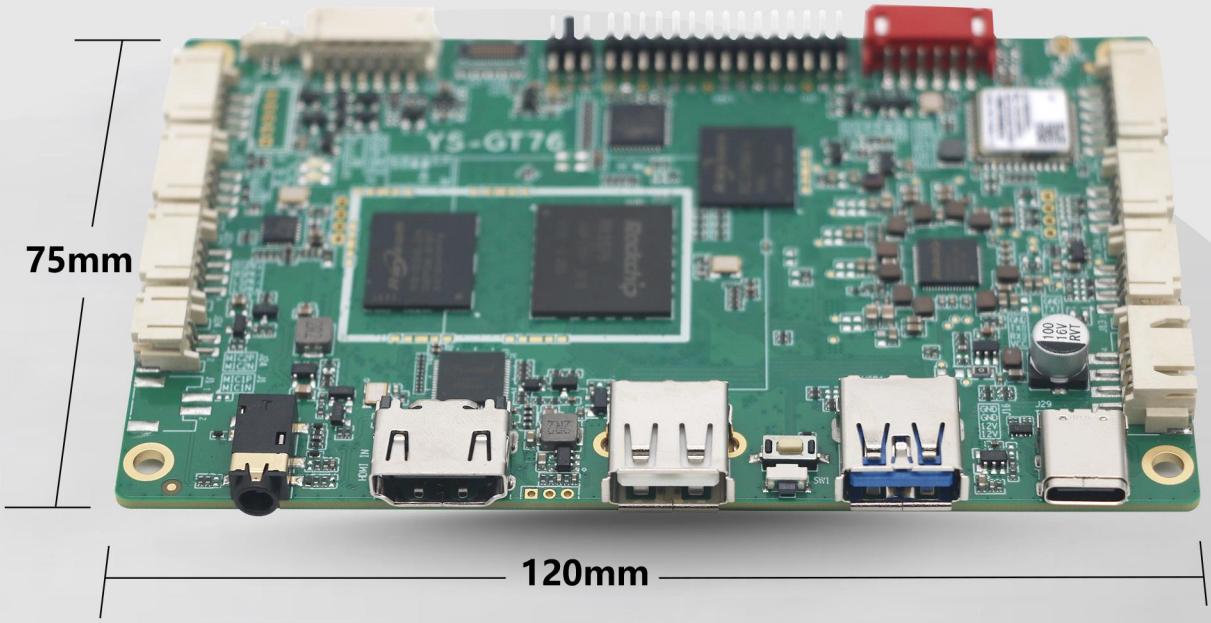
YISHENG ELECTRONICS

Specification

YS-GT576

AIoT Board



Shenzhen Yisheng Technology Co., Ltd

Contents

Declaration

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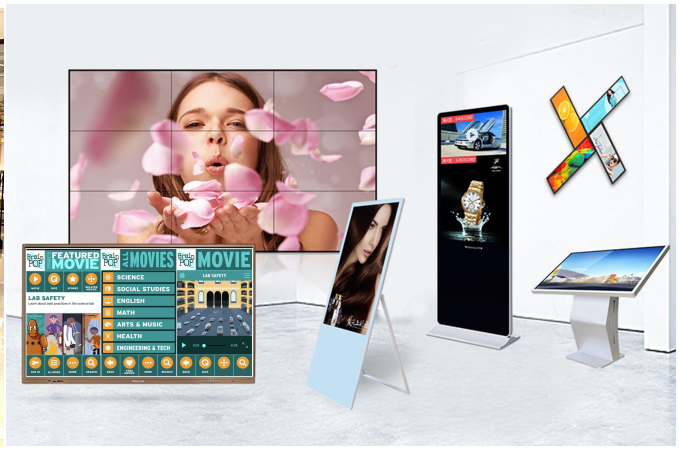
Revision History

Version	Date	Author	Approver	Description
V1.0	2024.10.23	Zhang Wenjuan	Li Quan	Initial version
V1.2	2024.11.6	Zhang Wenjuan	Li Quan	Change Bluetooth parameters

