佐臻股份有限公司

MetaSpace

See The Future - 創新未來 · 眼見微屏

JORJIN Sensor Product Application and Trend

2024/10/30

ABOUT

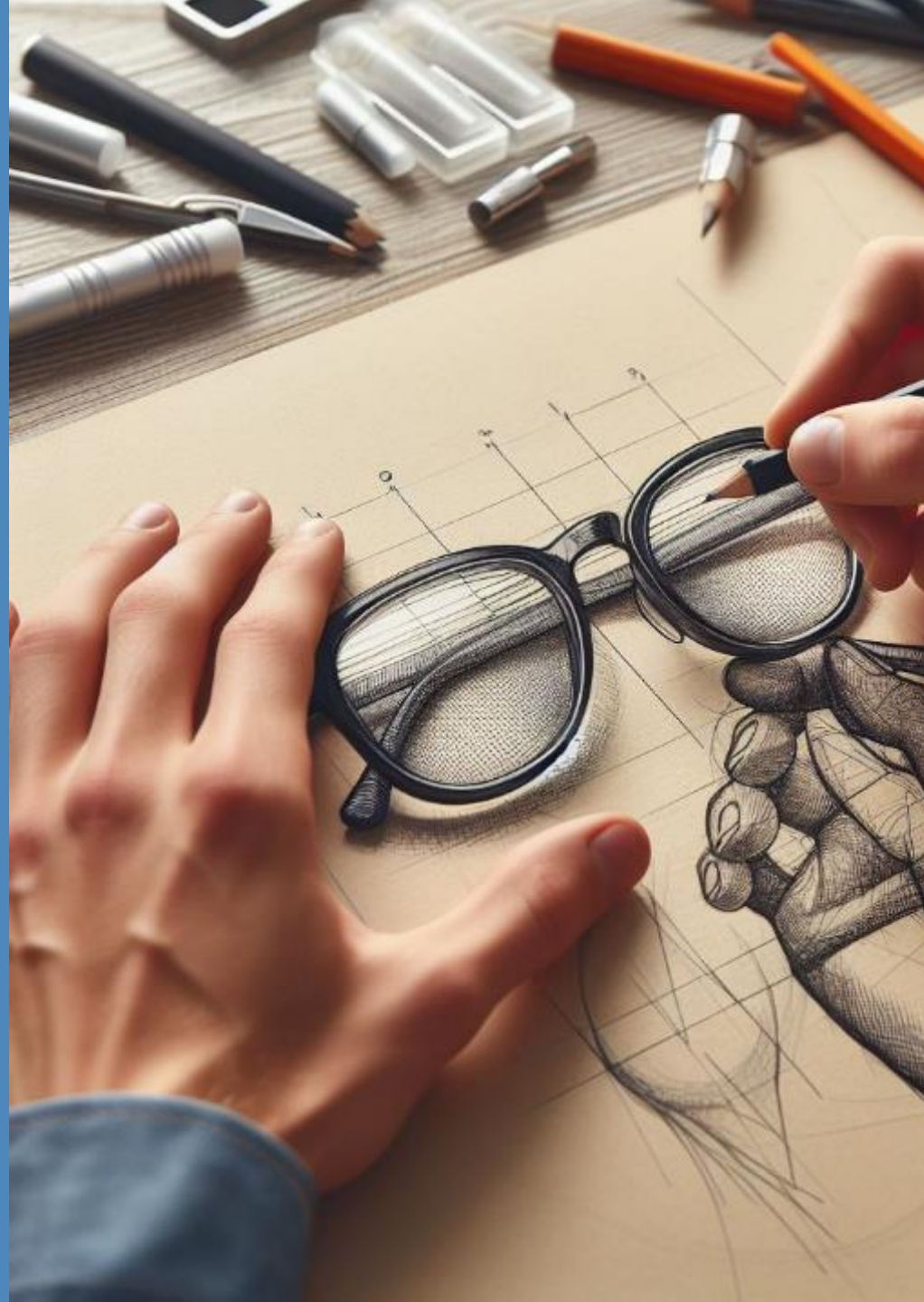
JORJIN 佐臻股份有限公司

JORJIN began as a manufacturer of SoM (system-on modules) and SiP (system-in-package) products, eventually to become the largest supplier in the global market. As a logical next step, given the unstoppable trend of wearables and IoT concepts in the near future, Jorjin has put its experience accumulated over 20 years regarding wireless, central processing, imagery and sensory equipment behind this wave, to provide smart glasses and IoT solutions.

Founded in 1997

The goal is to help individuals and businesses create digital competitiveness, innovate new business values,

and pursue ESG sustainable development.



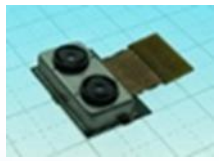
MetaSpace

MISSION

People-oriented XR digital science and technology research and development as the goal, and practice environmental sustainable application innovation service as the purpose.

