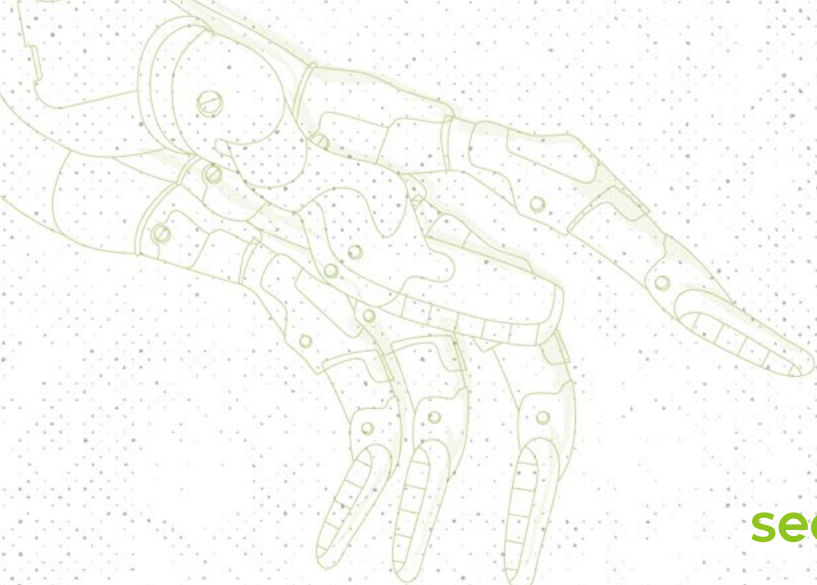




seeed studio

The AI Hardware Partner 2025 Product Catalog

www.seeedstudio.com

V1.0



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Raspberry Pi
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Nvidia Jetson
P52 - 64



BeagleBone
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About Us

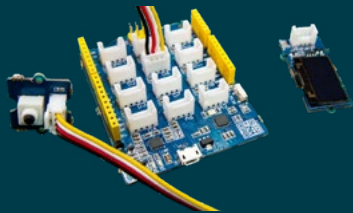
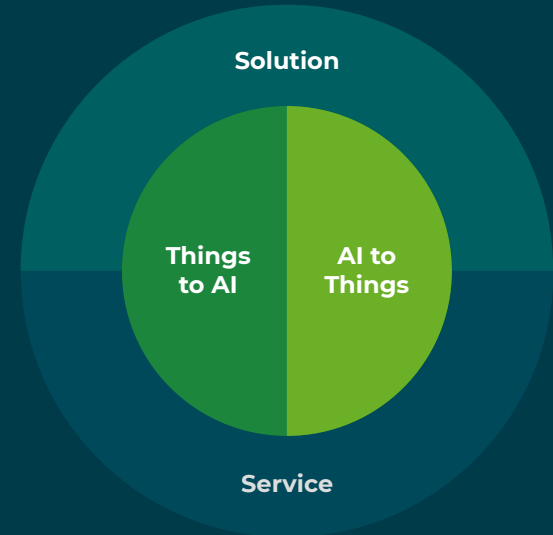
the AI hardware partner

Seed Studio has been a leading Open Hardware company since 2008, empowering half a million direct users to create real-world digital solutions. Through relentless efforts and earned trust, our ever-growing product lines now form around emerging AI scenarios:

- Sensor networks to fetch extensive real-time data.
- Edge computing to push intelligence to new frontiers.

We provide industrial-ready modules and devices, and open up the capability of prototype, produce, and promote as Fusion service. Innovators from different vertical domains co-create with us to make their creations widely available for diversified markets.

By embracing open source, community building and integrated software suites like SenseCraft, we are proactively lowering the tech barriers and including users with diverse expertise for globalized matters.



How it started 2008

From possibilities to
productivities



How it's going 2025

From Technology to Industry

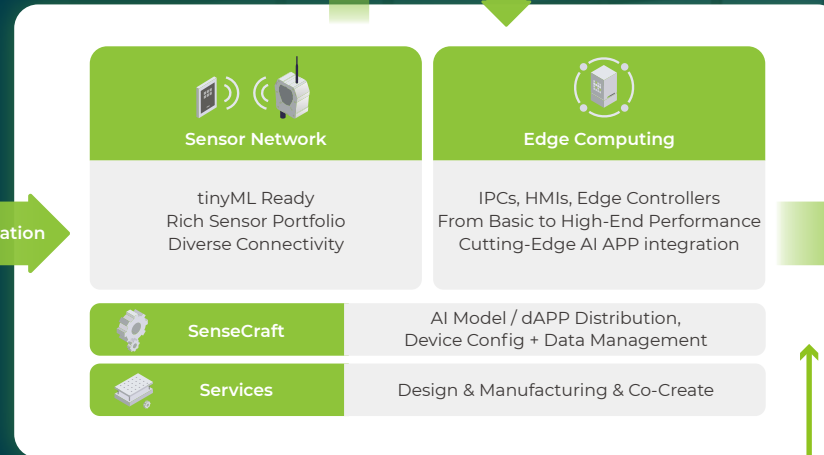
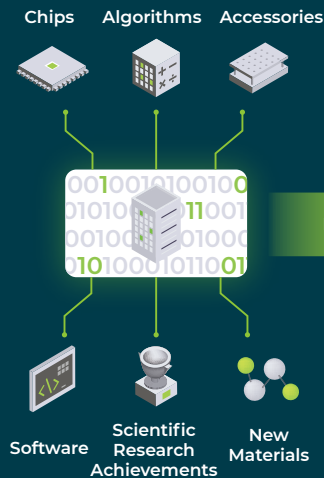
Technologies

- Open Source Hardware
- Machine Learning
- Advanced Sensors
- Home Assistant
- Wireless. DePIN
- LLM

Applications

- Asset Tracking
- Smart Building
- Industrial space
- Smart City
- Smart Agriculture
- Smart Energy
- Tech for good
- Open Science

Emerging Technologies



Digital Economy



Traditional Industries

- Digital Infrastructure
- Smart Environment
- Smart Agriculture
- Smart Energy

Featured Product Lines



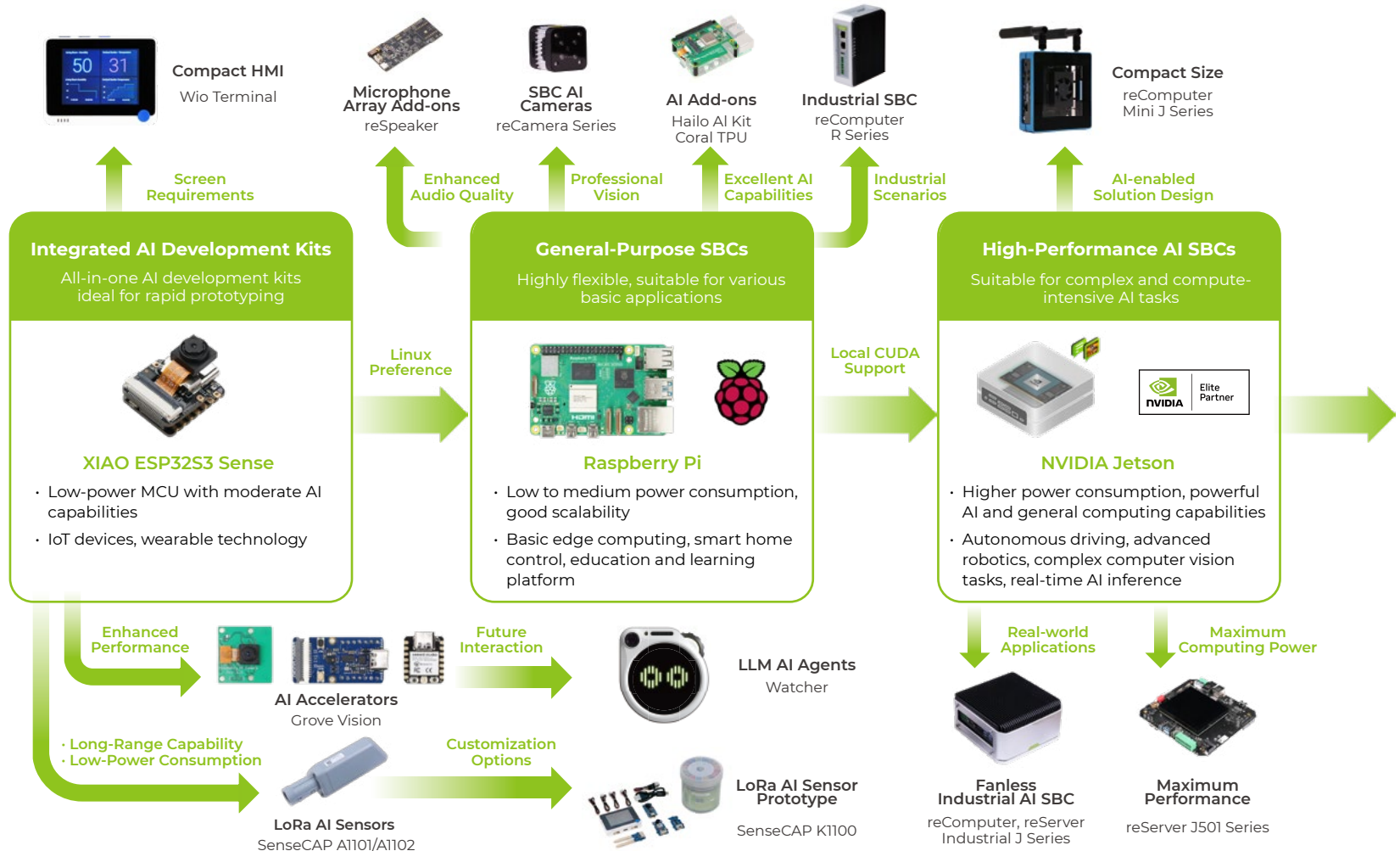
AI Hardware Portfolio

Build Apps in 1 Min with **SenseCraft**

Cover All Computing Needs

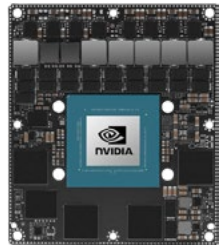
Custom Model

Open Source



Embodied Intelligence Hardware Portfolio

The Next Frontier of AI: General Robotics Is Just Around the Corner



34-275TOPS

Robot Brains



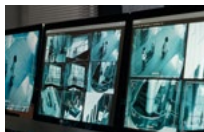
Humanoids



Manipulators



AMR



Visual AI Agents



Other Agents



AI Box



reComputer Super Orin
Orin Nano/ Orin NX

AMR



reComputer Mini
Orin Nano/ Orin NX
Orin Nano Super



Robotics



reComputer Robotics
Orin Nano Super/
Orin NX Super

Humanoid



reComputer J502
AGX orin



Robot Arms



LeRobot AI Arm kit
SO-ARM100 Pro

More Open-source
project kit

Home Assistant Hardware Portfolio

Sensor Devices

seeed studio



MR60BHA2 mmWave Human Presence, Breathing & Heartbeat Sensor



MR60FDA2 mmWave Human Presence and Fall Sensor



reCamera



SenseCAP Watcher



XIAO 2-CH AC Wi-Fi Energy Meter



Home Assistant

Building your open source home automation that puts local control and privacy first



Open Source



Local Control



Home Automation



Privacy First

Host Devices



Home Assistant Green / Yellow



Home Assistant Connect ZBT-1



seeed studio

Raspberry Pi Powered Devices



Raspberry Pi SBCs



reTerminal

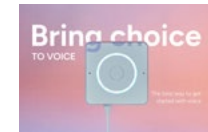


reTerminal DM

Control Devices



Home Assistant Voice Preview Edition



seeed studio



XIAO 2-Channel Wi-Fi AC Relay



reSpeaker Lite 2-Mic Voice Assistant



SenseCAP Indicator



XIAO 6-CH Wi-Fi 5V DC Relay



XIAO 7.5inch ePaper Panel



Physical Agents

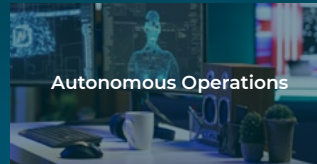
Bridging AI and Physical Reality

Physical Agents are intelligent systems that combine multi-modal sensing and autonomous operation, enabling AI to perceive and interact with physical environments. Seeed Studio's AI-enhanced sensors and actuators form a comprehensive ecosystem that transforms environmental inputs into intelligent actions, bringing artificial intelligence from the digital realm into tangible, real-world applications.

