WINSTAR Display

Smart Display Introduction

2020.11

SMART DISPLAY

CAN series TFT (CanTFT)

Winstar Smart Display CanTFT

Hardware Platform
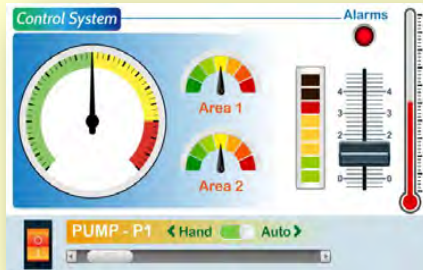(Container)
Physical Layer:
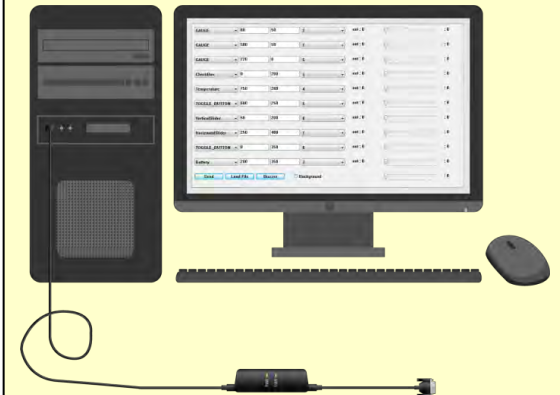MCU/Flash/Display

Firmware code
(Data contents)
Mental Layer:
Splash screen
/application/UI

Software code
(Support tool)
User Layer:
PC+AP / Interface Dongle
to configure or update
Smart Display contents.
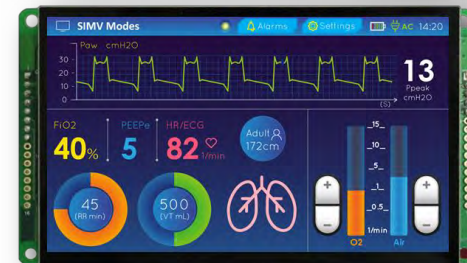
Coordinate

Data

Power on

Winstar Smart Display CanTFT

CanTFT, a combination of:

1. CAN bus interface
2. Built in flash memory
3. TFT display panel
4. Long transmission distance

CanTFT Smart Display Capabilities

- DC 5V / DC12V working voltage
- Power-On Self-Test & Splash screen.
- CAN bus Interface.
- Supports CANopen protocol, default baud rate at 250KB.
- Built in flash memory, store the font and Object Dictionary Data.
- Supports PCAP touch screen.
- Built-in Buzzer.
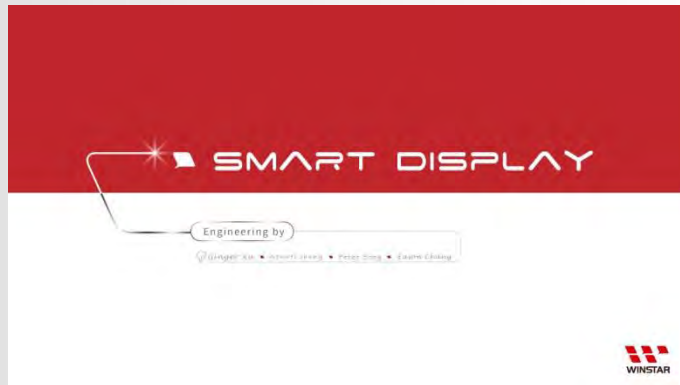
CAN bus *-the hardware*
Smart Display

CanTFT Why CAN bus?

- **Simple** network topology. Very easy to connect interfaces.
- **Robust** wiring distance can be 100 feet up for Controller Area Network.
- **Multi-master** is supported. Each device got chances to send data in network.
- **Anti-noise** the differential transmission has strong anti-interference ability

