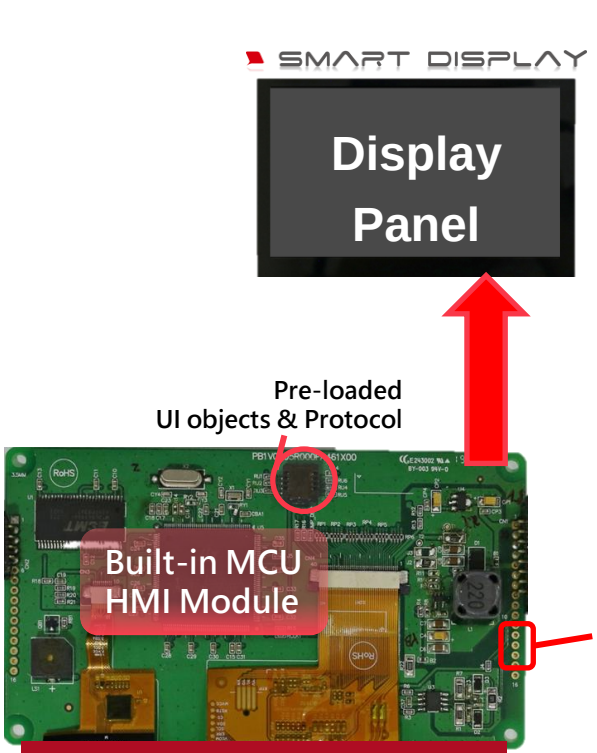


Special commercial or industrial equipment

Up to 2 meters (6.5 ft.) of long-distance
graphical UI/UX streaming by USB cable (15 FPS)

Winstar Standard Smart Display

Winstar Smart Display Main Features

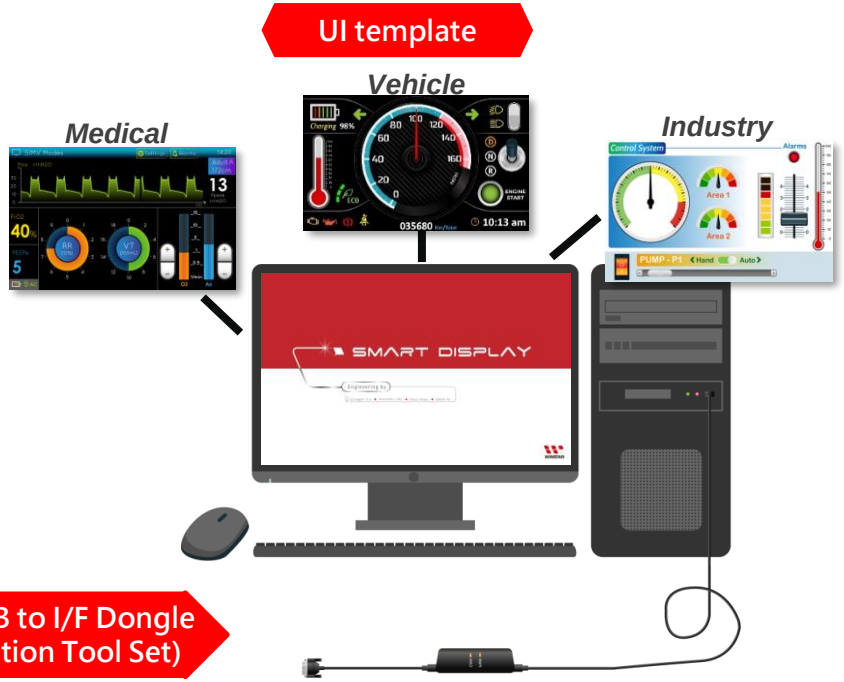


Hardware + Firmware

- MCU/ Flash memory/ Communication IF
- Splash screen/ UI template

Winstar USB to I/F Dongle (Configuration Tool Set)