AI Sensors and Actuators

AI-Enhanced Sensors & Actuators unite IoT, Edge Computing and LLMs for autonomous operations. Process vision, sound, and environmental data through wireless connectivity for seamless indoor/outdoor deployment.

Application



SenseCAP Watcher AI-Native

A physical AI agent for smarter space

SKU [113991315](#), [113991275](#)

SenseCAP Watcher is built on ESP32S3, incorporating a Himax WiseEye2 HX6538 AI chip with Arm Cortex-M55 & Ethos-U55, excelling in image and vector data processing for on-device tinyML detection. Equipped with a camera, microphone, speaker, SenseCAP Watcher can see, hear, talk. Plus, with LLM-enabled SenseCraft suite, SenseCAP Watcher understands your commands, perceives its surroundings, and triggers actions accordingly.

**World's 1st
Physical AI Agent
for Smarter Space**



Open for Customization
Your shortest path to build an AI Gadget

Concept to Market **8-24 weeks**

On Device AI
100+
Pre-trained models for Local Inference

Multi-modal Sensing
Extensive with 100+ Grove Sensor

100+

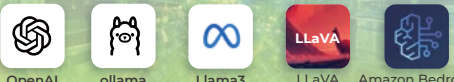


Underst andWhat It Sees



Scene understanding
Trigger action accordingly

Work with LLMs Public or Private



OpenAI ollama Llama3 LLaVA Amazon Bedrock

Push to Talk
Simply speak out your command

Voice interaction Emotional Response

SenseCraft APP / API Control
Free with Basic Plan



Open Source

Support Local Deployment

ESP32 S3 Wi-Fi/BLE USB Type-C SMP Camera

Built-in Battery SD Card Touchscreen Microphone

See **Hear** **Talk** **Understand** **Custom Emotion**

“Good choice! This is our newest handle.”

Notice on APP: Potential customer detected, send salesperson to Game.

Potential customer detected

Powered By WiseEye2 HX6538



reCamera

NEW
AI-Native

Script Coding / Node-based Coding Development,
Modular Design

SKU [102991896](#), [102991897](#), [102991894](#), [102991895](#)

Shortest pathway to build a market-ready AI camera

Features



• Modular Design

Quickly swap the parts (camera sensor board/base board) as your needs.



• Plug & Play

Shipped with reCamera OS, quickly setup with built-in Node-RED dashboard for low-code AI pipeline.



• Ultralytics YOLO Native Support

Pre-installed with Ultralytics YOLO11 models on-device, supporting direct deployment of Roboflow-exported models, suitable for any kind of vision AI applications and mass production.



• Seamless Integration to SenseCraft AI Platform

Continuously collect new data during deployment and retrain with Sensecraft AI platform, easily manage your application/reCamera devices in one workspace.

Supported by



Base Board

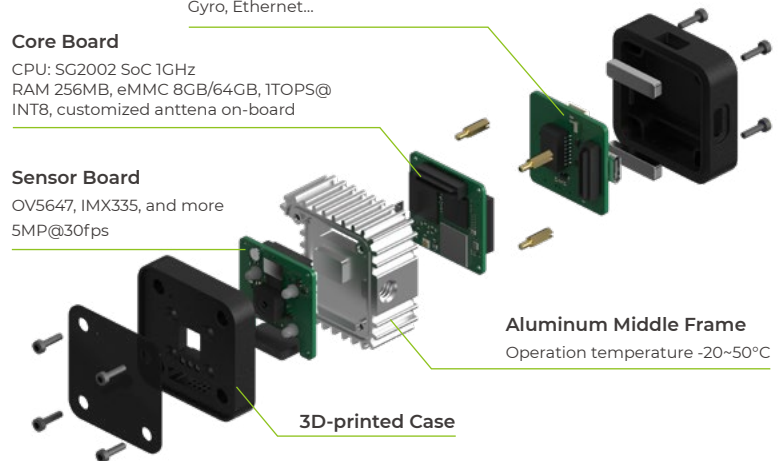
Define the interfaces as you need:
Vertical Type-C, TF Card Slot, CAN, PoE,
Gyro, Ethernet...

Core Board

CPU: SG2002 SoC 1GHz
RAM 256MB, eMMC 8GB/64GB, 1TOPS@
INT8, customized antenna on-board

Sensor Board

OV5647, IMX335, and more
5MP@30fps



Aluminum Middle Frame
Operation temperature -20~50°C

3D-printed Case

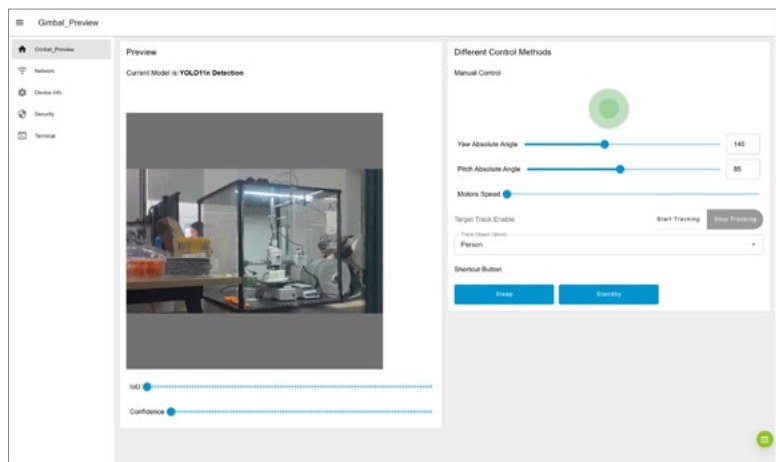
reCamera Gimbal **NEW**

An open-source control system for reCamera

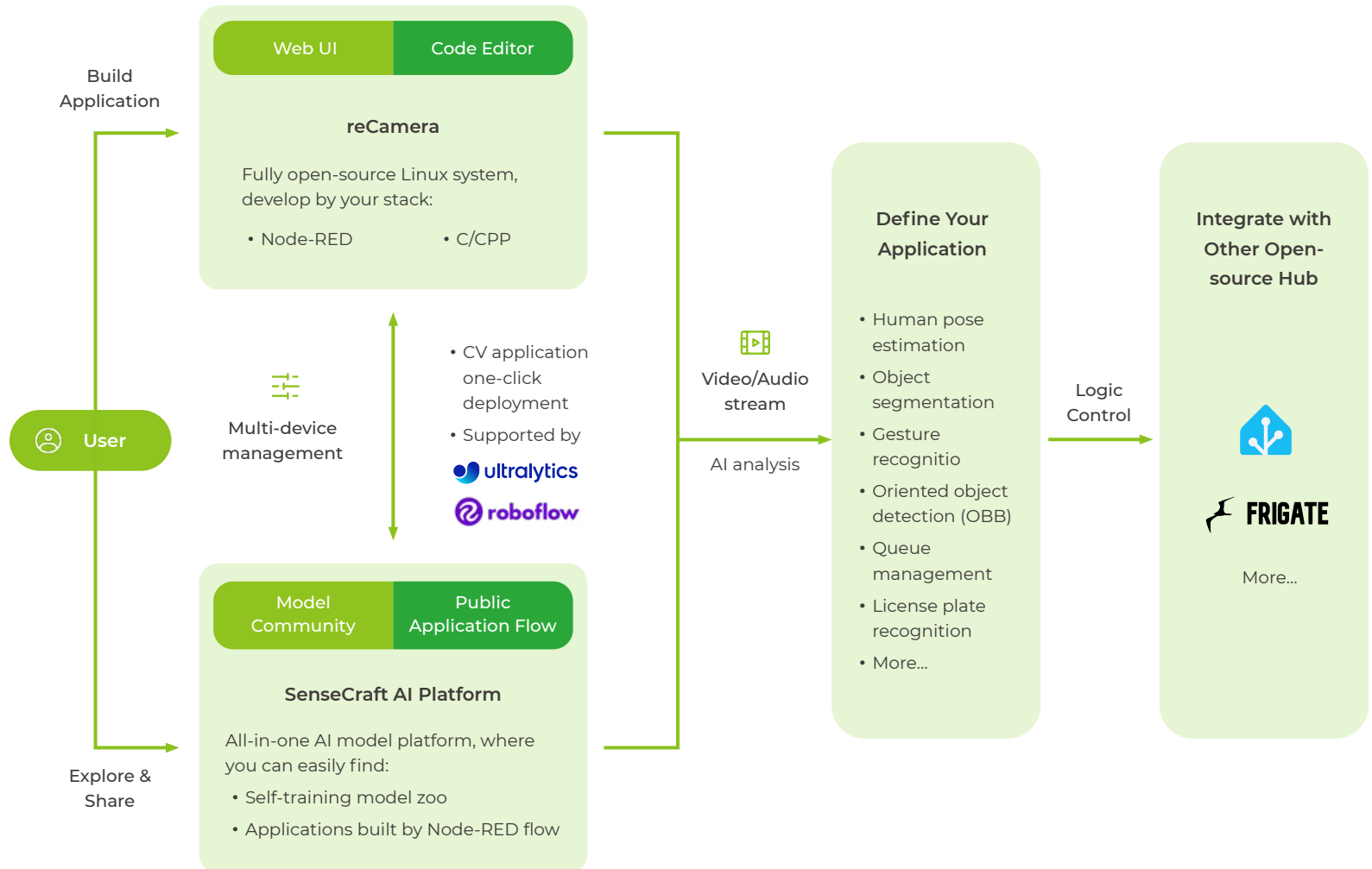
This system pairs the AI-enhanced reCamera with a 2-axis gimbal, creating a customizable and stable platform for precise camera control and intelligent angle adjustments.