Value Proposition

Specialized in miniaturization of electronic circuits **Wireless Connectivity**, **AP(SiPs, SOMs,...)**, **AR light Engine, 3D sensing, 60 / 77 GHz mmWave Radar**
to provide advanced smart **AR/MR Glasses** and **humanized HCI**,
The system platform of **XR MetaSpace**, assisting enterprises to create digital competitiveness。





Designed by Jorjin

Applications & Cloud Service

Modularization

- Provide the miniaturization of SiP/SoM modules
- Design and manufacture the **Wireless, 3D Sensing, AP, Cameras, 60GHz mmWave & Optical modules**

Intelligent AR Glasses

- Have experienced in HW/ FW/ ME/ SW design/Manufacture Service for **AR/MR Glasses**
- Provide the tailor-made total solutions to fulfil customers' requirements and demands for customization

XR MetaSpace Ecosystem

- Collaborate with global partners to build **XR Device/MetaSpace** platform Applications & Service

JORJIN TIMELINE

1997

Start

Founded started with component

2007 - 2011

Wireless Connectivity Modules

WG73xx for Amazon Kindle Fire and Nook from Barnes and Nobles

2013 - 2017

AR/MR Glasses

Smart Glasses ODM Reference design

2017 - 2021

J7EF series

J7EF Gaze Powerful Eye Tracking Solution

mmWave Solution

2023

XR MetaSpace Platform

J7i/J7M

Varjo XR HMD

MetaSpace M3

mmWave Solution

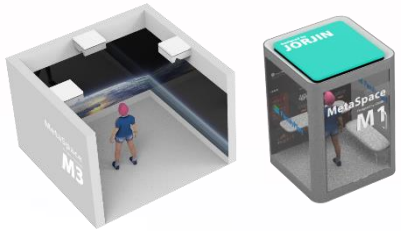
2024

J8L AR Glasses

MetaSpace M1

mmWave Solution

MetaSpace



mmWave Radar 毫米波雷達

By sensing the movement of personnel in a space, the system can establish virtual boundaries in the area. It also supports the integration of multiple radars, making it suitable for industrial safety, multimedia interaction, medical care, and other applications.

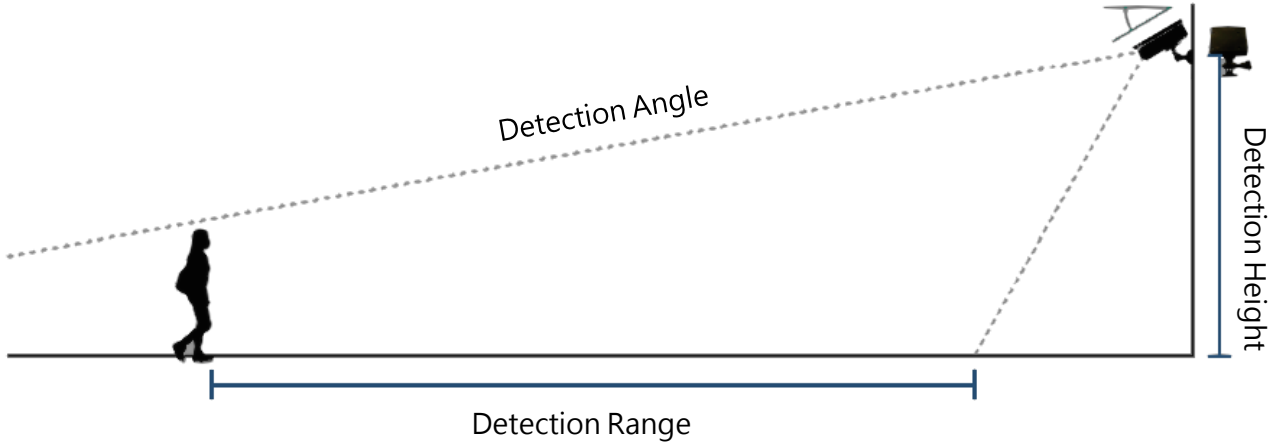
System Features

- High Penetration Rate
- Continuous Protection
- Privacy Protection
- Wearable-Free
- Real-time Notification