Smart Display

Twisted Pair

HOST

CAN BUS
Controller Area Network
CANopen
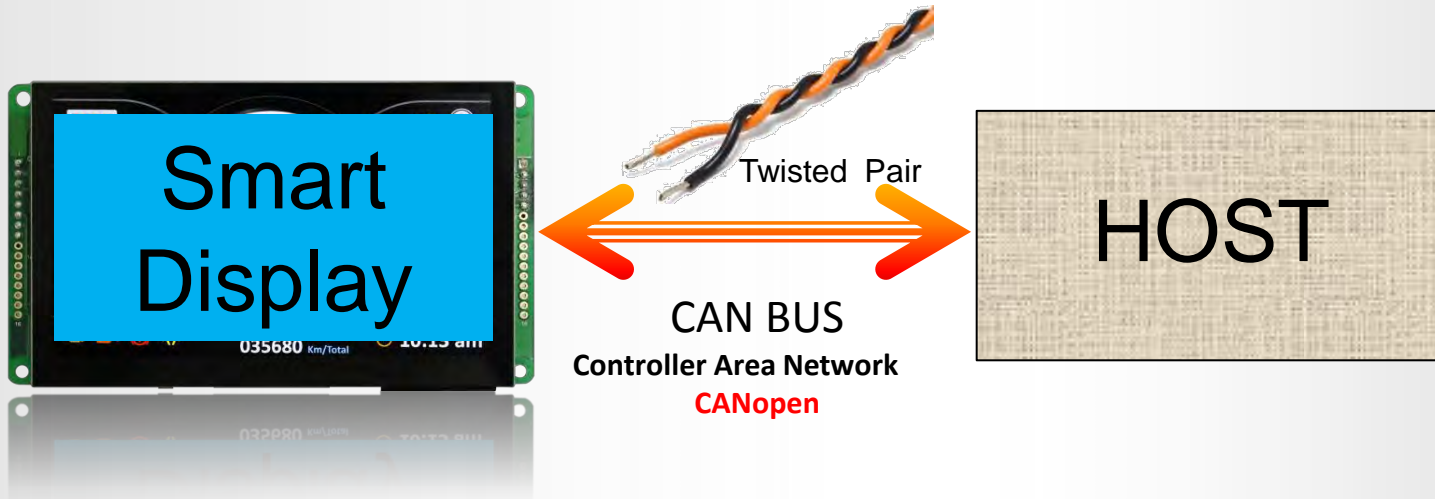
HMI:
The UI data is well defined and saved in the internal FLASH memory as object dictionary. To interact with HOST device regarding to the protocol.

HOST:
Can be a PC; Raspberry PI or MCU which supports CAN interface and interactive with CANopen protocol.

CAN bus Interface Explained

- The CAN (Controller Area Network) communication interface was first developed by Bosch in the 1980s in order to respond to the increasing number of electronic devices used in new cars.

- CAN bus can connect and control the entire control system through the simple serial interface.
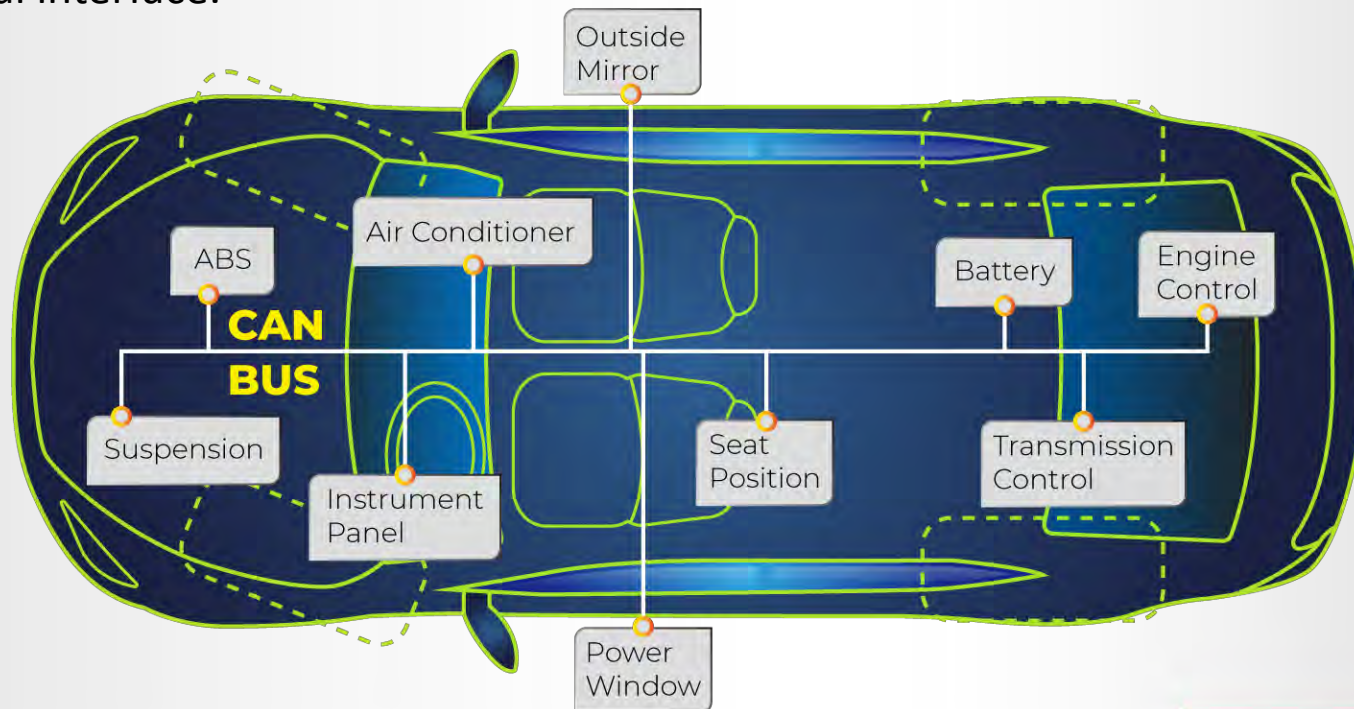
CANopen -the software
Smart Display