Features

- 
Full Range Motion
 Features dual brushless motors, achieving complete 360° yaw and 180° pitch viewing coverage.
- 
Plug & Play
 Comes with a user-friendly console for easy setup and control.
- 
Low-code Development
 Integrates a built-in Node-RED dashboard for low-code customization of gimbal actions.
- 
AI enabled
 Includes pre-installed YOLO11, simplifying the building of applications like target tracking. Supports custom models for specialized application flexibility.



reCamera & SenseCraft AI



SenseCAP A1102 - LoRaWAN® Vision AI Sensor

NEW

Industrial-Grade

Rugged

Low-Power

AI-Native

Long-Range, Battery-Driven AI Camera for Efficient Off-Site Surveillance

SKU **101991343**

The SenseCAP A1102/A1101 - LoRaWAN® Vision AI Sensor is an Edge AI-enabled smart vision sensor offering diverse AI model functionalities such as image recognition, people counting, target detection, and meter recognition, with TensorFlow Lite support for model training. It facilitates no-code model training and deployment through SenseCraft AI, uploads inference results data via LoRaWAN® with very low data bandwidth, boasting battery-powered operation lasting over a year.



A1101



A1102

Features

- Low-power consumption**

Down to 2.3 uWh in deep sleep mode, battery life last over a year.

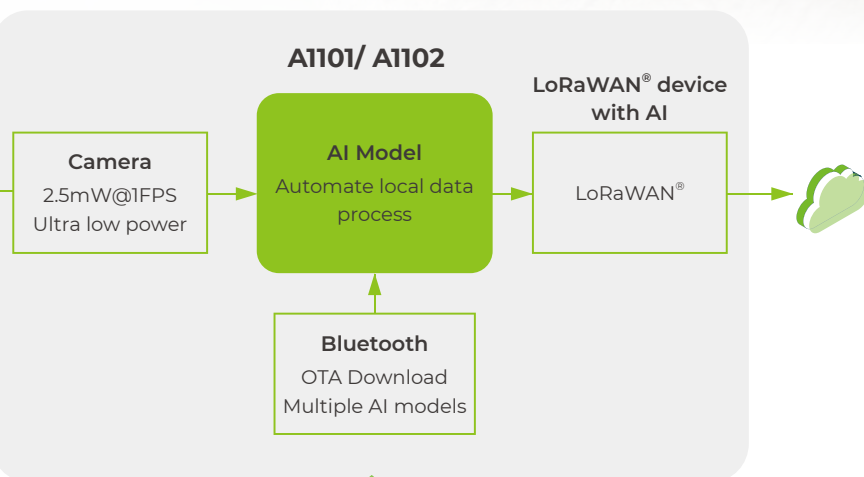
- Long Range**

Leverage the Wio-E5 LoRaWAN® module, up to 10km eye-sight communication distance.

- Local LoRa® Hub for IoT Connectivity**

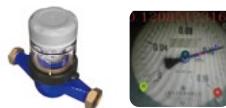
Powered by Himax HX6538, Cortex-M55, Ethos-U55, running rich local vision models.

Raw Data

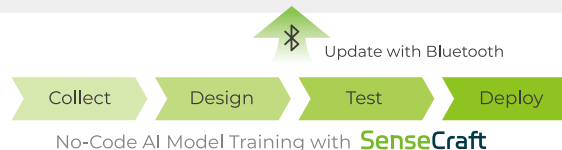


Use Case

- Person Detection
- Specific Object Detection
- Automatic Meter Reading



Open for Customization



reSpeaker Lite 2-Mic Array

Embedded AI for Better Sound Quality

SKU [107990273](#), [110061601](#), [E2024082601](#), [E24072601](#)

Based on XMOS's XU316, it is capable of extracting speech from noisy environments to reduce speech recognition errors and enhance voice interaction accuracy and reliability.

3 variants are offered to satisfy your development and deployment needs:

1. standalone board can be used as a USB plug-in.
2. board with soldered XIAO ESP32S3, enabling effortless integration with Home Assistant via ESPHome.
3. kit with mono enclosed speaker and acrylic enclosure to offer you a clear and complete voice interactive system.

Embedded Algorithm

- Interference Cancellation (IC)
- Automatic Gain Control (AGC)
- Noise Suppression (NS)
- Acoustic Echo Cancellation (AEC)

Features

-  • Offline Voice Processing
-  • Local Command Processing
-  • Customized Wake-Up Word
-  • Low Power Voice Offload
-  • Industrial Voice Control



Powered by

 ESPHome



 Assist

 OpenAI
Whisper

 PIPER

 openWakeWord

reSpeaker 4-Mic Array

Voice stays clear, even in far-field

SKU [107990053](#) / [107990193\(with case\)](#)

This 4-mic array is your simple solution for adding voice interaction to projects. Powered by XMOS XVF-3000 with built-in sound processing algorithms, it clearly picks up voices from any direction up to 5 meters away. The version with a protective case - it's a complete voice assistant that works right out of the box.

Features



- **Acoustic algorithms implemented**

DOA (Direction of Arrival), AEC (Automatic Echo Cancellation), AGC (Automatic Gain Control), NS (Noise Suppression)



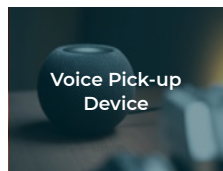
- **Built-in 3.5 mm Headphone jack**

Allows for plugging in headphones or speakers (speaker not included).

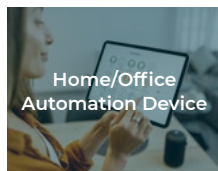


- **Compatible with Linux, macOS, and Windows.**

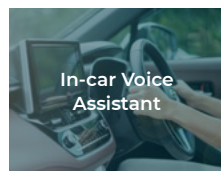
Applications



Voice Pick-up Device



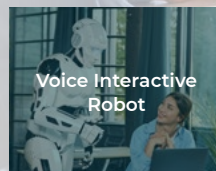
Home/Office Automation Device



In-car Voice Assistant



Healthcare Device



Voice Interactive Robot

SenseCAP Indicator 5+ Years Supply

An ESP32 LoRaWAN® & Meshtastic® Terminal
with Touchscreen and Sensors

SKU [114993070](#), [114993071](#), [114993068](#), [114993069](#), [114993532](#)

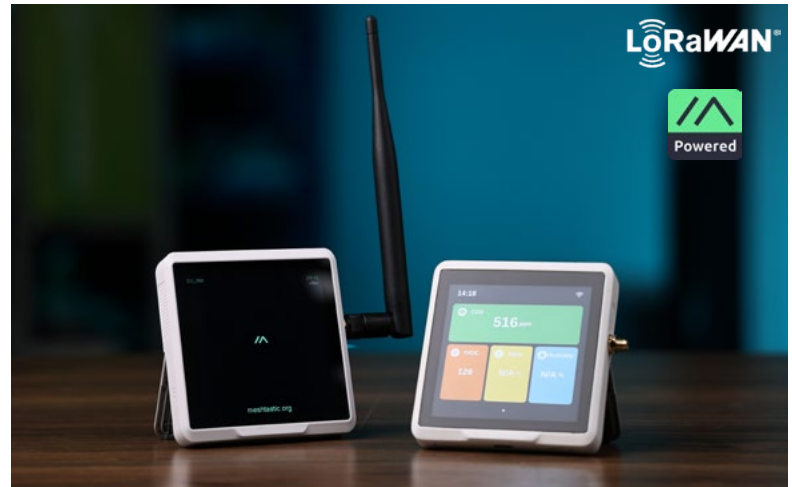
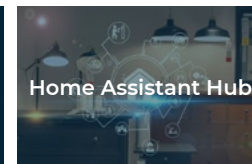
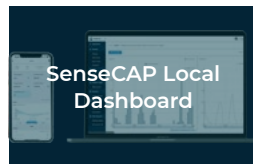
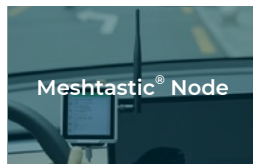
SenseCAP Indicator is a 4-inch touch screen driven by ESP32-S3 and RP2040 dual-MCU and supports Wi-Fi/BLE/LoRa® communication. It comes with 2 Type-C USB ports and Grove interfaces, supports ADC and IIC transmission protocols, and can easily connect to other peripherals with rich GPIOs.

Features

- Features dual MCUs (ESP32-S3, RP2040) and Grove GPIOs for expansion.
- Supports Meshtastic® and LoRaWAN® for versatile applications.
- 4-inch 480x480 RGB touchscreen for data visualization and control.
- Real-time air quality monitoring with tVOC, CO₂, and optional AHT20 sensor.
- Acts as a LoRa® IoT hub with optional SX1262 chip.
- Fully open source with ESP32 and Raspberry Pi compatibility.

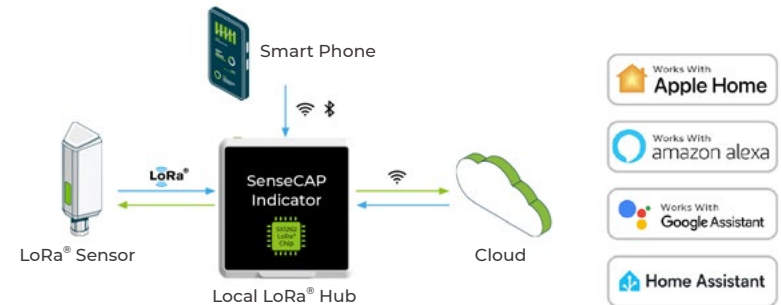
Model	D1	D1S	D1L	D1Pro
tVOC sensor	/	●	/	●
CO ₂ sensor	/	●	/	●
Grove TH sensor	/	●	/	●
Wi-Fi	●	●	●	●
Bluetooth	●	●	●	●
LoRa® Chipset (SX1262) for LoRaWAN® & Meshtastic® Applications	/	/	●	●

Applications



Scenarios under Spot Light

Use SenseCAP indicator as a LoRa® hub device to connect your LoRa® sensors to your smart home ecosystem.



Physical Agent Development Tools

Streamlined Prototyping for Physical Agents.



Seeed Studio XIAO - tinyML-Ready Platform

Add AI to Almost Everything

The Seeed Studio XIAO Series is a collection of thumb-sized, powerful microcontroller units (MCUs) tailor-made for space-conscious projects requiring high performance and wireless connectivity. Embodying the essence of popular hardware platforms such as ESP32, RP2040, nRF52840, and SAMD21, the Arduino compatible XIAO series is the perfect toolset for you to embrace tiny machine learning (tinyML) on the Edge.

Features



- **Popular SoCs Integrated**

MG24, RA4M1, RP2350, ESP32, RP2040, nRF52840, SAMD21, and more to leverage your Embedded Machine Learning applications on MCUs.



- **Thumb Size with SMD**

Sized at 21×17.8 mm with single-sided surface mount design, ready to blend in space-constrained and tap-on designs.