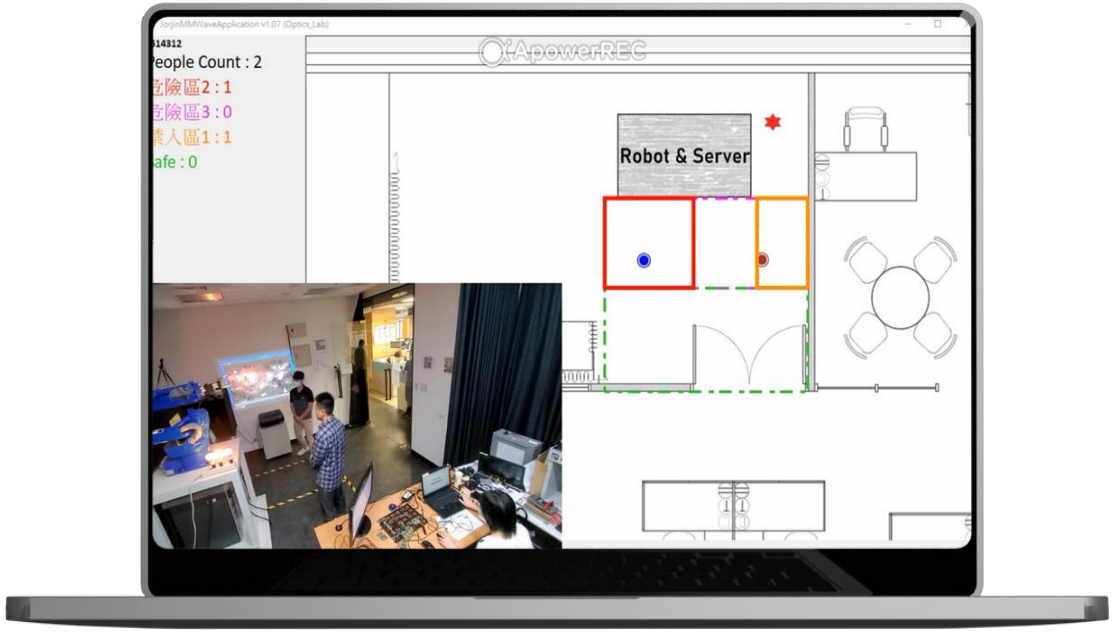
Non-contact Sensors Comparison	Infrared Radar	mmWave Radar	Camera
Detection Range	X	O	O
Detection Angle	X	O	O
Nighttime Detection Quality	O	O	X
Environmental Limitations	X	O	X
Privacy Protection	O	O	X

Minimal environmental impact, high sensitivity, high precision, and strong anti-interference capability.

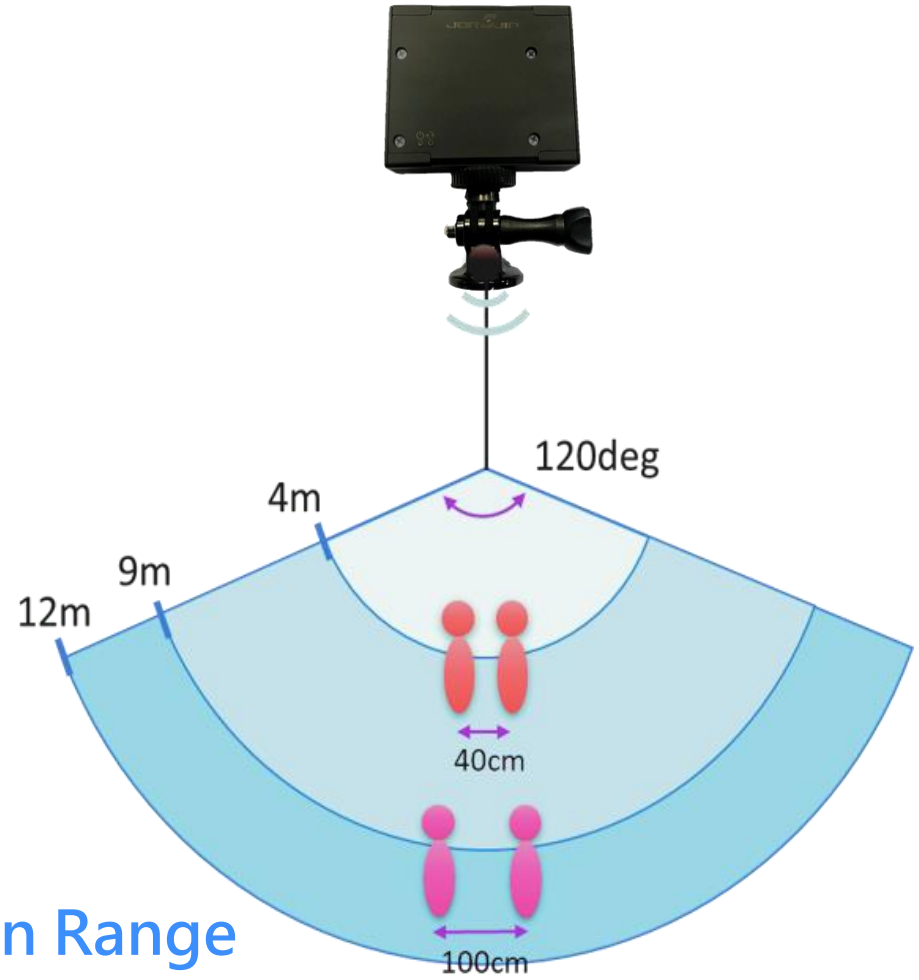
Comparison of Tracking Systems	wwave Radar	Camera
Detection Range	10m	4m
Detection Angle	H:120°, V:30°	H:150°, V:90°
Detection Height	2m	2m
Number of Devices	≧20	8
Obstruction Impact	Low	High
Data Storage	Low	High
Computational Power	Low	High
Power Consumption	Low	High