Chapter 1 Product Introduction

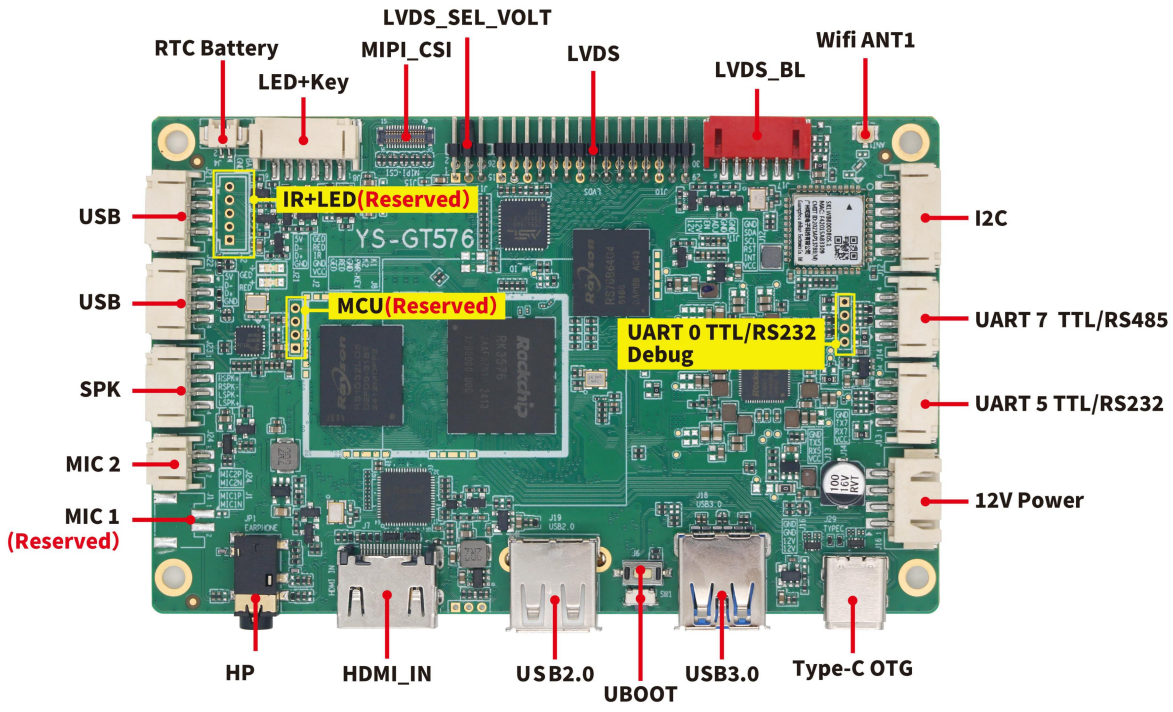
1.1 Overview



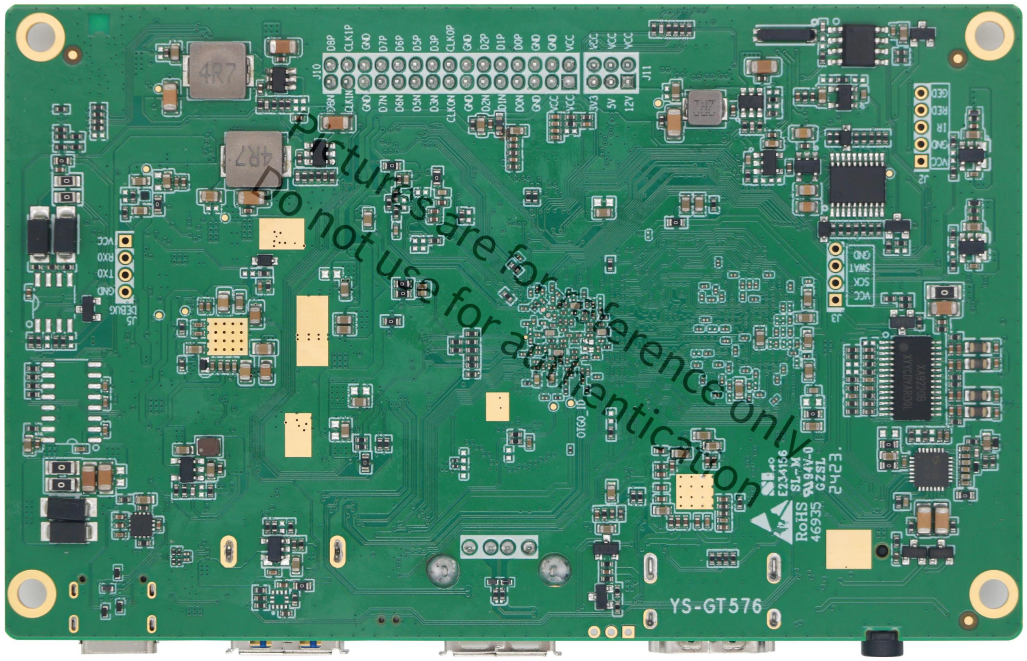
YS-GT576 is powered by Rockchip RK3576 chip, the CPU is quad-core cortex-A55 and quad-core cortex-A72, CUP frequency up to 2.2GHz, with rich peripheral interfaces, supporting LVDS, HDMI2.0 IN, GPIO, I2C, UART and so on. It can be widely used in AIoT devices.

1.2 Pictures and Dimensions

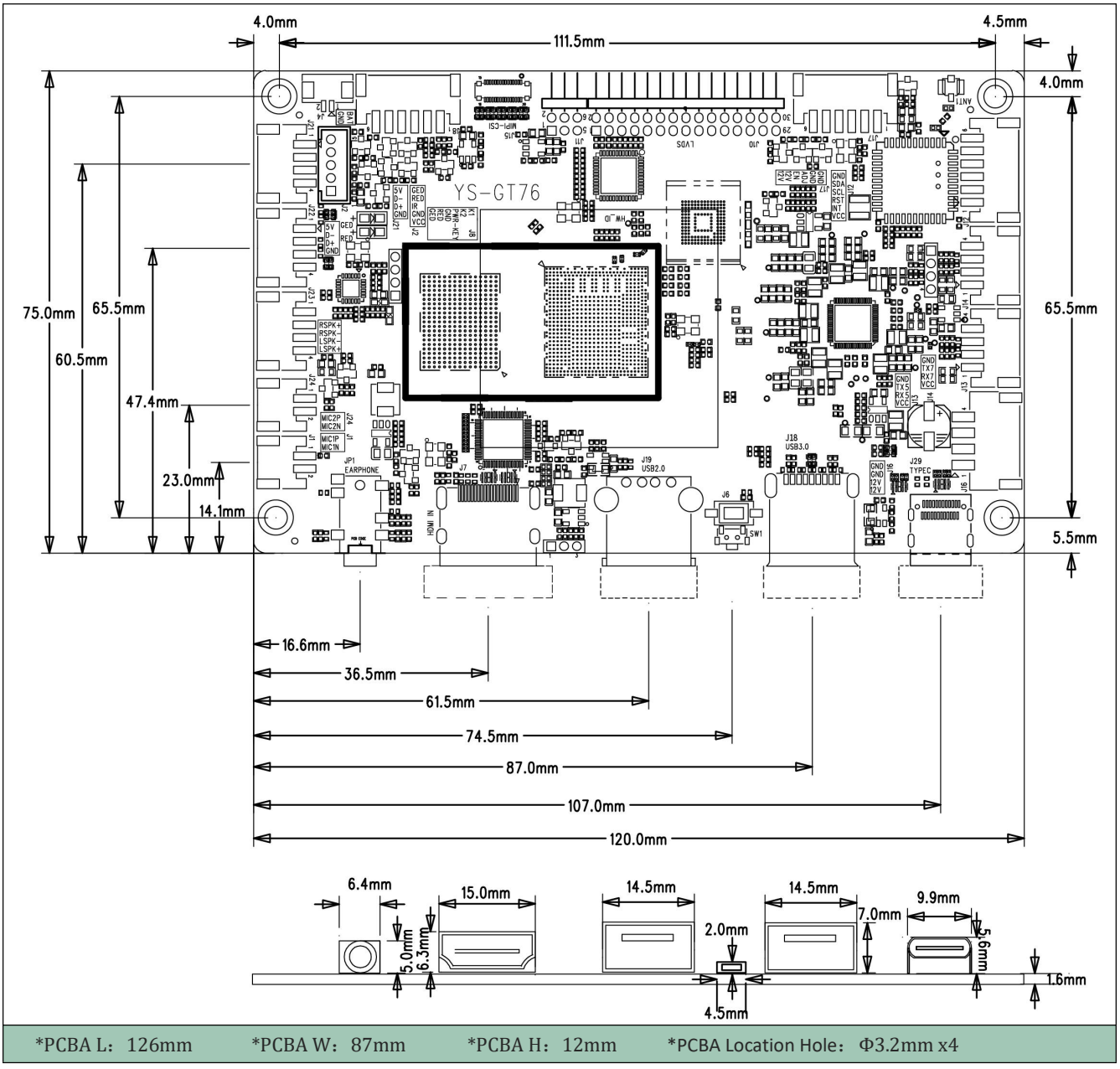
Top View



Bottom View



Dimensions



*PCBA L：126mm *PCBA W：87mm *PCBA H：12mm *PCBA Location Hole：Φ3.2mm x4

1.3 Product Detailed Parameters

Rockchips RK3576	Android 14.0	3*USB2.0 Host 1*USB3.0 Host 1*Type-C OTG	dual-band Wifi6 BT-5.4	LVDS Display Output HDMI Display Input MIPI_CSI