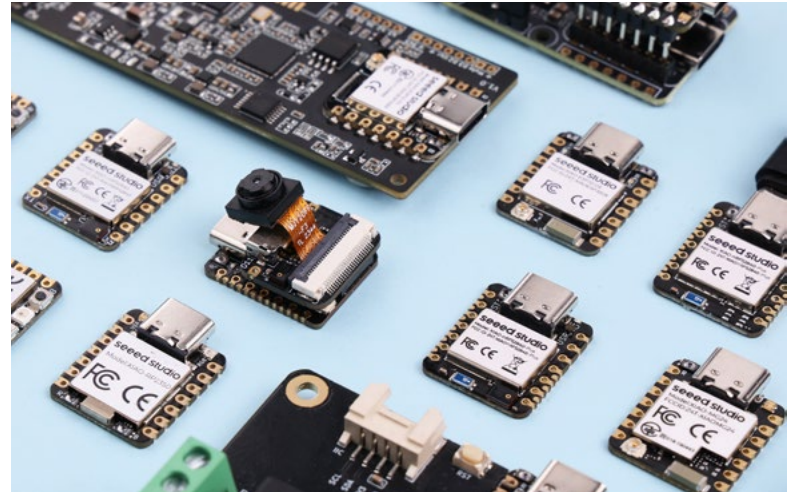
- **TinyML / AI Native**

Compatible with Seeed's no-code model training and deployment platform SenseCraft AI, making tinyML scalable on MCU.



- **Developer-Friendly**

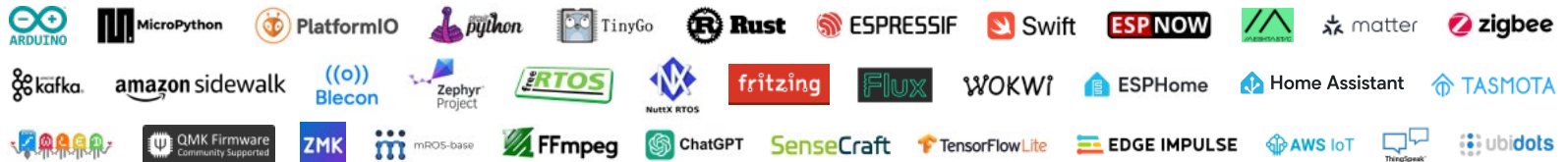
Natively compatible with Arduino, supporting PlatformIO, MicroPython, and Zephyr and many other open source GitHub projects.



21×17.8 mm
= Thumb-Size

500,000+
Developers' Choices

2,000,000+
Pieces Shipped Globally



Seeed Studio XIAO Dev Boards



XIAO SAMD21

SKU [102010328](#)

Classic for Arduino beginners, with courses



XIAO nRF52840

SKU [102010428](#)

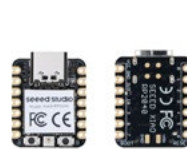
Ultra-low power consumption, perfect for BLE applications



XIAO nRF52840 Sense

SKU [102010448](#)

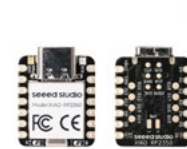
Low power BLE with onboard microphone and 6-axis IMU



XIAO RP2040

SKU [102010469](#)

Raspberry Pi Ecosystem with great MicroPython support



XIAO RP2350

SKU [102010550](#)

MicroPython-ready based on Raspberry Pi RP2350



XIAO RA4M1

SKU [102010551](#)

Renesas 32-bit ARM Cortex-M4 MCU, compatible w/ Arduino IDE



XIAO ESP32-C3

SKU [113991054](#)

Cost effective with Wi-Fi and BLE on board



XIAO ESP32-S3

SKU [113991114](#)

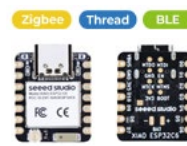
High-performance dev board with Wi-Fi and BLE



XIAO ESP32-S3 Sense

SKU [113991115](#)

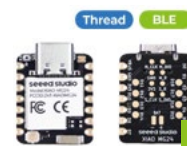
Mini camera perfect for computer vision



XIAO ESP32-C6

SKU [113991254](#)

2.4GHz Wi-Fi 6, BLE 5.0, Zigbee, and Thread for Matter



XIAO MG24

SKU [102010590](#)

Super-low power for battery-powered Matter projects

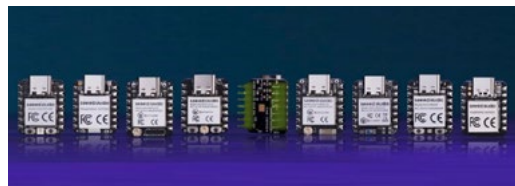


XIAO MG24 Sense

SKU [102010610](#)

Super-low power board with microphone & 6-axis IMU

Seeed Studio XIAO Variants



Seeed Studio XIAO Pre-Soldered

SKU [102010637](#)



Seeed Studio XIAO Plus

SKU [102010671](#) / [102010694](#) / [102010672](#)



Seeed Studio XIAO 3pcs Pack

SKU [E2024042601](#)

Seeed Studio XIAO Add-Ons

A growing collection of expansion boards, sensors, connectivity modules, and actuators with a socket where Seeed Studio XIAO dev boards (pre-soldered versions) clip right in.

Expansions



NEW

Clip Base for Seeed Studio XIAO

SKU 114993644



Expansion Board for Seeed Studio XIAO

SKU [103030356](#)



Grove Base for Seeed Studio XIAO

SKU [103020312](#)



NEW

PowerBread for Seeed Studio XIAO

SKU [114993507](#)



NEW

Debugger for Seeed Studio XIAO

SKU 109990585

Sensors



Grove Vision AI Module V2 w/ Camera

SKU [E23011220](#)



mmWave Human Presence Sensor

SKU [101010001](#)



Grove Smart IR Gesture Sensor

SKU [101991067](#)



reSpeaker Lite 2-Mic Array

SKU [107990273](#)



Quectel L76K GNSS Add-On

SKU [109100021](#)



NEW

Logger HAT (Temp, Hum & Light)

SKU [114993446](#)

Connectivity Modules



NEW

Wio-SX1262 LoRa[®] Add-on for XIAO

SKU [113010003](#)



NEW

Wio-WM6180 Wi-Fi HaLow Module

SKU 109100041



RS-485 Breakout Board for XIAO

SKU [113991354](#)



CAN-Bus Breakout Board for XIAO

SKU [105100001](#)

Actuators



NEW

Servo Driver Board for XIAO

SKU 114993612



NEW

LED Driver Board for XIAO

SKU 105100021



NEW

ePaper Driver Board for XIAO

SKU [114993558](#)



NEW

One-Channel DC Relay for XIAO

SKU [14993555](#)



6x10 RGB WS2812B LED MATRIX

SKU [104030107](#)



1.28" Round Display for XIAO

SKU [104030087](#)



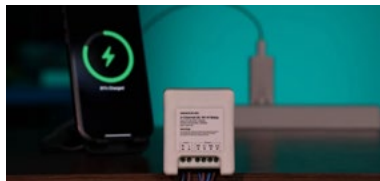
ePaper Breakout Board for XIAO

SKU [105990172](#)

Seeed Studio XIAO Gadgets

A series of plug-and-play devices for specific applications powered by Seeed Studio XIAO Dev Boards, with Expansion Boards, Sensors, Connectivity Modules, or Actuators.

ESPHome Native for Home Assistant



XIAO 2-Channel Wi-Fi AC Relay

SKU [114993526](#)



XIAO 60 GHz mmWave Human Breathing and Heartbeat Sensor

SKU [114993387](#)



XIAO 60 GHz mmWave Human Fall Detection Sensor

SKU [114993388](#)



ReSpeaker Lite Voice Assistant Kit

SKU [E24072601](#)



XIAO 6-Channel Wi-Fi 5 V DC Relay

SKU [114993588](#)



XIAO 7.5inch ePaper Panel

SKU [114993635](#)



XIAO 2-Channel AC Wi-Fi Energy Meter

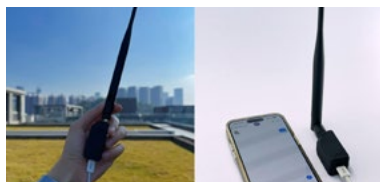
SKU [114993611](#)



XIAO Smart Air Quality Monitor

SKU [101991404](#)

LoRaWAN® & Meshtastic®



1-Channel LoRaWAN® Gateway / Meshtastic® Node

SKU [113110064](#)



SenseCAP S2110 Sensor Builder

SKU [114992986](#)



OpenUC2 10x AI Microscope

SKU [114993409](#)



SenseCAP Watcher Physical AI Agent

SKU [113991315](#) / [113991275](#)

RS-485

AI

Sensor Network

Enabling Multi-Modal Sensing

Bridging physical and digital realms, efficient real-world data collection accelerates industrial digital transformation. Robust sensors provide authentic physical data, while compact, robust gateways ensure wide network coverage. Seeed offers comprehensive sensor network solutions, from individual modules to complete devices, enabling rapid IoT deployment across asset tracking, smart buildings, cities, and agriculture.



Sensor Network Portfolio

Seed Studio delivers intelligent sensing and networking solutions through ready-to-use devices and open-source modules, enabling efficient real-world data collection and transmission with streamlined development.

Devices

Meshtastic® Nodes

Open source decentralized mesh networking



Tracker



Solar Node

LoRaWAN® Devices

Low power, long range, low connectivity cost



LoRaWAN® Sensors



Gateways

Weather Sensors

All-in-one with multi parameter, easy to integrate



SenseCAP ONE Sensors

Modules

Sensor Network Modules

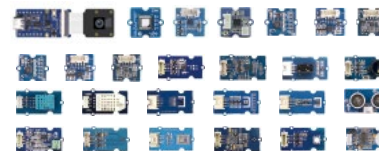
Wio LoRa® + Wi-Fi HaLow Modules



Low-cost modules for sensor and gateway

Grove Open Source Plug and Play Modules

400+



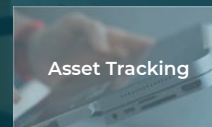
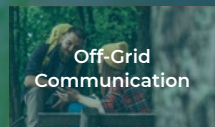
Vision, environmental sensors, actuators and rich kits with tutorials

SenseCAP AIoT Products

Seeed offers wireless LoRaWAN® sensors, Meshtastic®-compatible products, trackers, data loggers, indicator, gateways, and cloud services. Through wireless sensor connectivity, SenseCAP offers the physical world's accurate environmental measurements to the users, along with its robust industrial-grade design, ready-to-use PaaS platform, Apps, and open API services.



Application



SenseCAP T1000-E

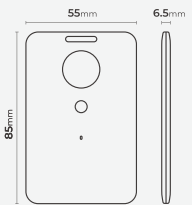
Low-Power

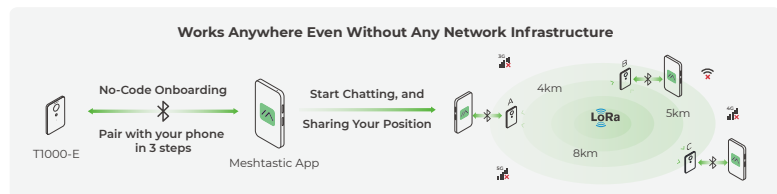
A GPS Tracker with Long-Range Decentralized Mesh Networking and Messaging

5+ Years Supply

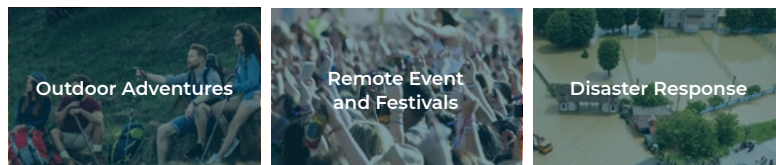
SKU **114993369**

SenseCAP Card Tracker T1000-E is a high-performance tracker designed for Meshtastic®, as small as a credit card, effortlessly fitting in your pocket or attaching to your assets. It embeds Semtech's LR1110 (Supports 863-928 MHz range), Nordic's nRF52840, and MediaTek's AG3335 GPS module, providing Meshtastic® users with a high-precision, low-power positioning and communication solution.