1. Configure or update Smart Display contents
2. Simulate the protocol between HOST and module



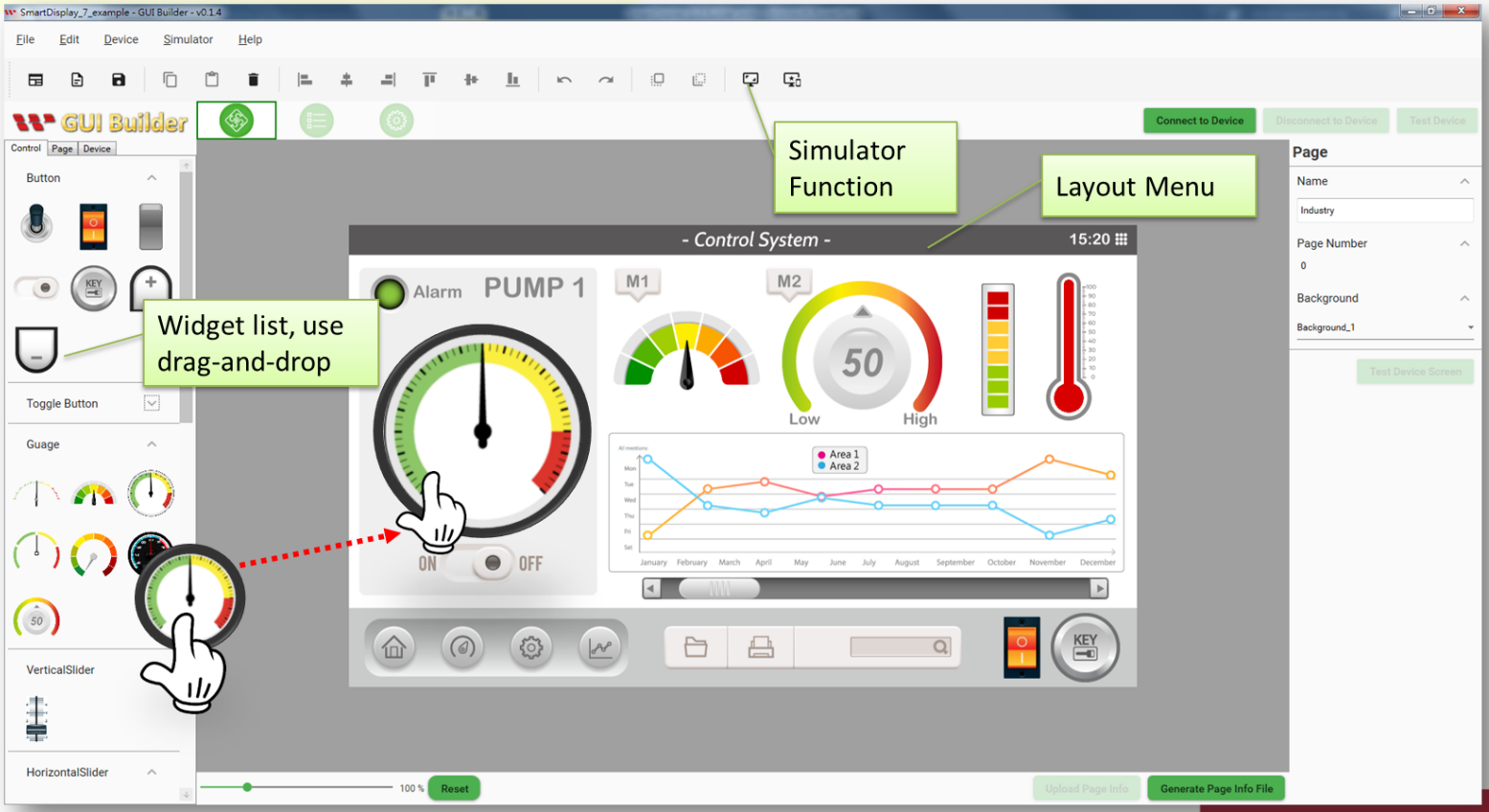
Software: GUI builder

Winstar SmartDisplay GUI Builder

Try Before you buy!