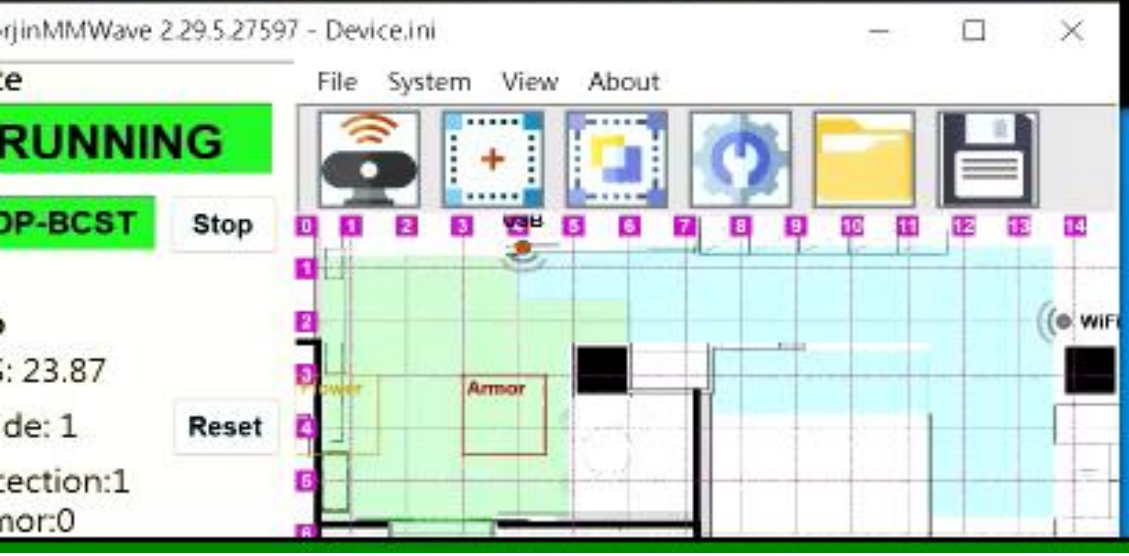
System Interface



Detection Range

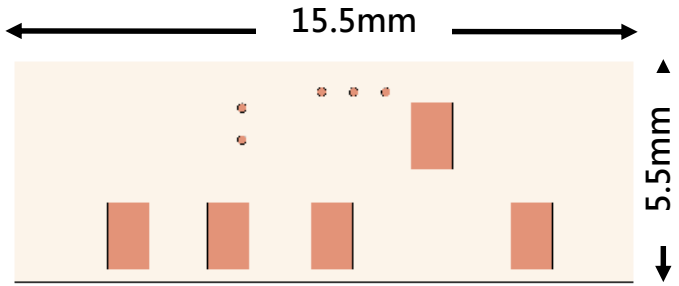



JORJIN
People Count: 1
Pick up!


rjinMMWave 2.29.5.27597 - Device.ini
File
System
View
About
RUNNING
Stop
Reset
Armor

Existing Module (MT5C01-00) Sample: Apr’ 23

New Module (MT5C01-02R1) Sample: Nov’ 23



Module	Range @ 0^0	Range @ 75^0	Power Consumption
MT5C01-02R1 – Range Optimized Configuration & Low Power	15m	10m	2mW
MT5C01-00 – Range Optimized Configuration & Low Power	20m	10.7m*	6.2mW

Benefits & Target of MT5C01-02R1

- Smallest Form Factor
- Lower Power Consumption
- FOV Boresight/Edges Optimized
- Lowest Cost Industrial Radar Sensor

* More range achievable at higher powers

Module Designs

IoT mmWave Radar Module Portfolio

Texas Instruments

Future

Pin-2-Pin Compatible

MT5C01-03
(TI IWRL6432AOP)
- 60GHz, 2Tx/3Rx
- FOV, horizontal 140°/vertical 120°
- Max. Detect Range 20M
- 15.5 x 7 x 2.1 mm
- Sample 2Q24
- RTM 4Q24

MT5C01-02R1
(TI IWRL6432 WCSP)
- 60GHz, 2Tx/3Rx
- FOV, horizontal 150°/vertical 120°
- Max. Detect Range 20M
- 15.5 x 5.5 x 1.8 mm
- Sample 4Q24
- RTM 1Q25

- Smallest Form Factor
- Lower Power Consumption
- FOV Boresight/Edges Optimized
- Lowest Cost Industrial Radar Sensor Module

Released

MT5B9S-01 (TI IWR6843)
- 60GHz, 3Tx/4Rx
- FOV, horizontal 120°/vertical 30°
- Max. Detect Range 40M
- 52 x 34 x 7.5 mm

Use Application

TV

- Human presence detection 6m-8m and avoiding non-human objects
- Data analytics
- Energy savings with turning TV OFF while no one watching

HVAC

- Human presence detection
- Tracking for air flow direction control
- AC OFF when no one is there.