The World's First IP65-Rated Meshtastic® Device 	IP65 	No Communication Fee 	Encrypted Communication 
 Open-Source	 LoRa® Mesh	 No 4G/5G Required	 -20°C ~ 60°C Operating Temperature
Credit - Card Size 6.5 mm Thickness 32 g Lightweight 		SenseCAP Card Tracker T1000-E for Meshtastic 	
Can be Customized for  Personnel Safety  Wearable Size  Industrial Use		Onboard Sensors  Temperature  GPS  Light	
Frequency 863-928 MHz 			



Applications



SenseCAP Solar Node NEW

Solar-Powered Meshtastic® Node for Reliable Mesh Network Expansion

Low-Power



SKU 114993633

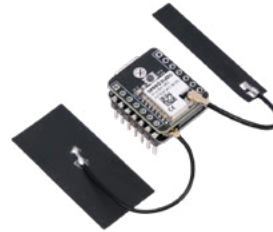
SenseCAP Solar Node is an IP66-rated solar-powered Meshtastic® node that integrates the Wio-SX1262 and Nordic's nRF52840. It helps enhance the coverage and reliability of Meshtastic® networks. This all-in-one unit combines a solar panel, rechargeable battery, enclosure, and external antenna into an integrated framework, making it ideal for outdoor installations.

Features

- 5W solar panel for sustainable power.
- IP66-rated for outdoor use.
- Over two weeks of battery life on a single charge.
- Supports GPS and additional sensor integration.
- Offers 5-10km Long-range communication.

Dev Kits for Meshtastic®

Dev Kits for Building Free, Off-grid, and Portable Mesh Networks



XIAO ESP32S3 & Wio-SX1262 Kit



Wio Tracker 1110 Dev Kit

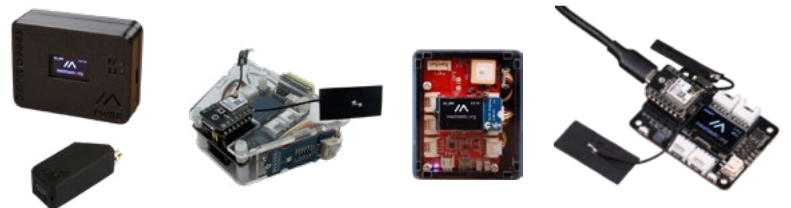
SKU [102010611](#), [E24070201](#)

Tiny and powerful dev kits for developers and makers to create their own Meshtastic® nodes.

Features

- Compact design for space-limited projects
- User-friendly & plug-and-play
- Firmware pre-flashed & ready-to-use
- Supports LoRa®, BLE or Wi-Fi for versatile communication needs

DIY Show



SenseCAP T1000-A/B Low-Power

A Card-Size Tracker for LoRaWAN®, Helium, and Amazon Sidewalk 5+ Years Supply

SKU [114993073](#), [114993106](#)

SenseCAP T1000 is a compact GPS tracker that utilizes GNSS/Wi-Fi/Bluetooth for precise indoor & outdoor location tracking, compatible with LoRaWAN®, Amazon Sidewalk, and Helium Networks. It boasts self-geo-adaptive capabilities, local data storage, and an impressive battery life of months. Additionally, it is equipped with temperature, light, and motion sensors, making it ideal for a variety of location-based applications, asset tracking, logistics tracking, and search and rescue.


GNSS


Bluetooth


Wi-Fi

3 positioning technology for both indoor & outdoor

Natively compatible with



available in


160+ countries

Operating temperature

-20°C to 60°C

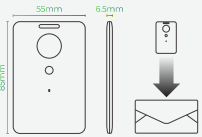

Live on KICKSTARTER

Temperature accuracy

±0.5°C


IP65

Credit - card size with just 6.5 mm thickness



SenseCAP T1000 Tracker



Get location in 4 easy steps



Status sensors

 °C
Temp


Light


Motion

Store data offline when out of connection

1000+ Records 

Can be customized for

 Personnel safety

 Wearable size

 Industrial use

Auto-switch Frequency


915MHz
868MHz

SOS button & buzzer



Months of battery life with a single charge





Model	Compatible Networks	Temperature	Light	Accelerometer
T1000-A	LoRaWAN® Helium			
T1000-B	LoRaWAN® Helium	/	/	/

Applications



SenseCAP S210x LoRaWAN® Sensors

Industrial-Grade

Rugged



Low-Power

SenseCAP S210x series' sensors offer long-distance data acquisition via LoRaWAN®. With IP66 enclosure rating, the sensors can operate in extremely low and high temperature zones (-40 ~ 85°C). Their built-in, 19Ah high capacity battery, S210x series can operate in harsh, outdoor environments up to 10 years with a range of up to 10km. The built-in Bluetooth simplifies configuration and deployment, reducing field deployment costs. Moreover, users can get data in just a few steps, and with open Cloud API, they are easy to be integrated.

Features



• High accuracy sensor

Fast response and superior stability.



• Quick configuration

User-friendly set-up with built-in Bluetooth.



• Ultra-low power consumption

Battery life of up to 10 years with built-in 19Ah battery.



• Easy deployment

Easy to mount via brackets.



• Industrial design

-40 ~ 85°C operating temperature and IP66 rating.



• Efficient integration

SenseCAP cloud services with Open API support further development.



• Weather resistant

Suitable for indoor, outdoor and harsh environments such as high UV exposure, heavy rain, dusty conditions etc.



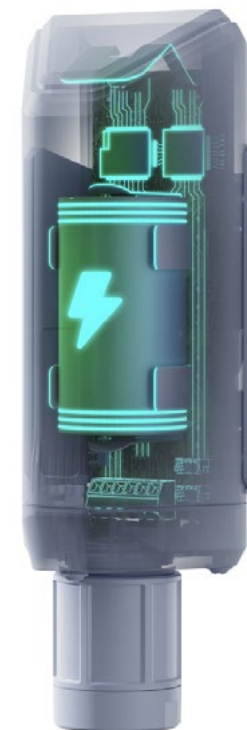
• Multi-platform

Compatible with multiple NS (Helium, TTN) and IoT platforms.

Designed for Mass Deployment

1. Onboard it with only 3 steps.

2. Update settings across fleets in 1 click.



Product Model						
	S2101/S2103	S2102	S2104/S2105	S2106	S2107	S2108
Product Name	Air Temperature & Humidity Sensor (and CO ₂)	Light Intensity Sensor	Soil Temperature and Moisture Sensor (and EC Sensor)	pH Sensor	PT100 Temperature Sensor	Soil Moisture, Temperature and Pore EC Sensor
SKU	114992867/ 114992869	114992868	114992870/ 114992871	101070001	114993078	101070021

SenseCAP S2100 LoRaWAN® DTU

Industrial-Grade

Low-Power

Rugged



A battery-powered IP66 wireless data logger/ DTU supports RS485/Analog/GPIO sensors

SKU [114992872](#)

SenseCAP S2100 LoRaWAN® DTU can connect to Modbus-RTU RS485/Analog Input/GPIO sensors and transmit data from sensors to the LoRaWAN® network. It is specifically optimized for OTA with built-in Bluetooth, which enables quick setup and update. It can be battery-powered or connected to a 12V external power supply. With the help of S2110 Sensor Builder, S2100 Data Logger is able to connect to Seeed Studio's wide range of Grove Sensors, which will make it the ideal solution for developing, fast prototyping, and small deployment for DIY Industrial level LoRaWAN® Sensors.

Physical World



Agriculture



Industrial Control

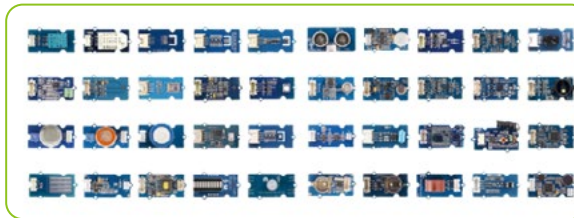


Energy

Expanding to 400+ Grove Sensors



S2110 Sensor Builder



Increased to 100+ Industrial Sensor Probes



Water



Air



More...



Industrial Modbus RS-485 Sensor Probes

Rugged

Compatible with SenseCAP S2100 LoRaWAN® DTU and SenseCAP 4G Sensor Hub

Modbus RS485 Vision
AI Camera

SKU [110992084](#)



Industrial Turbidity
Sensor

SKU [101990793](#)



Multi-Depth Soil Moisture,
Temperature and EC Sensor

SKU [101990982](#)



Soil Temperature,
Moisture (and EC) Sensor

SKU [101990668](#), [101990667](#)



Leaf Temperature
and Humidity Sensor

SKU [314990737](#)



Solar Radiation Shield for
Outdoor Sensor Protection

SKU [114992222](#)



pH Sensor

SKU [101990666](#)



EC and TDS Sensor

SKU [314990634](#)



Optical Rain Gauge RG-15
Rain Sensor

SKU [114992321](#)



Light Intensity Sensor

SKU [314990739](#)



PAR Sensor

SKU [314990733](#)



RS485 750cm Ultrasonic
Level Sensor

SKU [101991041](#)



NH₃/H₂S/CO₂ Sensor

SKU [101990862](#)



Air Temperature
and Humidity Sensor

SKU [101990881](#)



Water Leak Detector

SKU [314990618](#)



RS485 500cm Ultrasonic
Level Sensor

SKU [101991042](#)



Liquid Level Sensor

SKU [314990619](#)



Industrial Total Solar / UV
Radiation Sensor

SKU [101991047](#), [101991048](#)



And More...

SenseCAP Outdoor Combo **NEW**

Low-Power

Rugged

A highly integrated autonomous environment sensor

SenseCAP Outdoor Combo is a versatile environmental sensor that measures temperature, humidity, dew point, light, and CO₂. It supports up to 10 Modbus RTU RS-485 sensors and uploads data via 4G MQTT. Powered by solar panel and backup battery, it ensures 2-week operation during outages. The waterproof, UV-resistant case allows easy deployment of hanging or pole mounting and suits harsh environments like greenhouses.

Features



• Compact Body

Compact integrated body, containing various sensors and 4G communication.



• Accurate

Sensors accurately measure environmental elements.



• Easy to deploy

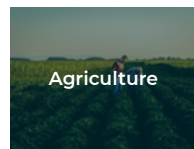
Ready to use out-of-box, with multiple installation methods.



• Long Battery Life

Solar power, battery, and direct current supply options enable long-time operation even in rainy weather.