Detail Specification

SOC	Rockchip RK3576

CPU	Quad-core Cortex-A55 + Quad-core Cortex-A53 Max CPU frequency: 2.2GHz
GPU	Mali-G52MC3@1GHz OpenGLES1.1/2.0/3.2 OpenCL 2.0 Vulkan1.1 High performance dedicated 2D processor
NPU	6TOPS, support INT4/INT8/INT16/FP16/BF16/TF32 acceleration
OS	Android 14.0
Video CODEC	**Video Decoder** 8K@30fpsor4K120fpsH.265/H.264/AV1/VP9/AVS2 **Video Encoder** 4K@15fps MJPEG
ROM	4GB(8GB optional) DDR
Storage	64GB(64GB optional) eMMC
Display Output	1*LVDS(Up to 1920x1080)
Display Intput	1*HDMI2.0 IN(Up to 4K@30HZ)
Audio	1*SPK(L&R audio-out, up to 2*8Ω/5W speaker) 1*HP(CTIA) 2*MIC
Network	WIFI: Support Dual-band WiFi6 Bluetooth: 5.4
USB	1*Type-A USB2.0 (OTG or Host) 1*Type-A USB3.0 Host 3*USB2.0 Host
UART	3*TTL(1*TTL/RS485, 2*TTL/RS232, 1* Debug TTL/RS232)
Other	1*I2C

1.4 Configuration & General Precautions

1. Relative humidity ≤ 85%
2. Storage temperature: - 30 ℃ to+70 ℃
3. Operating temperature: - 15 ℃ to+60 ℃
4. During the assembly of the whole machine, please do not operate the wiring with power to avoid short circuit between bare board and peripheral equipment.
5. Pay attention to the anti-static treatment during the assembly and transportation of the whole machine, and it is necessary to wear electrostatic protection tools such as electrostatic bracelet (sleeve).
6. When assembling the whole machine, it can be installed at the bottom or side, but do not deform or twist the board, and do not bear heavy pressure.

7. Proper distance shall be reserved at the wiring position of each terminal to avoid squeezing the terminal during installation.
8. The connecting line between this board and the supporting module board should not be too long, otherwise it may affect the image quality.
9. The internal wiring of the whole machine shall be reasonable, and the connecting wires shall not pass through the PCB board directly as far as possible.
10. In order to achieve better EMC effect for the whole machine, it is recommended that the screen wire between the main board and the screen should be shielded wire.
11. The specifications of the peripherals connected to the installation shall be confirmed with our company, including but not limited to: voltage limit, current limit, timing, power domain, etc.

Chapter 2 Interface Pin Name

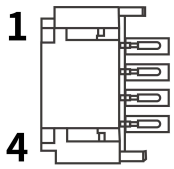
J1(2PIN/2.0mm) MIC2 interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	MIC2P	MIC positive
	2	MIC2N	MIC negative

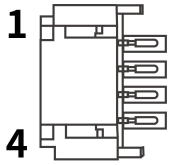
J24(2PIN/2.0mm) MIC1 interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	MIC1P	MIC positive
	2	MIC1N	MIC negative

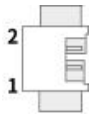
J23(4PIN/2.0mm) SPK interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	RSPK+	Right channel+
	2	RSPK-	Right channel-
	3	LSPK-	Left channel-
	4	LSPK+	Left Channel+

J22、J21(4PIN/2.0mm) Internal USB interface(Horizontal connector)

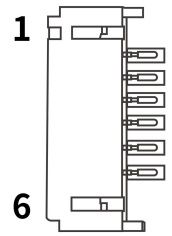
Exterior	Pin	Definition	Description
	1	+5V	PWR
	2	D-	DM
	3	D+	DP
	4	GND	Ground

J4(2PIN/1.25mm) RTC Battery interface(Horizontal connector)

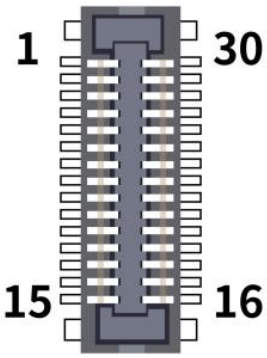
Exterior	Pin	Definition	Description
	1	BAT+	Battery positive
	2	GND	Battery negative

J8(6PIN/2.0mm) Key interface(Horizontal connector)

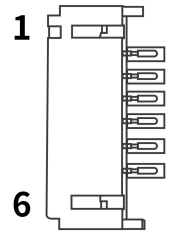
Exterior	Pin	Definition	Description

	1	K1	Key1(Reserved)
	2	K2	Key2(Reserved)
	3	PWR	On/Off
	4	GND	Ground
	5	RED	Red indicator
	6	GED	Green indicator

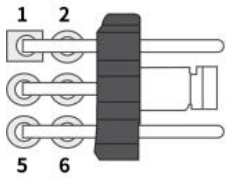
J15(30PIN/0.4mm) MIPI-CSI interface (BTB connector socket)

Exterior	Pin	Definition	Description
	1	GND	Ground
	2	MIPI_MCLK	MIPI signal
	3	GND	Ground
	4	GIF_PDN1	GIF_PDN1
	5	MIPI_RST	Reset
	6	SDA	IIC data
	7	SCL	IIC clock
	8	GND	Ground
	9	VCC_DVP	2.8V PWR
	10	GND	Ground
	11	VCC	2.8V PWR
	12	GND	Ground
	13	VCC	1.8V PWR
	14	VCC	1.8V PWR
	15	GND	Ground
	16	GND	Ground
	17	MIPI_DON	MIPI signal
	18	MIPI_DOP	MIPI signal
	19	GND	Ground
	20	MIPI_D1N	MIPI signal
	21	MIPI_D1P	MIPI signal
	22	GND	Ground
	23	MIPI_CLKN	MIPI signal
	24	MIPI_CLKP	MIPI signal
	25	GND	Ground
	26	MIPI_D2N	MIPI signal
	27	MIPI_D2P	MIPI signal
	28	GND	Ground
	29	MIPI_D3N	MIPI signal
	30	MIPI_D3P	MIPI signal