Motion Sensor

- Occupancy Detection
- Human fall detection
- Human position sensing (Stand, Sit, Fall)
- Light & Air conditioning control

Robotic Lawn Mowers

- Presence & motion detection
- Small obstacle detection

Surveillance

- Home surveillance
- Presence & motion detection
- 15m+ detection range

Level Sensing

- Occupancy Detection
- Low power level sensing solution
- Rosemount Tank Level Gaging (RTR)
- Measures liquid and solid levels at 10m+

Parking Barriers

- Presence detection and avoiding false detection
- Object detection out to 10 m

Elderly Care

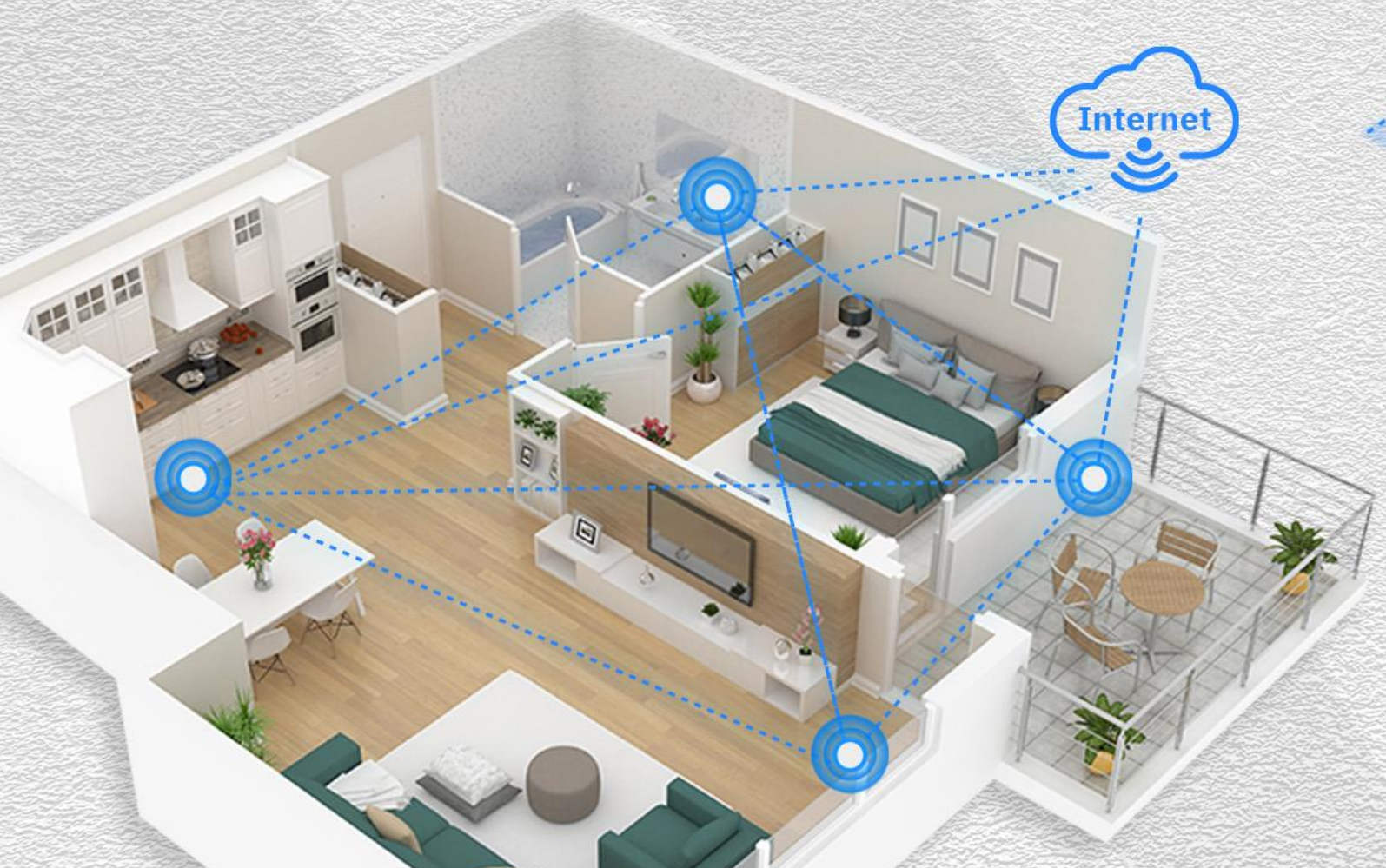
- Fall detection
- Human presence with 5m+ detection range