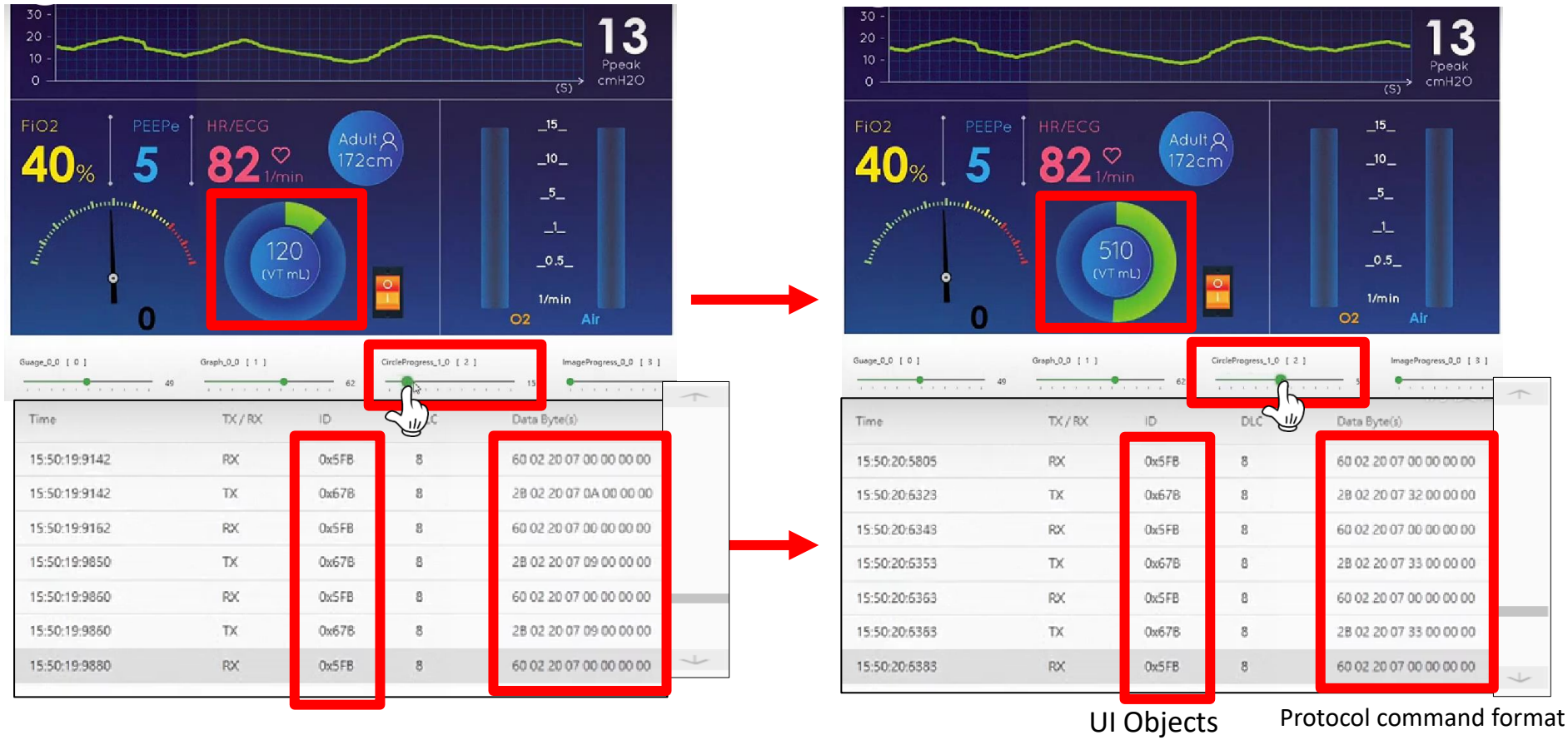
Limitations that Winstar can help

1. Support **Windows OS** and Smart Display **Standard model** only
2. Support max to 64 objects in 1page, and max to 10 pages
3. Most of the resolution are fixed and png format is preferred
4. Need to set the command to switch pages
5. Complex issue such as animation displayed needs customization



Winstar GUI builder: UI objects & protocol simulation

You can simulate **every UI object** without connecting to the device. This tool simulates the data been sent/received between HOST through **protocol commands**



Get start your GUI design!