J17(6PIN/2.0mm) Backlight interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	GND	Ground
	2	GND	Ground
	3	ADJ	Backlight brightness adjustment
	4	EN	Backlight on/off
	5	+12V	Backlight power
	6	+12V	Backlight power

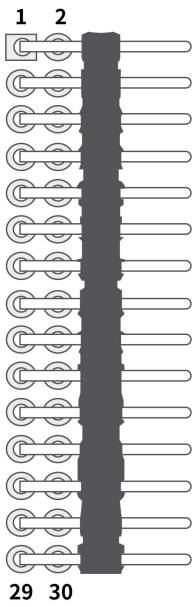
J11(6PIN/2.0) LVDS Screen Voltage interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	12V	12V PWR
	2	VCC_LCD	Screen voltage port
	3	5V	5V PWR
	4	VCC_LCD	Screen voltage port
	5	3.3V	3.3V PWR
	6	VCC_LCD	Screen voltage port

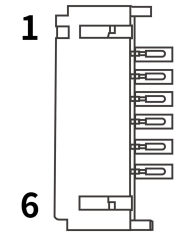
Note: The LVDS screen uses a jumper cap to select the screen power supply. Connect 3.3V to VCC_LCD, then the screen voltage is 3.3V.

J10(30PIN/2.0) LVDS interface(Horizontal connector)

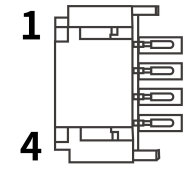
Exterior	Pin	Definition	Description
	1	PWR	PWR
	2	PWR	PWR
	3	PWR	PWR
	4	GND	Ground
	5	GND	Ground
	6	GND	Ground
	7	DON	LVDS signal
	8	DOP	LVDS signal
	9	D1N	LVDS signal
	10	D1P	LVDS signal
	11	D2N	LVDS signal
	12	D2P	LVDS signal
	13	GND	Ground

	14	GND	Ground
	15	CLKON	LVDS signal
	16	CLKOP	LVDS signal
	17	D3N	LVDS signal
	18	D3P	LVDS signal
	19	D5N	LVDS signal
	20	D5P	LVDS signal
	21	D6N	LVDS signal
	22	D6P	LVDS signal
	23	D7N	LVDS signal
	24	D7P	LVDS signal
	25	GND	Ground
	26	GND	Ground
	27	CLK1N	LVDS signal
	28	CLK1P	LVDS signal
	29	D8N	LVDS signal
	30	D8P	LVDS signal

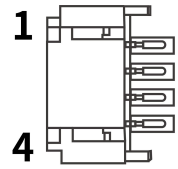
J12(6PIN/2.0) IIC interface(Horizontal connector) (Power domain 3.3V)

Exterior	Pin	Definition	Description
	1	VCC	3.3V PWR
	2	INT	Interrupt data
	3	RST	Reset
	4	SCL	12C clock
	5	SDA	12C data
	6	GND	Ground

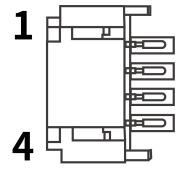
J14(4PIN/2.0) UART7 interface(Horizontal connector) (Default TTL, power domain 5V, RS485 optional)

Exterior	Pin	Definition	Description
	1	VCC	5V PWR (3.3V optional)
	2	RX7/RS485B	Receive7/RS485 signal B
	3	TX7/RS485A	Transmit7/RS485 signal A
	4	GND	Ground

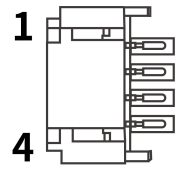
J13(4PIN/2.0) UART2 interface(Horizontal connector) (Default TTL, power domain 5V, RS232 optional)

Exterior	Pin	Definition	Description
	1	VCC	5V PWR (3.3V optional)
	2	RX2	Receive2
	3	TX2	Transmit2
	4	GND	Ground

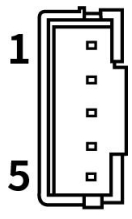
J7(4PIN/2.0) Debug UART0 interface(Horizontal connector) (Default TTL, power domain 3V, RS232 optional)

Exterior	Pin	Definition	Description
	1	VCC	3.3V PWR (5V optional)
	2	RX0	Receive0
	3	TX0	Transmit0
	4	GND	Ground

J16(4PIN/2.54) PWR IN interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	12V	12V PWR
	2	12V	12V PWR
	3	GND	Ground
	4	GND	Ground

J2(5PIN/2.0) Remote Control interface(Horizontal connector)

Exterior	Pin	Definition	Description
	1	VCC	+5V PWR
	2	GND	Ground
	3	IR	Remote Control
	4	RED	Red indicator
	5	GED	Green indicator

Chapter 3 Electrical Characteristics

◆ Standard Operating Conditions

Type		Min	Typ	Max
Standard Power Parameters	Vcc	11V	12V	13.5V
	Ripple	/	/	±3%
	Current	2A	3A	/

◆ Power Consumption

Type		Min	Typ	Max
Power Supply Current (with no display connected)	Operation Current	/	180mA	250mA
	Stand by Current	/	10mA	30mA
	Battery Operation Current	/	0.0024mA	/

◆ USB Power Supply

Type	Voltage	Typical Current	Max Current
USB_OTG	5V	500mA	1.5A
USB_HOST	5V	500mA	1.5A

Note: It is recommended that the total current of USB peripheral should not exceed 3000 mA,otherwise the machine will be unable to operate normally.