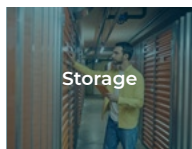
Applications



Agriculture



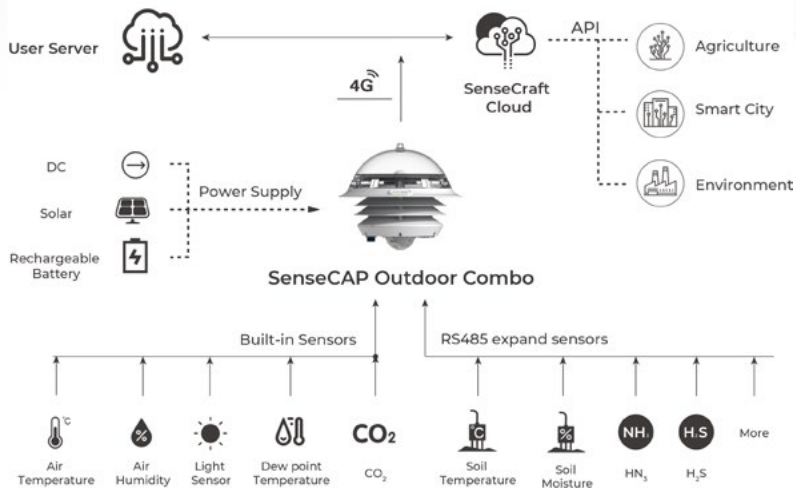
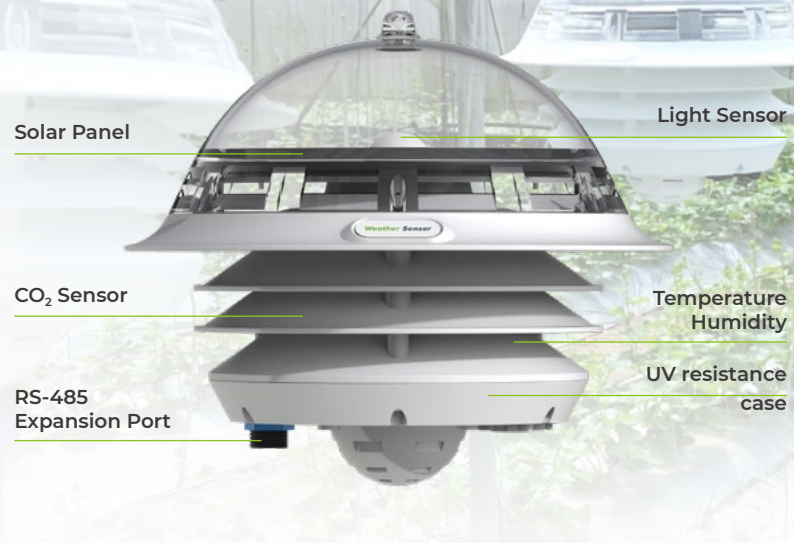
Raise Livestock



Storage



Education



SenseCAP LoRaWAN® Gateways

Industrial-Grade

EU868 / US915 / AU915 / AS923 / IN865 / KR920 / RU864



SKU [102991155](#) (Outdoor IP66) / [114992982](#) (Indoor IP65)

SenseCAP offers a collection of standard LoRaWAN® Gateways supporting connection to different LNS. It can seamlessly collect and transmit data to various platforms like SenseCAP, TTN, and Chirpstack via 4G or Ethernet.

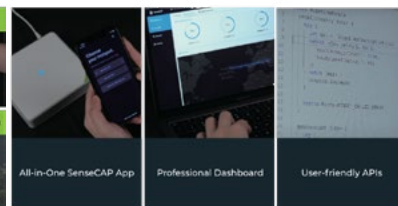
Features

- Power-over-Ethernet (PoE), Wi-Fi and 4G as back haul.
- Supports Packet Forwarder mode, built-in Chirpstack Server, and SenseCAP Portal.
- Industrial-grade protection: IP66 enclosure, -40 to 70°C operating temperature.
- Certified by CE, FCC, TELEC, REACH, Verizon, RoHS.

Easy to Deploy



Easy to Manage



SenseCAP 4G Sensor Hub

Rugged

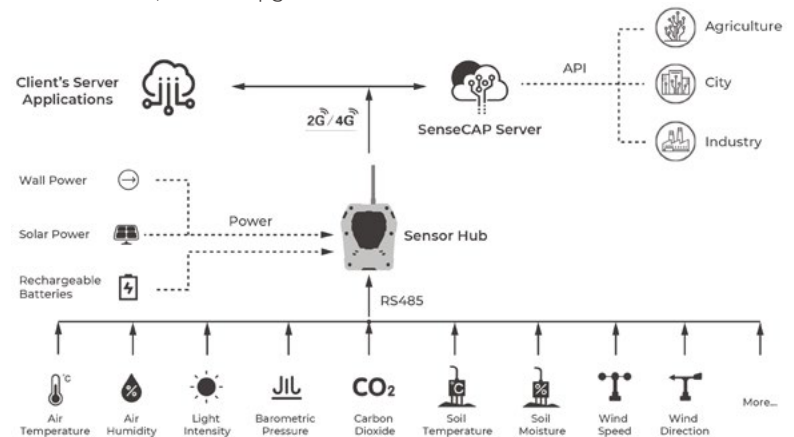


SKU [114992170](#), [114992171](#)

SenseCAP 4G Sensor Hub is a robust 4G data logger that connects up to 32 RS-485 sensors. Its IP66-rated, weatherproof design ensures reliable outdoor environmental monitoring.

Features

- Multi-sensor data collection via RS-485 probe.
- Local data storage with MQTT upload capability.
- Global LTE 4G/3G/2G network support.
- Built-in GPS, remote upgrades and maintenance.



All-in-One Weather Sensors

Compact all-in-one weather sensors measure multiple parameters



	SKU	Air Temperature	Humidity	Barometric Pressure	Light Intensity	Wind Speed	Wind Direction	Rainfall	PM2.5	PM10	CO ₂	Noise	Radiation	UV Index
S200	101991044	/	/	/	/	●	●	/	/	/	/	/	/	/
S500	101991021	●	●	●	/	●	●	/	/	/	/	/	/	/
S700-B	101991102	●	●	●	/	●	●	●	/	/	/	/	●	/
S700/ S700-A	101991022	●	●	●	●	●	●	●	/	/	/	/	/	/
S800	101991023	●	●	●	/	●	●	/	●	●	/	●	/	/
S1000	101991024	●	●	●	●	●	●	●	●	●	●	/	/	/
S2120	101990961	●	●	●	●	●	●	●	/	/	/	/	/	●

SenseCAP ONE Weather Sensors

Industrial-Grade

5+ Years Supply

SenseCAP ONE is a series of industrial weather sensors, that measure localized weather patterns. The SenseCAP ONE is equipped with precise and accurate sensors to measure air temperature, relative humidity, barometric pressure, light intensity, rainfall, PM2.5, PM10, wind speed, wind direction, CO₂, radiation, etc. With an IP66 enclosure and a wide operating temperature range, it features strong robustness to withstand even the toughest outdoor environment. In order to measure wind speed and wind direction, the sensors use ultrasonic technology, instead of traditional mechanical 3-cup anemometers or vane anemometers, that reduces maintenance costs, and increases the operating life cycle.

Features

- **High Wind Speed and Standard Gas Calibrated**
Calibrated in wind tunnel up to 80 m/s CO₂ accuracy: 1% of MV.
- **Industrial Grade Design**
IP66, working on -40°C ~85°C, RS-485/SD-12 Integrated heaters; Embedded with electronic compass/magnetometer.
- **Accurate, Real-time Weather Information**
Powerful sensor chip and algorithm embedded to improve accuracy and reliability.
- **Maintenance-free, Easy Installation**
Compact, no moving parts, Long-term availability.
- **Customization Service**
Support sensor customization White labeling.

Applications



Get the Weather Data via SenseCAP Data Logger

- Data transmit via LoRa® Network



- Data transmit via Cellular (4G/3G/2G) Network



SenseCAP S2120 LoRaWAN® 8-in-1 Weather Station

Low-Power

SKU [101990961](#)

SenseCAP S2120 LoRaWAN® Weather Station provides you with hyperlocal weather data at your fingertips. It supports multi-scenario applications like backyards, gardens, agriculture, meteorology, urban environmental monitoring, and other applications. It enables low maintenance costs, thanks to its ultra-low power consumption, reliable performance, built-in Bluetooth for OTA configuration, and remote device management.

Features

• 8-in-1 Weather Station

Collects air temperature, humidity, wind speed/direction, rainfall, light intensity, UV index, and barometric pressure data.

• Bluetooth Configuration and Remote Management

Simple configurations to check out the latest and historical data.

• Ultra-Low Power Consumption, Easily Replaceable Battery & Expandable Capacity

Powered by a 0.5W solar panel and 3 standard 1.5V AA -sized dry batteries that can lasts up to 2 years of service life, while an external battery compartment can accommodate 6 batteries at maximum to double the service life.

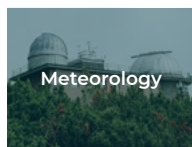
• Reliable Performance

Suitable for outdoor harsh environments outdoors such as a high level of UV exposure, heavy rain, dusty conditions, etc.

• One-Stop Deployment & Flexible Layout

Accessories include poles, mounting stand, among other things, for quick installation to be set up at almost any locations.

Applications



In-House Wind Tunnel Laboratory

To ensure SenseCAP weather sensors meet industry standards, Seeed Studio operates an advanced in-house wind tunnel laboratory. Our facility features precision auto-calibration instruments capable of 360° direction control and wind speeds from 0.1 to 80 m/s. Each weather sensor undergoes rigorous testing and calibration in simulated natural wind conditions, guaranteeing accuracy, reliability, and durability before delivery.

Sensor Calibration



Wind Tunnel Control System



Sensor Network Modules

Wio LoRa® / Wi-Fi HaLow Modules & Dev Kits

Powered by STMicroelectronics, Semtech and Quectel chipsets, Wio Series is a collection of low-cost, compact low-power long-range communication and Dev Kits for developers to design LoRa®, LoRaWAN® or Wi-Fi HaLow sensor nodes and gateway.

LoRa® Sensor & Gateway Module



NEW

Wio-SX1262

SKU [114993390](#)

Tiny sized LoRa® Module Based on Semtech SX1262.

- 6×11×2.95 mm @12 pins SMT.
- 862 - 930 MHz global LoRa® & LoRaWAN® frequency plan.
- Low-power consumption: 62 µA sleep current.
- Onboard IPEX antenna connector.

Wio-SX1262 LoRa® Add-on for Seeed Studio XIAO

SKU [113010003](#)



NEW

LoRa® Sensor Module



NEW

Wio-LR1121 LoRa® Module

SKU 113991415

Ultra-low-power multi-band LoRa® Module based on Semtech's LR1121 enabling both terrestrial and satellite communication.

- 12×17×1.0 mm.
- Worldwide ISM frequency bands 150 - 960 MHz (sub-GHz) and 2.4 GHz, as well as 2.1 GHz S-Band.
- Fully compatible SX126X + SX128X.
- Onboard IPEX antenna connector.

Wio-LR1121 LoRa® Add-on for Seeed Studio XIAO

SKU Available Soon



NEW

Wi-Fi HaLow AP & STA Module



NEW

Wio-WM6180 Wi-Fi HaLow Mini-PCIe Module

SKU 109990565

Wi-Fi HaLow AP and STA Module Based on Quectel FGH100M-H.