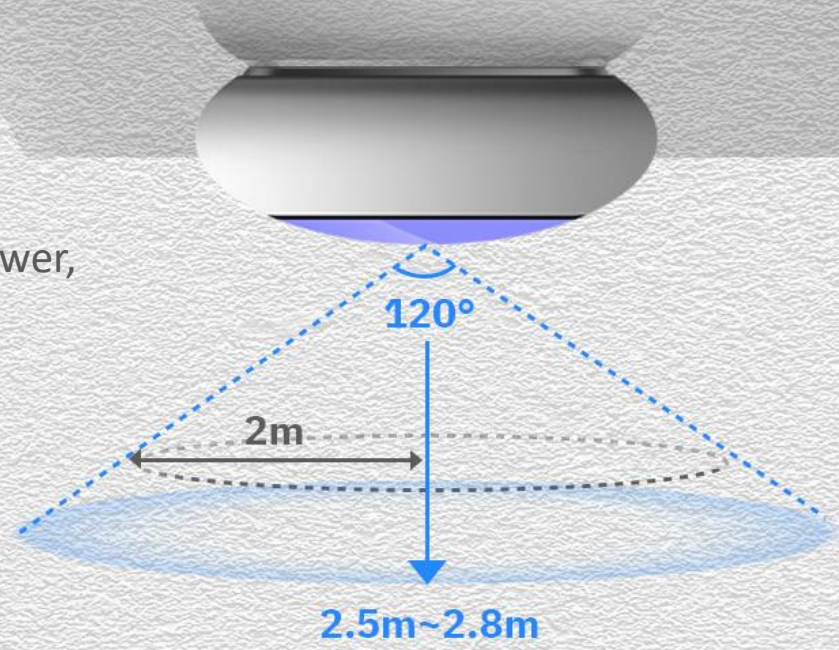
Doors and Gates

- Sliding Commercial Doors
- Human presence detection and avoiding non-human object