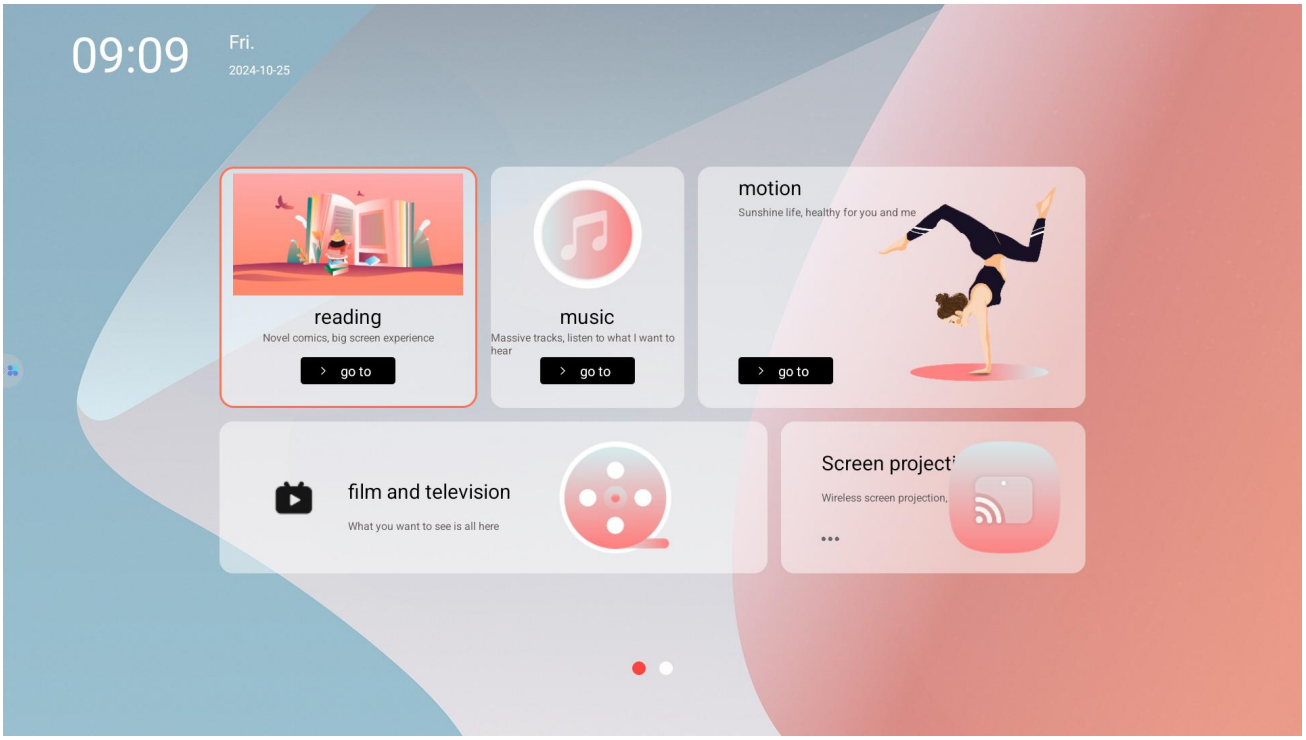
◆ Other

Type	Rated Current	Max Current	Max Current
EXT 5V	/	3000mA	
EXT 3.3V	/	3000mA	
MIPI_DSI_BL	150mA	/	

Chapter 4 System Instruction

4.1 Android System Interface Description

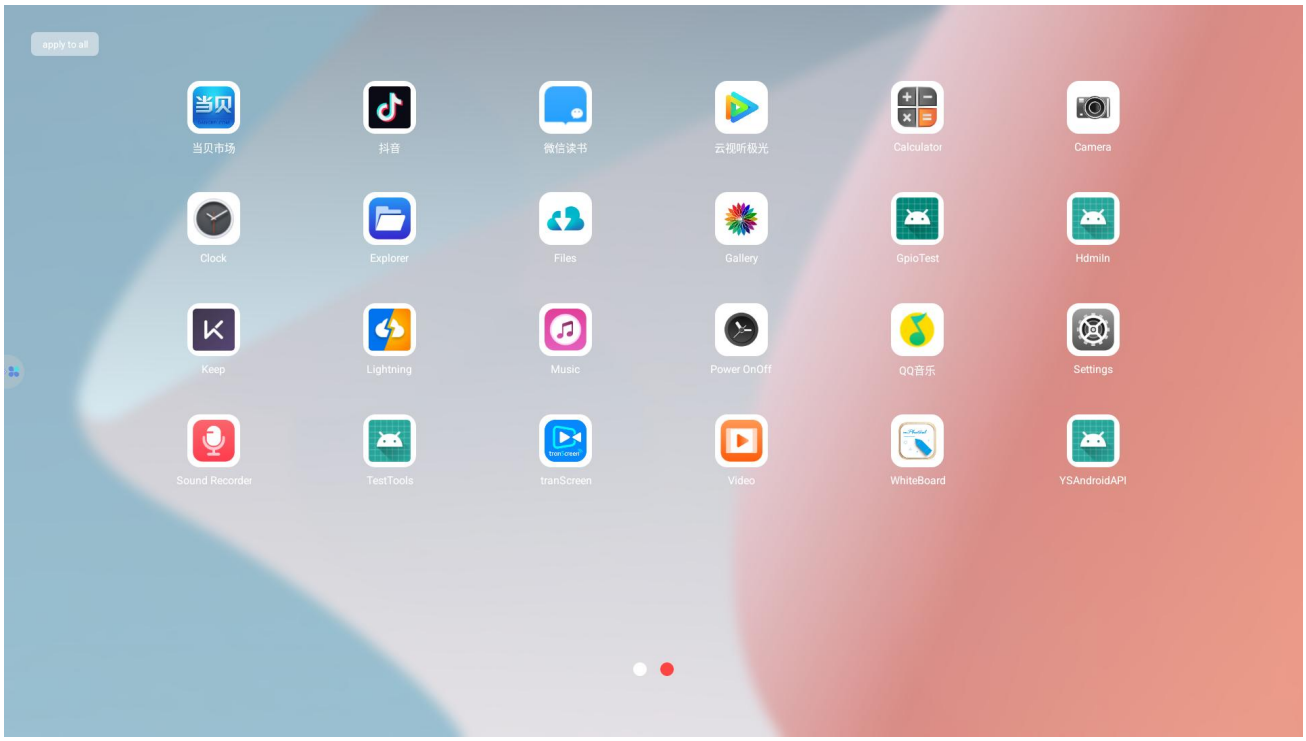
The main menu interface of Android system is divided into five categories: Read, Music, Sports and Projection Screen.



Homepage

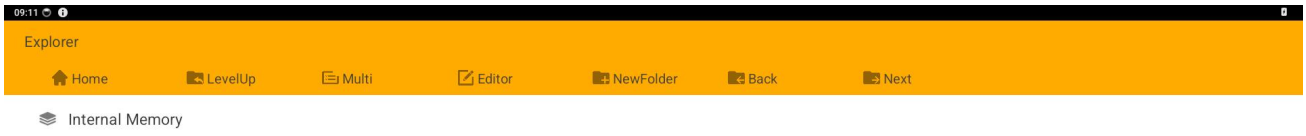
（1）Applications interface

The Applications interface includes: Whiteboard, Power on/off, TikTok, Settings, Gallery, Camera, QQ Music, Explorer, Browser, etc.