Support videos for Winstar GUI builder

November 10,2022

1.How to get started

Video Play

November 10,2022

2.How to do simulation without module

Video Play

November 10,2022

3.How to upload a GIF splash screen

Video Play

November 10,2022

4.How to upload your own Widgets

Video Play

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5.How to update the whole project

Video Play

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6.How to change baud rate

Video Play

November 10,2022

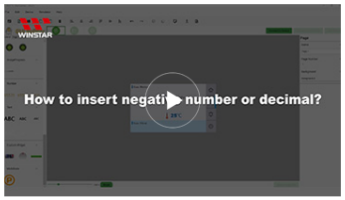
7.How to check my GUI builder version

Video Play

November 10,2022

8.How to check my module's software version

Video Play



November 10,2022

9.How to insert negative number or decimal

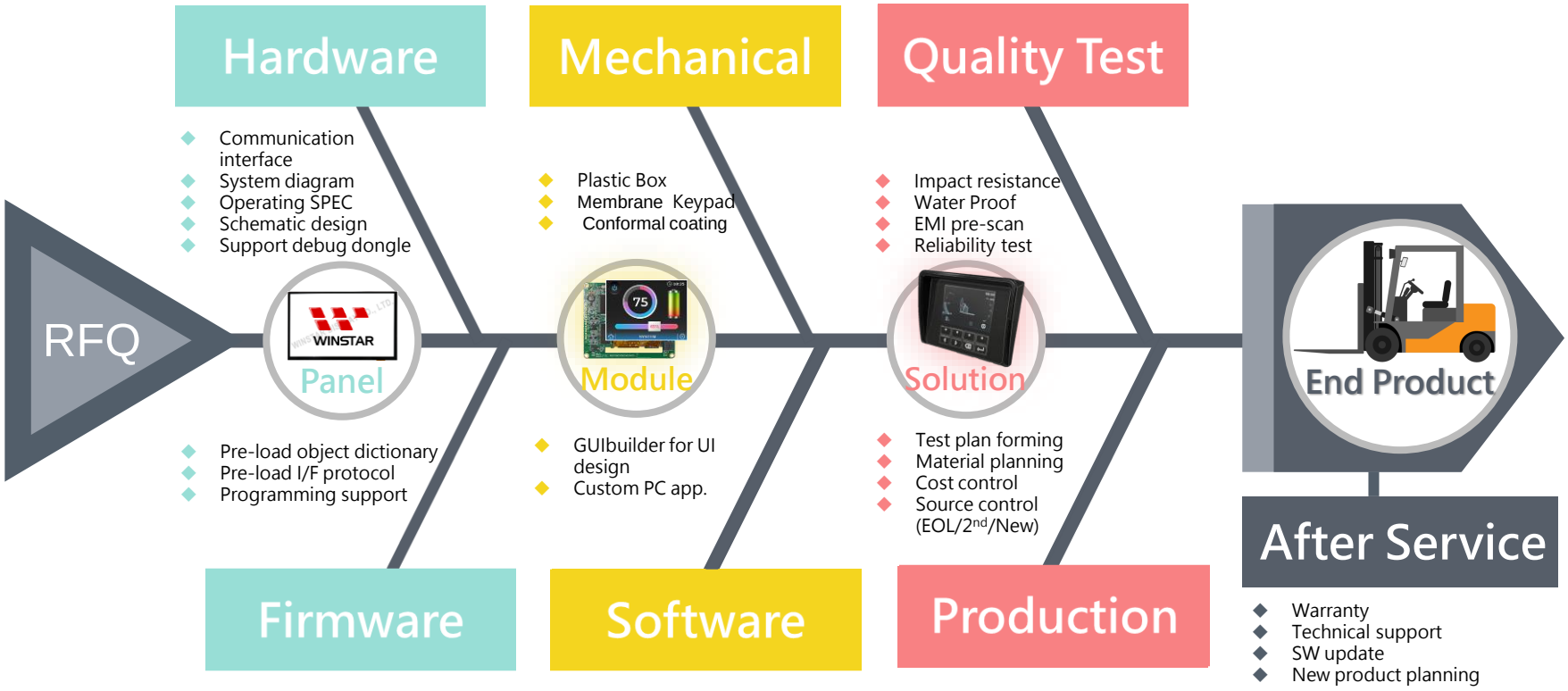
Video Play

November 10,2022

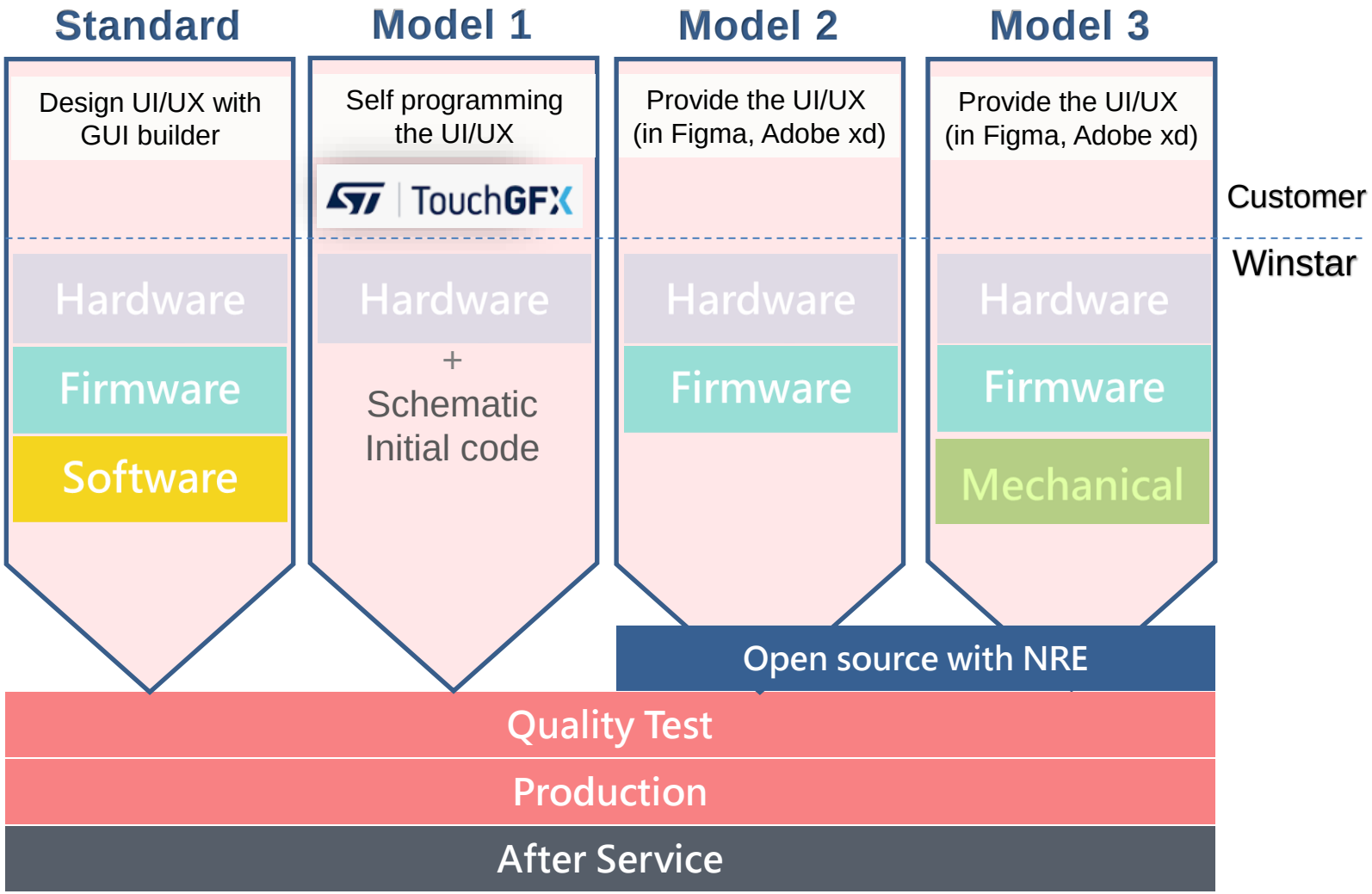
10.Limitations about GUIbuilder

Video Play

One-stop service



Winstar SI business models



Q & A

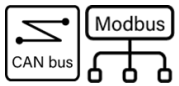
THANK YOU FOR LISTENING

Appendix

Winstar MCU-based HMI customization spec options

- **Display**: TN/IPS TFT 0.96" ~15" / PM OLED 1~4"

- **Touch Panel**: RTP/ CTP / Hover Touch
- **Cover glass** design: indoor/outdoor



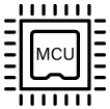
- **Communication interface**: RS485, RS422, RS232, UART, CAN bus, Bluetooth…