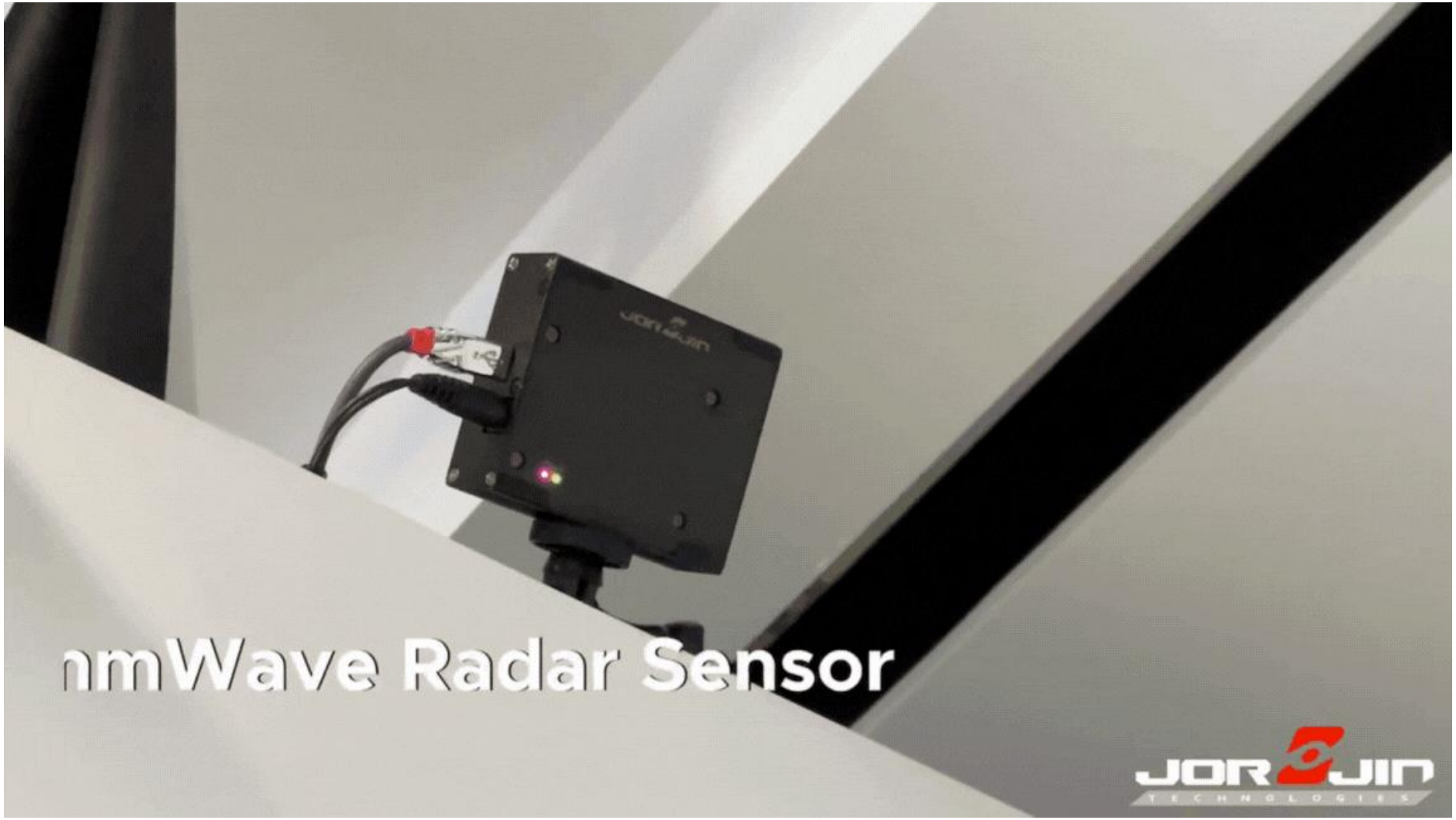
JORJIN Presence Sensor

User Behavior Analysis with 60GHz Low-Power,
Low-cost Radar Sensors

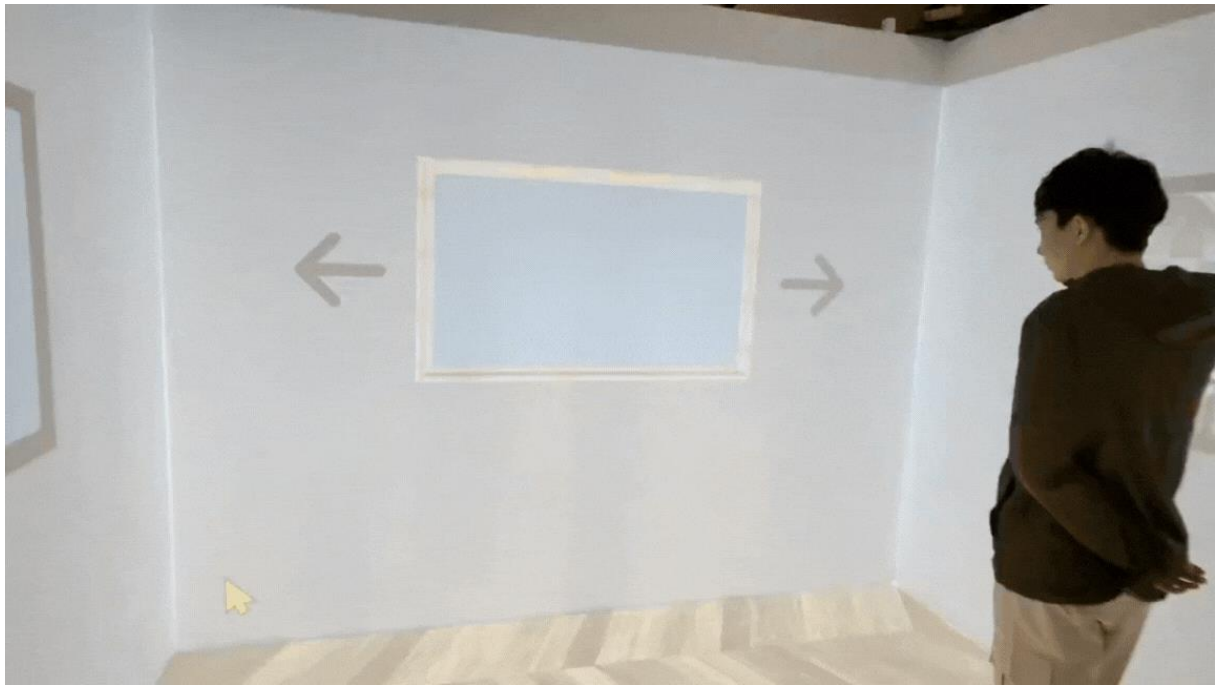


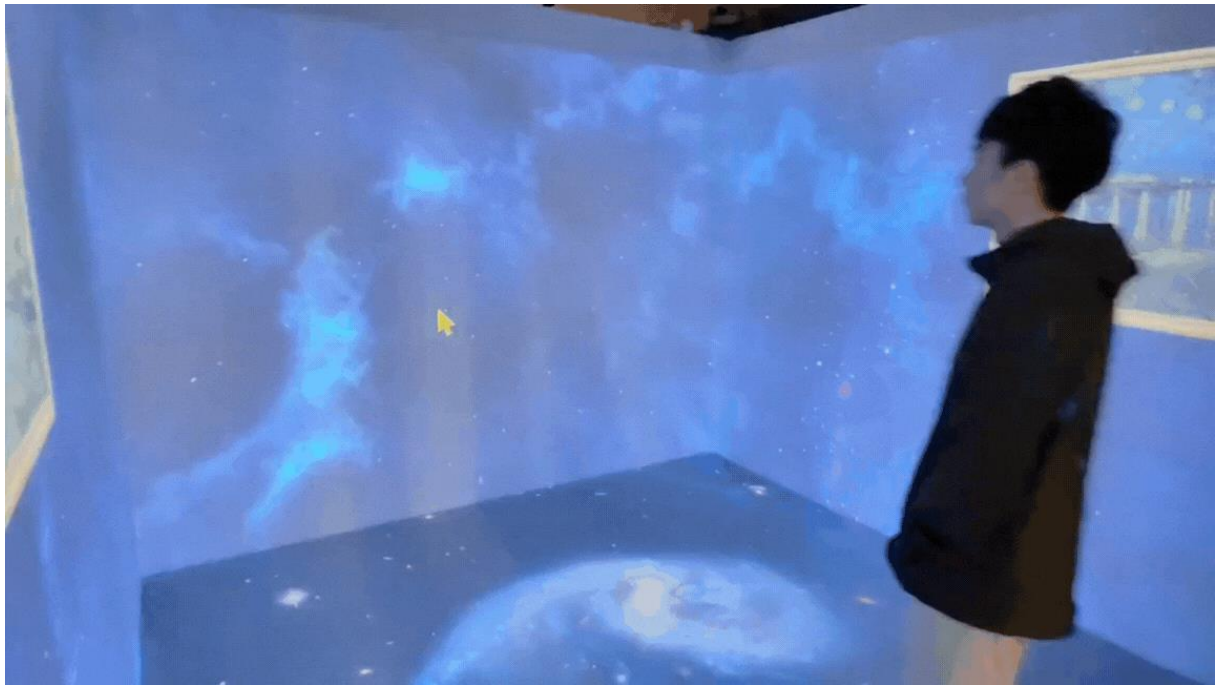


mmWave Radar with MetaSpace



mmWave Radar with MetaSpace





Immersive Interaction

Sleek and stylish

J8L AR glasses

Bring the future to your everyday life.

JORJIN AR Glasses

- WiFi/BT inside
- Antenna inside
- Certification

Modularize and Customize Design

Computing

- **SiP Processor Module**
- **Wireless Module**
- Audio Module
- Imaging Module

Display

- Monocular OE
- Binocular OE
- LCoS
- Micro OLED
- MicroLED

Imaging

- High-quality camera
- 3D camera
- Thermal imaging camera
- 360 degree camera