Applications Interface

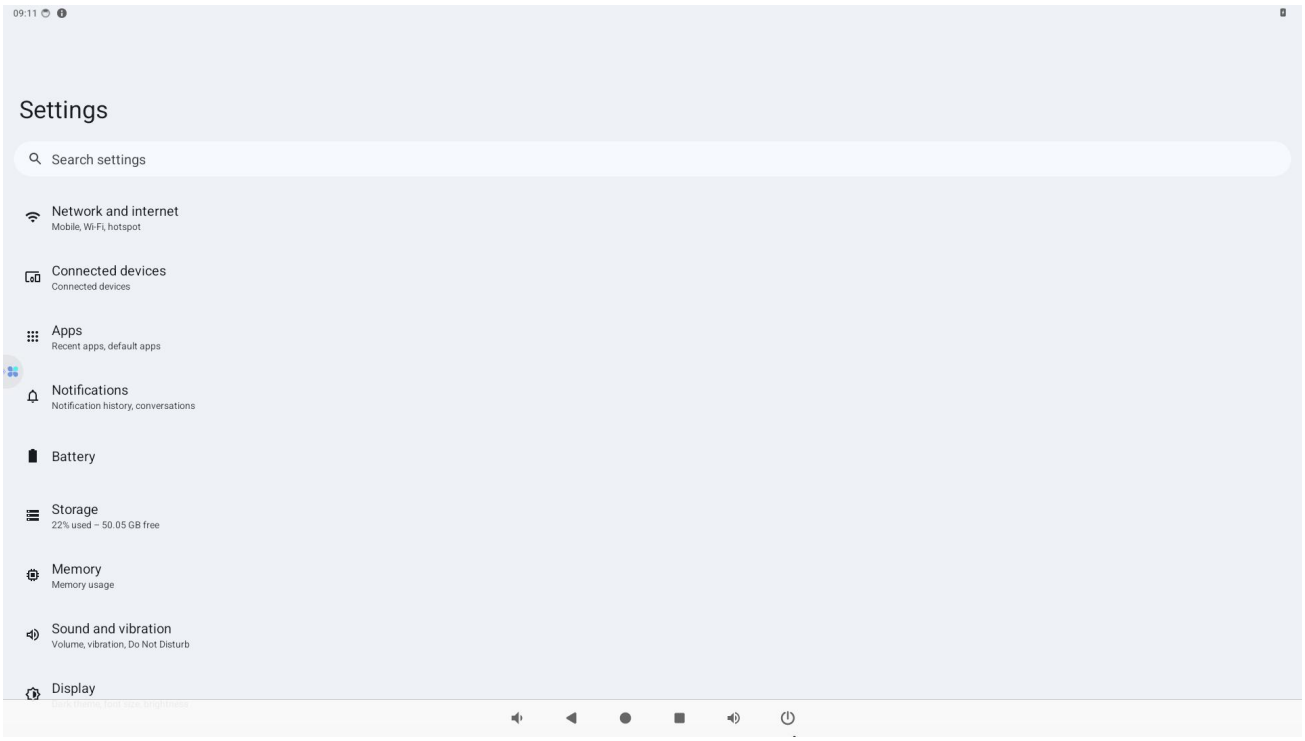
（2）FileManager interface



FileManager Interface

（3）Settings interface

It supports the settings of wireless network and device display sound, and can also view the program applications installed on the device, storage memory, etc.