- 50×30 mm, Mini-PCIe form factor with 52-pin Golden Finger.
- IEEE 802.11 ah 902-928 MHz.
- Onboard IPEX antenna connector.

Wio-WM6180 Wi-Fi HaLow Module for XIAO

SKU 109100041



NEW

LoRa® Sensor Modules



Wio-E5 | Wio-E5-LE

SKU [317990829](#), [114993120](#)

Powered by STM32WLE5JC, the World's First Combination of LoRa® RF and MCU on One Chip.

- 12×12 mm, 28 pins SMS with rich interfaces for expansion.
- Ultra-low power consumption of 2.1 μ A in sleep mode.
- Easy to use with LoRaWAN® AT commands.

Grove Wio-E5 Wireless Module

SKU [113020091](#)



Wio-E5/Wio-E5-LE Mini Dev Board

SKU [113990939](#), [113991156](#)



Wio-E5/Wio-E5-LE Dev Kit

SKU [113990934](#), [113991157](#)



LoRa® Sensor Modules



Wio-WM1110 LoRa® Tracker Module

SKU [114992865](#)

Low-cost indoor and outdoor tracker module.

- 20×20 mm, 80 pins LGA.
- Semtech LR1110 and Nordic nRF52840.
- GNSS, Wi-Fi, Bluetooth for outdoor and indoor positioning.
- Low-power consumption: 6 μ A in sleep mode.

Wio Tracker Dev Board

SKU [114993186](#)



Wio-WM1110 Dev Kit

SKU [114993082](#)



LoRa® Gateway Modules



Wio-WM1302 / Wio-WM1303

SKU [114992969](#), [114993268](#), [114992628](#), [114992991](#)

LoRaWAN® Gateway Module in Mini-PCIe Form Factor Based on Semtech SX1302.

- 50×30 mm, Mini PCIe form factor with 52 pin Golden Finger.
- Ultra-low operating temperature, no additional heat dissipation needed.
- Low-power consumption: down to 7.5 mA in standby mode.

Wio-WM1110 Raspberry Pi Hat

SKU [113100022](#)



Grove Sensor Modules

Grove is an open modular interface standard with a universal 4-pin connector that links over 400 functional modules (sensors, networking modules, actuators, etc) to microcontrollers. Named for its branching expansion capability, Grove simplifies electronic design and is compatible with Arduino, Raspberry Pi, and other mainstream platforms, making it ideal for prototyping, education, and professional development.



Sensor



Actuators



Network



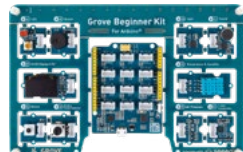
Accessories



Grove Kits Compatible with



XIAO Starter Kit
SKU [110010044](#)



Grove Beginner Kit for
Arduino
SKU [110061162](#)



Grove Inventor Kit for
micro:bit
SKU [110060762](#)



Grove Starter Kit
for Sood Studio
BeagleBone® Green
SKU [110060131](#)



Grove Starter Kit for
Raspberry Pi Pico
With Free Courses
SKU [110061283](#)

Edge Computing

Edge Computing is rapidly evolving, driven by the growing need for data processing closer to its source. Modern solutions embrace open architectures, seamless integration, and cloud-native approaches, powered by advances in computing, communication, and storage technologies. Seeed Studio provides comprehensive Edge Computing solutions, from development boards to industrial-grade devices, enabling real-time processing and operational efficiency across industries.

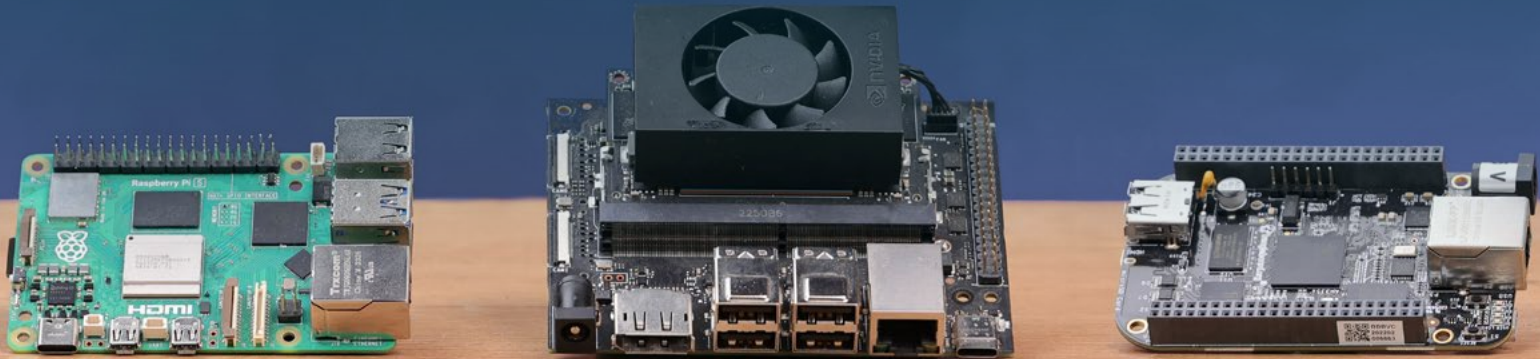


Single Board Computers (SBCs)

Through partnerships with leading chip manufacturers and developer communities, we deliver powerful SBCs and hundreds of compatible products. This comprehensive ecosystem helps developers bring their AIoT and robotics projects to life quickly and efficiently.

3

Edge Computing



Raspberry Pi offers a rich collection of credit card-sized, single-board computers offering high performance and extensive I/O capabilities at an affordable price. Its robust software ecosystem attracts users from students to professional engineers.



NVIDIA Jetson is the leading platform for autonomous machines and embedded AI applications, providing a scalable software framework, modern AI stack, and specialized workflows to accelerate AI products' time-to-market.



BeagleBoard® is an open-source, industrial single-board computer powered by Texas Instruments' ARM Cortex-A processors, offering extensive expandability.

seeed studio



Raspberry Pi
Approved Reseller



Raspberry Pi
Design Partner

Raspberry Pi Approved Design Partner and Reseller

Seeed Studio is a leading provider of Raspberry Pi products, offering a wide range of official boards, kits and devices for various domains tailored to your needs.

reComputer AI R Series

NEW

Low-Power

10+ Years Supply



The World's Most Powerful Raspberry Pi AI Box.

SKU

reComputer AI R

114993560

reComputer AI Industrial R

114993595

The reComputer AI R series features a commercial version with Raspberry Pi 5 and an industrial version with CM5, both equipped with a **26 TOPS** Hailo 8 acceleration module, and a **ready-to-use model zoo and tool chain**.

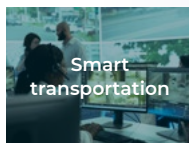
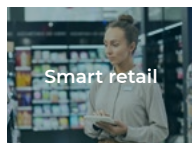
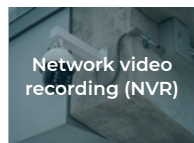
Price from

\$249

Features

- **8GB RAM & M.2 Slot**
Enhance high-speed SSD storage and performance.
- **Advanced Video Processing**
4K 60fps H.265 decoder supporting 2-8 real-time (720p) multi-stream inferences for object detection and tracking.
- **Rich Connectivity**
2×HDMI, 1×Gigabit Ethernet, 2×USB 3.0.
- **Enhanced Reliability**
Industrial version includes additional PoE, 4G/Lora®, TPM, and RTC.

Applications



reComputer R1 Series

Industrial-Grade

Low-Power

10+ Years Supply



The Most Adaptable Edge AIoT Gateway for Diverse Industrial Landscapes.

SKU

reComputer R10

113991314, 113991274,

113991294, 113991295

reComputer R11

113991334, 113991374, 113991375

Price from

\$169

Features



• Powerful Performance

Raspberry Pi CM4, quad-core A72, up to 8GB RAM and 32GB eMMC.



• Multiple Industrial&AI Interfaces

RS-485, RS-232, DIO, Ethernet Port, HDMI, USB 2.0, Native M.2 Slot for AI accelerator.



• Versatile Wireless Options

Support Wi-Fi, BLE, LoRaWAN®, Zigbee, and 4G LTE.



• Safety and Reliability

TPM2.0/ATECC608A, Hardware Watch Dog, Metal Enclosure, EMC Protection, PoE, UPS.

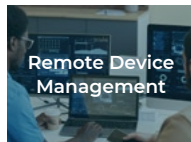
Applications



Smart Building



Energy Management



Remote Device Management



Facility Management

reComputer R1100



2x RS-485, 2x RS-232,
2x DI, 2x DO

reComputer R1000



3x RS-485

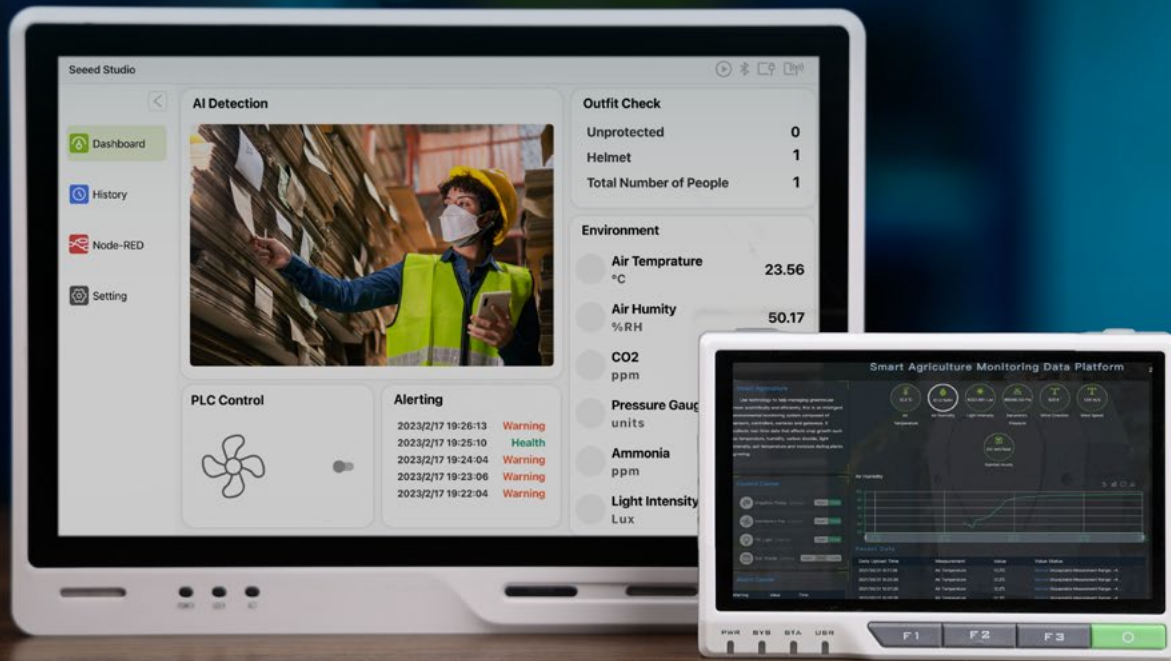
CM5 version upgrade
coming soon

	Parameter	Description	
Hardware Spec	Product Series	R1100	R1000
	CPU	Raspberry Pi CM4, Quad-core Cortex-A72@ 1.5 GHz	
	Operating System	Raspbian, Debian, Yocto, Buildroot	
	RAM	1 GB/2 GB/4 GB/8 GB	
	eMMC	8 GB/16 GB/32 GB	
System Spec	Power Input	DC 9 V~36 V, 2-pin Terminal Block	AC 12~24 V/ DC 9~36 V, 2-pin Terminal Block
	PoE (as powered device)	IEEE 802.3 af Standard 12.95 W PoE*	
	Power Consumption	Idle: 2.88 W; Full Load: 5.52 W	
	Power Switch	No	
	Reboot Switch	Yes	
Interface	Ethernet	1×10/100/1000 Mbps (Supports PoE*); 1×10/100 Mbps IEEE 802.3/802.3 u	
	USB	2×USB-A 2.0 Host; 1 x USB-C 2.0 (For flashing OS)	
	RS485	2×RS-485 (Isolated)	3×RS-485 (Isolated)
	RS232	2×RS-232 (Isolated)	/
	DI	2×Isolated DI Ports; Input Voltage: 5~24 V DC	/
	DO	2×Isolated DO Ports; Output Voltage: <60 V DC	/
	HDMI	1 x HDMI 2.0	
	SIM Card	1×Nano SIM Card Slot (Internal)	1×Standard SIM card slot
	SD Card	1×Micro SD Card Slot	/
	SSD Card	1×M.2 NVMe SSD Slot 2280-M Key	
	LED	12×LED Indicators	6×LED indicators
	Buzzer	1	
	Reset Button	1	