CANTFT Why CANopen?

- **Well defined:** CANopen is a communication protocol and device profile specification for embedded systems used in automation.
- **Standard format:** There is existing tool to edit the object dictionary. Very easy for collaboration work between Device and Host.
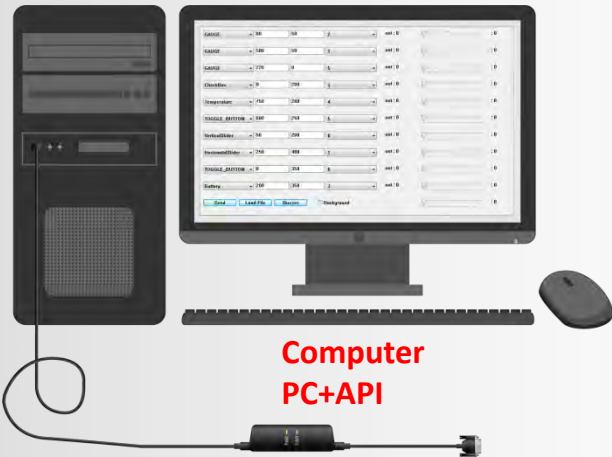- **Plug & Play:** Dialog with ID and object dictionary between devices.
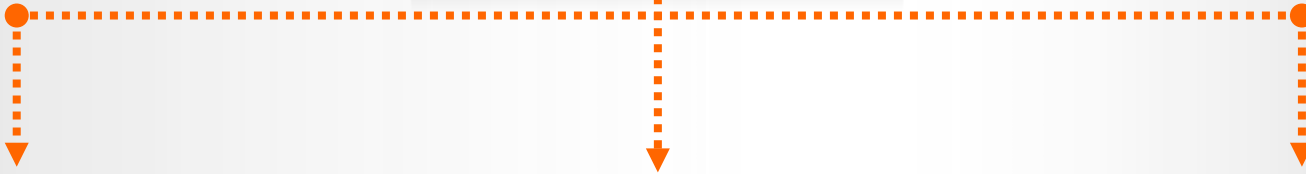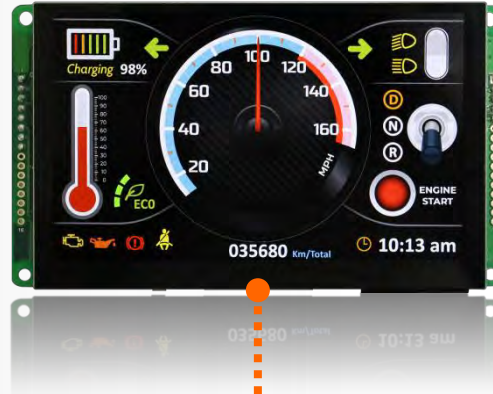
Object Dictionary(EDS)   **Object Dictionary(EDS)**

SYNC

PDO

SDO

TIME

EMCY
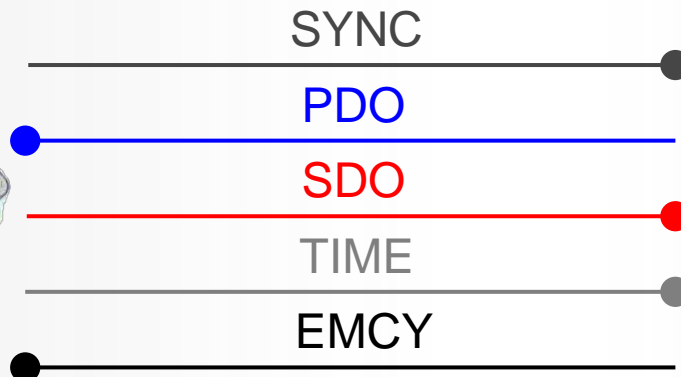
CanTFT Smart Display HOST options

Computer PC+API

USB2CAN Dongle

MCU w/CAN

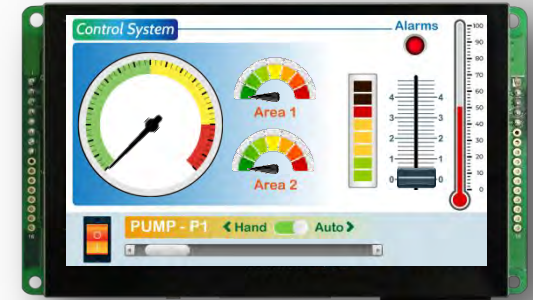**PiCAN2**

Raspberry Pi

CanTFT Control Method

③ Host send coordinates data to control CanTFT icons.