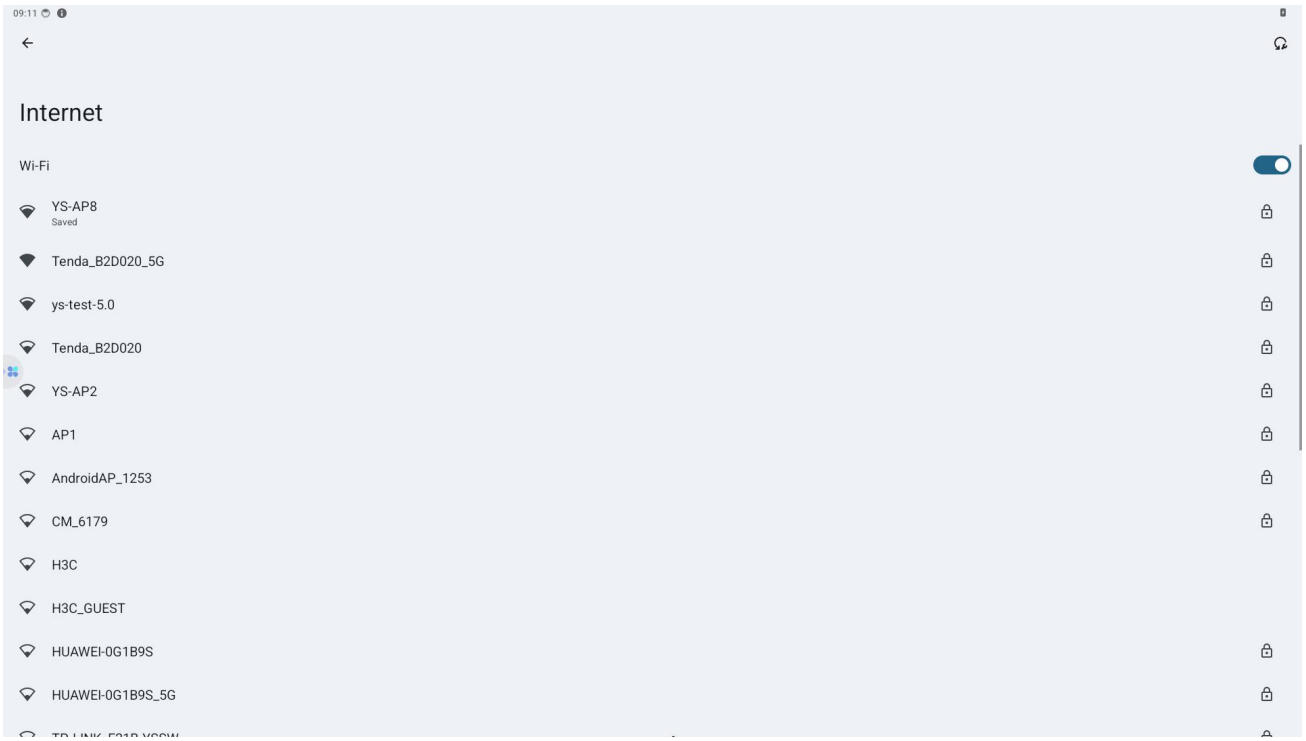


Settings Interface

4.2 Network Connection Explanation

（1）WIFI Signal Connection

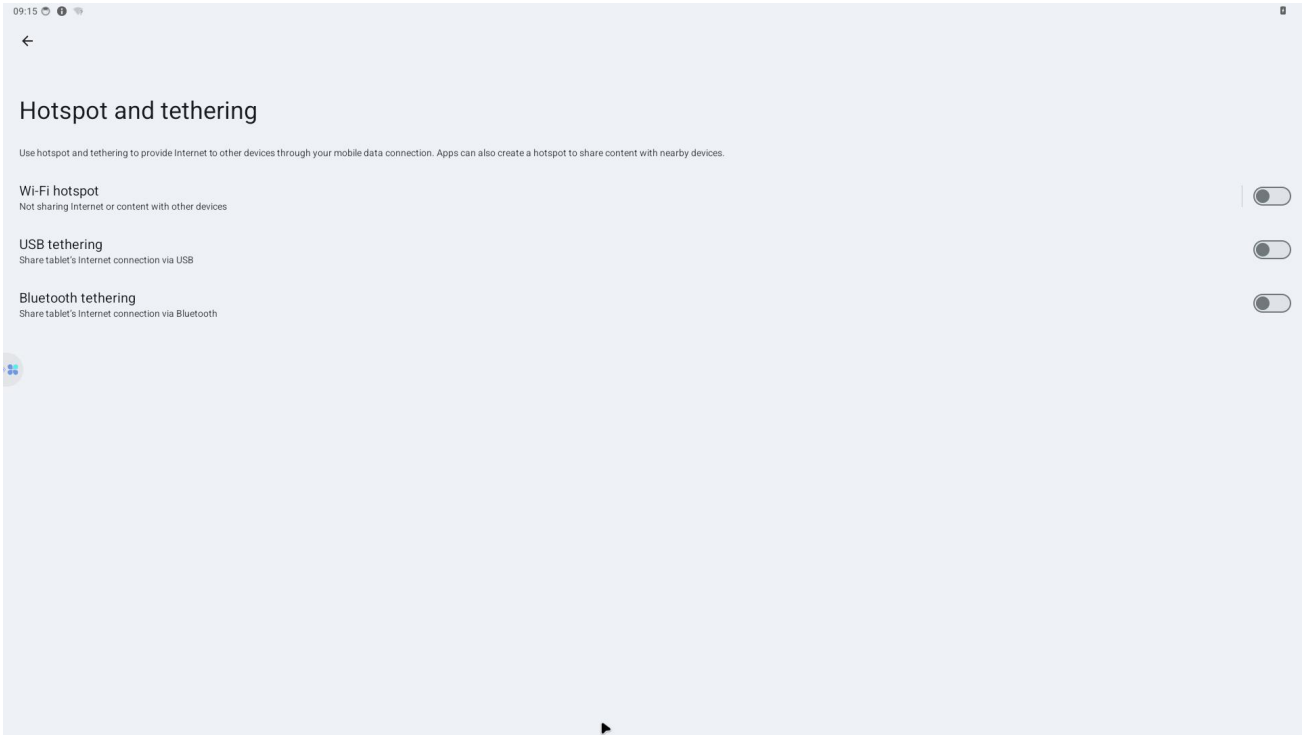
Enter the ‘Settings>Internet>WiFi’ interface to turn on the WiFi switch, as shown below, select the WiFi signal that needs to be connected, and enter the corresponding password, you can successfully connect.



WIFI Setting Interface

（2）WiFi Hotspot Connection

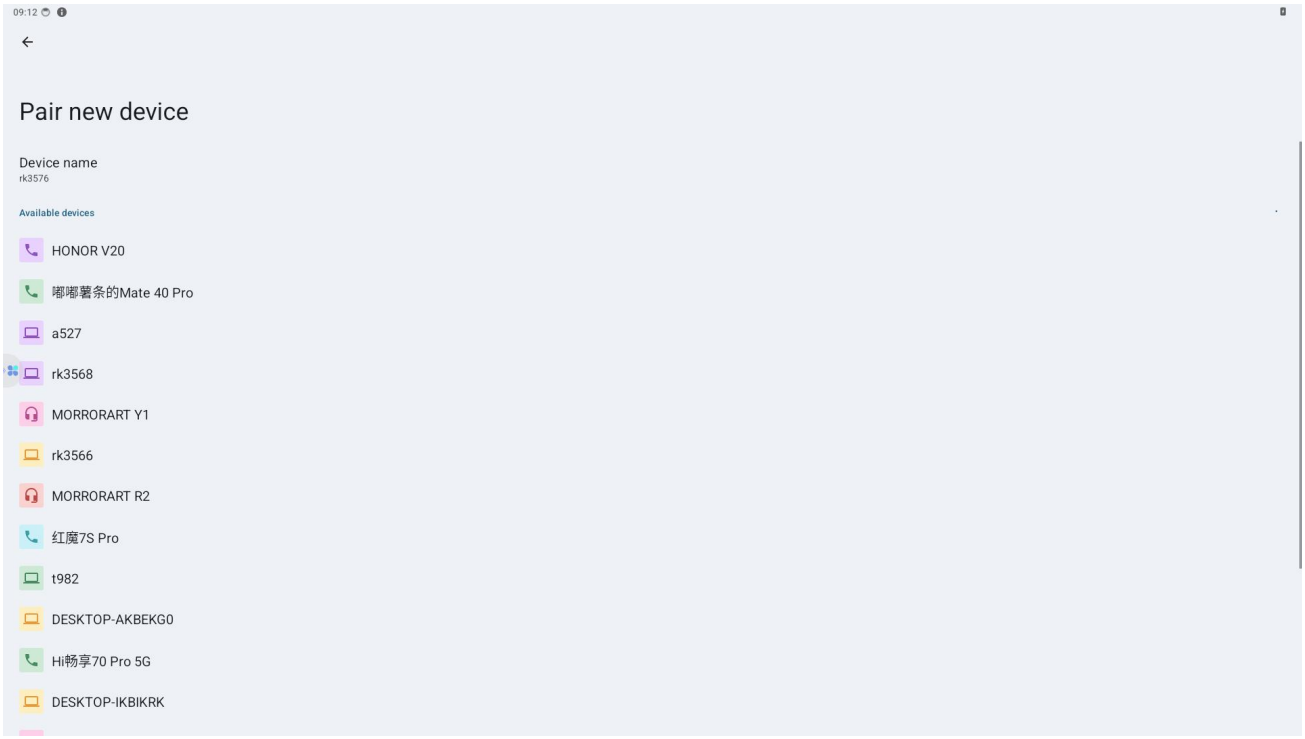
As shown in the following figure, in the “Settings” interface, turn on the “WIFI hotspot” function, enter the interface shown in the figure below, you can send WiFi signals, and the device can successfully connect to the hotspot by entering the password.



WIFI Hotspot connection interface

（3）Bluetooth Signal Connection

In the “Settings > Connected devices > Pair new device” interface, you can search for Bluetooth devices, as shown in the figure below, find the Bluetooth device that needs to be paired and click pairing.