- Barcode engine

Power

- Dual Battery
- Rechargerable Li battery
- Quick Charging
- Magnetic Charger

I/O

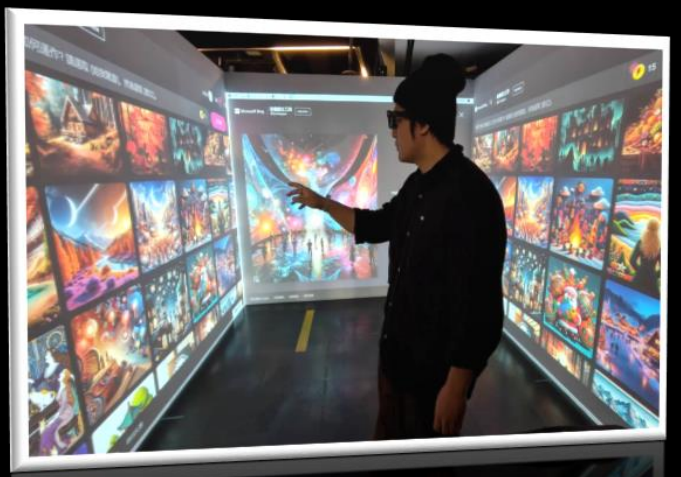
- USB Micro B
- USB Type C
- SD Card
- Micro HDMI
- Audio Jack

NUI (Natural User interface)

- Stereo Speaker
- Microphone Array
- Touch Module
- 9DoF Module
- Gesture
- Eyeball Tracking

XR appreciation

More immersive
of culture experience



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M3

- Web & File Browsing
- J8L Smart Glasses
- Coolso Gesture Control

MetaSpace

M4

- Educational Applications
- Support for various scenarios
- Interchangeable interfaces
- Multiple Interactive Functions


Jorjin MetaSpace M4
JORJIN
TECHNOLOGIES

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