- **I/O connector**: terminal block, D-Sub COM, RJ45, USB 2.0, SD card, CVBS, RCA…

- **Camera**: supports 1 x video input for NTSC/PAL format via AV cable

- **Sensor**: temperature, humidity, PIR, light, G-sensor, gyro, RFID/NFC reader…

- **Sound**: buzzer, audio speaker
- **Peripheral**: vibrator, RTC battery, LED indicator, button, keypad, knob



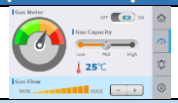
- **Core**: Cortex-M7 STM32F7 series
- **OS**: non-OS firmware (RTOS)
- **RAM**: 64KB~2MB(internal); 8MB~16 MB(external)
- **ROM**: 16MB~64MB flash memory

- **Firmware**: customized integration for protocols & hardware drivers
- **Support protocol**: Modbus RTU, CANopen 2.0a/2.0b, Winstar or customer defined
- **Software**: Test app for customer's verification purpose

- **Power supply**: 5V/12V/24V/48V or dynamic
- **Mechanical housing** design: metal/plastic

- **Reliability**: temperature/ humidity / waterproof / impact resistant(IK)
- **Certification**: UL/IEC/FCC…etc.

Appendix RFQ checklist

Specification			Customer's feedback (With STD product)
Final product application. Please take a brief discription if possible (Will be good if have a photo)			Application: Smart Home 
Sub-item of specifications			
Hardware	Display	Size	4.3"
		Resolution	480x272
		Brightness	300nit
		Touch	CTP
		View direction	IPS