① The CanTFT initiative send scrollbar data to Host, whenever user control.

② When Host receive scrollbar data from CanTFT, Response to send a pointer data to CanTFT.

CanTFT Comparison With M Series TFT

CanTFT Smart Display

Winstar TFT M Series

- Object oriented for User Interface.
- No need to understand the graphic layer.
- Send script command to control.
- CAN bus Interface

- Coding oriented for User Interface.
- Need to understand the graphic layer.
- Send proprietary command to control.
- SPI、UART Interface

CanTFT System Comparison with Others

CanTFT

- Help customers Coding firmware interface
- Get started quickly, customers only need to send control command
- Customers develop finished products fast

4D/DWIN LIKE

- Coding oriented for User Interface.
- Need to understand the graphic layer.
- Programming ability required
- Customers develop products slowly

CanTFT System Comparison with Others

Display System Solution Comparison Table		
	4D/DWIN Smart LCM	**Winstar Smart Display**
Hardware platform	ASIC MCU (ASIC：Application Specific Integrated Circuit)	**Standard MCU**
Software platform	IDE bundle widget	free RTOS + TouchGFX + Object Dictionary
Control methodology	Drag & Drop widget + C programming	Multiple HOST + Object Dictionary + CANopen command
Advantages	All in One	**Flexibility**
	Build in widget.	Build in object dictionary.
	Drag & Drop	Drag & Drop
		UI can be changed with customization process.
		Non-specified programming language of coding.
		No C programming skill also can do a system design.
		Communication distance can be far away (up to hundred meter)

Application

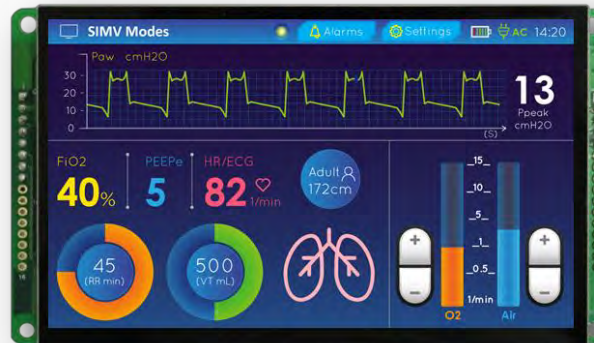1) **Passenger vehicles, trucks, buses (gasoline vehicles and electric vehicles)**
2) **Agricultural equipment**
3) Electronic equipment for aviation and navigation
4) Industrial automation and mechanical control
5) Elevators, escalators
6) Building automation
7) Medical instrument and equipment

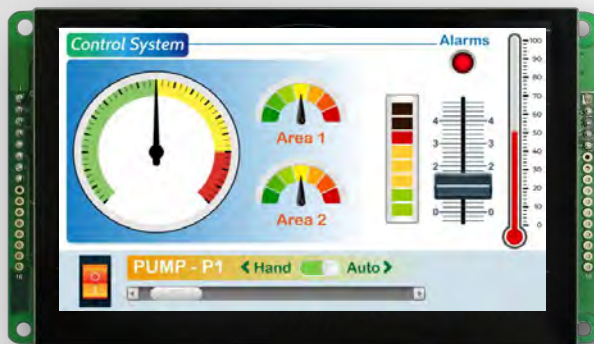# CanTFT Standard categories

Vehicle

Medical

Industry

Conclusion

Conclusion

- **Time to Market:** Winstar Smart Display CAN series product has coded firmware in internal flash. It can save your time coding. You only need to send commands to easily control. Reducing development time and cost, shortening time to market process.

- **Flexibility:** HOST can be multiple platforms, such as a desktop or a laptop computer (with USB2CAN Dongle), MCU(with CAN interface), Raspberry Pi(with PiCAN2).

- **Application coverage:** Winstar Smart Display CAN series is versatile product for multiple applications. The standard model are ready for 3 categories such as industry, medical and vehicle.

- **Multiple screen to choose:** Winstar Smart Display CAN series supports not only TFT panel, but also OLED/STN panel can be developed with system integrated solution.