Bluetooth Setting Interface

NOTICE：

- THE USE OF THE WIRELESS NETWORK MUST BE CONNECTED TO THE WIFI ANTENNA AT THE WIFI ANTENNA HOLDER
- THE AVAILABILITY AND COVERAGE OF WIFI SIGNALS DEPENDS ON THE NUMBER OF SIGNALS, ANTENNA PERFORMANCE AND EXTERNAL ENVIRONMENT.
- THE ETHERNET MAC ADDRESS IS THE ONLY PERMANENT AND VALID DEVICE ID FOR THIS SYSTEM.

THE NETWORK PRIORITY ORDER FOR ALL ANDROID DEVICES IS:

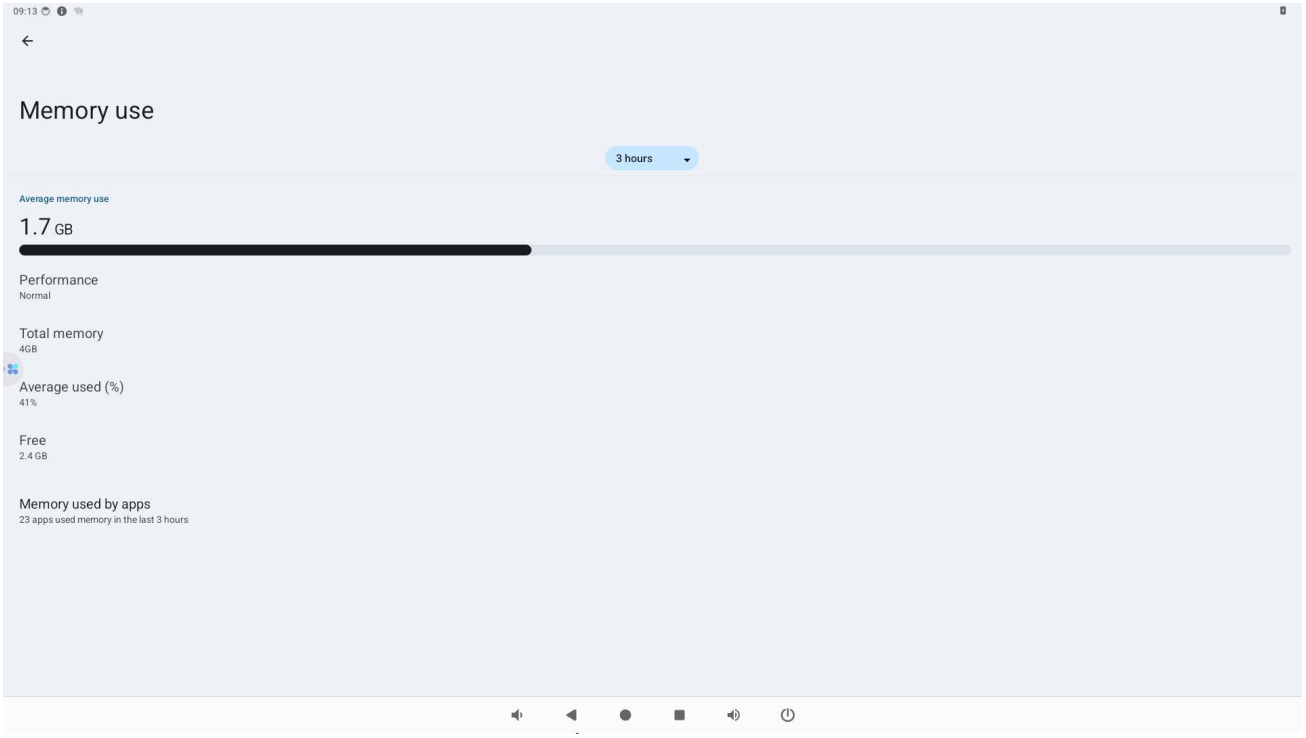
1. ETH Ethernet network
2. WIFI wireless network
3. 3G/4G/5G mobile network

4.3 Viewing Storage and Memory

In Settings, select "Storage" to enter the following interface, where the storage information of the storage space will be displayed. The display of 14GB capacity is the remaining available storage capacity of the board, and the display of "Total used 64GB" is the total storage capacity of the hardware.

Viewing Storage Interface

In the Settings, select "Memory" to enter the interface below to display the internal storage information. The display of 1.7GB is the amount of memory already used by the board.

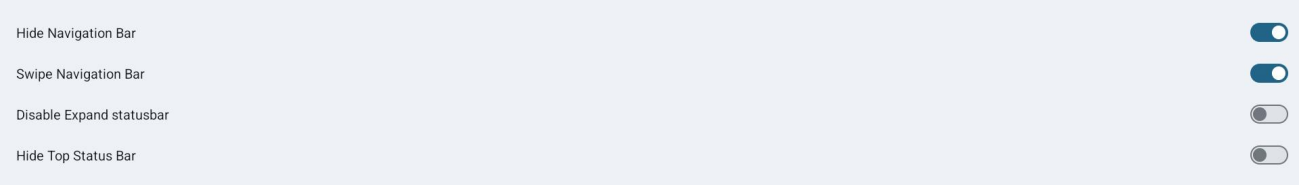


View Memory Interface

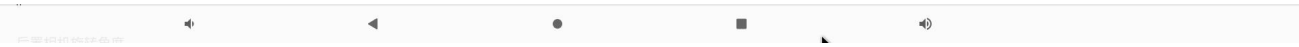
4.4 Setting the Notification Bar and Navigation Bar

In the Settings, select "Display", check "Hide Navigation Bar", and the navigation bar will be hidden; Check "Swipe

Navigation Bar", and the navigation bar can be slid out by sliding the mouse up from the bottom, the navigation bar will disappear 5 seconds after no operation. If “Disable Expand statusbar” is checked, expand status bar can’t be pulled down; Check "Hide Top Status Bar" to hide the top status bar showing time and other status at the top of the interface. After hiding the status bar, the notification bar will not be pulled down by default.



Notification Bar and Navigation Bar Interface



Navigation Bar Interface

NOTE：

"Hide navigation bar" must be selected before "Swipe Navigation Bar" is selected;

When hide top statusbar is selected, expand statusbar is also forced to be hidden by default.

Chapter 5 Contact Us

Contact Information:

Tel: 0755-27383670

Email: lisiping@yishengtc.com

Operation Website:

Web: www.yishengtec.cn/en

Office Address:

Shenzhen Headquarters: 6/F, R&D Center, Lixinhu High-tech Industrial Park, Bao'an District, Shenzhen

Guangzhou Branch: Room 318, Jiangrun Building, No. 565, Xingnan Avenue, Panyu District, Guangzhou

Looking forward to working with you, thank you