	System Interface		☐ CAN bus ☐ RS485 ☐ UART ☐ Bluetooth ☐ Other_____
	Operating Voltage Range		5V
		WLAN	
		Camera	
		Audio	
		Buzzer	Y
		Keypad	
		Battery	
		SD card	
		Flash memory size	
		Vibrator	
		Temperature sensor	
		Humidity sensor	
		Others	Please list if needed
Firmware	Featured functions		
	UI secenario		
	Interface protocol		☐ CANopen ☐ J1939 ☐ NMEA2000 ☐ Modbus ☐ Customized
	Defined Graphics		
	Animations		
ME design Request	Interface connectors		
	Housing		Please specify **Metal** or **Plastic**
	Impact resistant(IK level)		
	Water proof(IP level)		
	PCB Dimension		Please provide the drawing if required
	ME Dimension		Please provide the drawing if required
Quality Requirement	Standards		Please provide the drawing if required
	Operating Temperature		Please provide the drawing if required
	Storage Temperature		Please provide the drawing if required
Regulation Requirement	Safety		Please provide the drawing if required
	CE/FCC		Please provide the drawing if required
	others		Please provide the drawing if required

Appendix Comparison—Shipping Content

Smart Display module (Unit)	Smart Display Demo Set.
1. Panel 	1. Panel 
2. PCBA without Connector 	
	3. PCBA with Connector 
	4. USB2IF Dongle 
	5. Short Cable between USB2IF and Smart Display  
	6. USB to MicroUSB Cable (PC to Dongle) 
	7. GUI Software Application bundled 8. User Guide