	Parameter	Description
Wireless Communication	Wi-Fi 2.4/5.0 GHz	On-chip Wi-Fi
	BLE 5.0	On-chip BLE
	LoRa®*	USB LoRa®*/SPI LoRa®*
	4G Cellular*	4G LTE*
	Zigbee*	Zigbee* Module
Standards	EMC	ESD: EN61000-4-2, Level 3; EFT: EN61000-4-4, Level 2; Surge: EN61000-4-5, Level 2
	Certification	CE, FCC, TELEC, RoHS, REACH
Ambient Conditions	Ingress Protection	IP40
	Operating Temperature	-30~70°C
	Operating Humidity	10~95% RH
	Storage Temperature	-40~80°C
Others	Supercapacitor UPS*	SuperCAP UPS LTC3350 Module*
	Hardware Watch Dog	1~255 s
	RTC	High Accuracy RTC
	Security	Encryption Chip TPM 2.0*/ATECC608A
	Heat Dissipation	Fanless
	Warranty	2 years
	Production Lifetime	Until December 2030
Statement		Options marked with* require additional purchase according to the accessories list.

Edge HMI: reTerminal & reTerminal DM

Harness AI to revolutionize human-computer interaction and data acquisition.



reTerminal

Low-Power

5+ Years Supply

Raspberry Pi
Approved Reseller

Raspberry Pi
Design Partner

A 5-inch Hand-size Raspberry Pi CM4-powered HMI for Home and Industry.

SKU [110070048](#), [110070108](#)

Price from:

\$209

Features



- **Raspberry Pi All-in-One Board**
RPi CM4, Wi-Fi & Bluetooth, IPS Touch Screen, pre-installed Linux.



- **Rich Interfaces**
USB, Ethernet, HDMI, micro-SD, MIPI camera interface, 40-pin GPIO.



- **Neat AI and Automation Assistance**
Built in light & proximity sensor, accelerometer, buzzer, RTC, and programmable buttons.



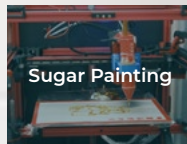
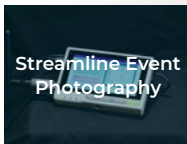
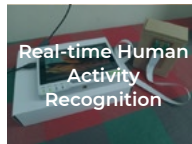
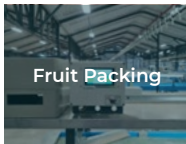
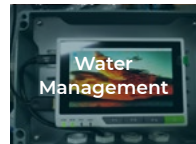
- **Industry-ready Modular Design**
DC Jack, PoE, UPS, LoRaWAN®, RS-485/232, CAN, SATA 2.0.



Supported Software



Applications



reTerminal DM

Industrial-Grade

Low-Power

5+ Years Supply

Raspberry Pi
Approved Reseller

Raspberry Pi
Design Partner

A 10.1-inch Raspberry Pi CM4-powered Integrated Device Master, Industrial-grade HMI/ PLC/ Panel PC All-in-one.

SKU [114070201](#), [114070221](#)

Price from:

\$364

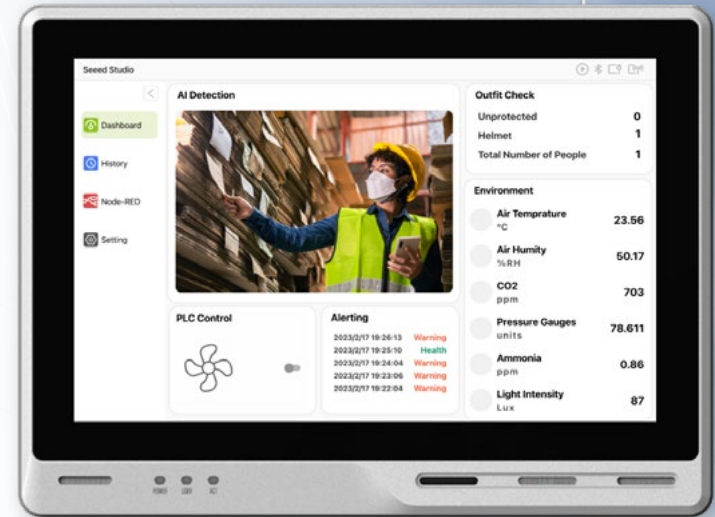
Features

-  • **10.1" HMI, PLC, Panel PC and Gateway in one**
Perfect for distributed hub device with build-in camera.
-  • **Rugged design for harsh working environment**
IP65 front panel, -10~50°C Operating Temperature.
-  • **Hybrid Connectivity**
Support 5G, 4G LTE, LoraWAN®, Wi-Fi, BLE, RS-485/232, CANBUS.
-  • **Open-source design in software and hardware**
Supports customization and derivative development.

Supported Software



Applications



Devices		reTerminal	reTerminal DM
			
MSRP		\$209	\$364
Description		A 5-inch hand-size HMI with integrated modular design. Flexible with high expandability for home and industry.	10.1-inch Integrated Device Master, HMI, PLC, Panel PC and Gateway in one, perfect for distributed hub device.
	CPU	Raspberry Pi CM4	Raspberry Pi CM4
	Storage	up to 8 GB RAM; up to 32 GB eMMC	8 GB RAM; 32 GB eMMC
	Display	5-inch 720×1280 LCD, Capacitive touch	10.1-inch 1280×800, 10-point Capacitive
	Camera	x	Supported (optional)
Wireless	Wi-Fi	2.4 GHz, 5.0 GHz IEEE 802.11 b/g/n/ac	2.4 GHz, 5.0 GHz IEEE 802.11 b/g/n/ac
	Bluetooth	Bluetooth 5.0, BLE	Bluetooth 5.0, BLE
	Cellular	Expansion Board Supported (optional)	Mini-PCIe for 4G (optional)
	LoRa®	Expansion Board Supported (optional)	Mini-PCIe for LoRaWAN® (optional)
	Zigbee	x	x
Interface	Ethernet	1000M RJ45×1	1000M RJ45×1; 1000M RJ45×1 (optional)
	HDMI	Micro HDMI×1	HDMI 2.0×1
	USB	USB 2.0 Type A×1; USB Type C×1	USB 2.0 Type A×2; USB 3.0×2 (optional)
	RS BUS	Expansion Board Supported (optional)	RS-485×1 > Terminal Block; RS-485×1 > DB9 (optional) RS-232×1 > Terminal Block; RS-232×1 > DB9 (optional)
	CAN BUS	Expansion Board Supported (optional)	CAN-BUS×1 > Terminal Block
	PCIe	PCIe 1-lane Host×1	Mini-PCIe×2
	M.2 socket	Expansion Board Supported (optional)	Support M.2 2280 NVME SSD card
	Digital IO	/	DI×4 > Terminal Block; DO×4 > Terminal Block
Power	Power Range	5 V DC	12-24 V DC
	PoE	Expansion Board Supported (optional)	IEEE 802.3af Standard (optional)
	UPS	Expansion Board Supported (optional)	/
Extra features	RTC	RTC	RTC
	Watch Dog	/	Hardware Watch Dog
	Security	ATECC608A	ATECC608A (optional)
	Operation Temperature	0 to 60°C	-10 to 50°C
	Ingress Protection	/	Front Panel IP65
Certification		RoHS, CE, FCC, REACH, TELEC	
Warranty		2 Years	

Your One-Stop Provider for Raspberry Pi Ecosystem

SBCs and MCUs



Raspberry Pi 5

16GB SKU [102111098](#)
8GB SKU [102110919](#)
4GB SKU [102110918](#)



Raspberry Pi 4

8GB SKU [102110421](#)
4GB SKU [102110301](#)
2GB SKU [102991317](#)
1GB SKU [102110299](#)



Raspberry Pi 3 Model A+

SKU [102110207](#)



Raspberry Pi Zero

W SKU [102110358](#)
WH SKU [102110359](#)
2W SKU [102110617](#)



Raspberry Pi Pico

SKU [102110537](#)

Cameras



Raspberry Pi AI Camera

SKU [10211100](#)



Raspberry Pi Camera Module 3

SKU [114993028](#)



Raspberry Pi Camera Module 3 NoIR

SKU [114993029](#)



Raspberry Pi Camera Module 3 Wide

SKU [114993030](#)



Raspberry Pi Camera Module V2

SKU [113990214](#)

Computing Modules



Raspberry Pi Compute Module 5

Part Number	SKU	Part Number	SKU	Part Number	SKU
CM5002000	102111058	CM5102016	102111075	Compute Module 5 Development Kit (US)	110061661
CM5002032	102111060	CM5102032	102111076	Compute Module 5 Development Kit (EU)	110061662
CM5004032	102111064	CM5104000	102111078	Compute Module 5 IO Case	114993531
CM5008032	102111068	CM5104016	102111038	Compute Module 5 IO Board	103990723
CM5102000	102111074	CM5104032	101110141	Compute Module 5 Passive Cooler	114993565

Accessories



Raspberry Pi AI HAT 26 TOPS

SKU [103990703](#)



Raspberry Pi AI Kit 13 TOPS

SKU [113060086](#)



PCIe3.0 Switch to dual M.2 hat for Raspberry Pi 5

SKU [103110065](#)



PCIe2.0 to dual M.2 hat for Raspberry Pi 5

SKU [103110064](#)



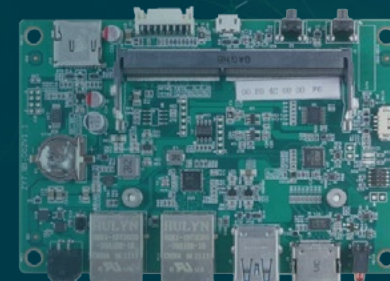
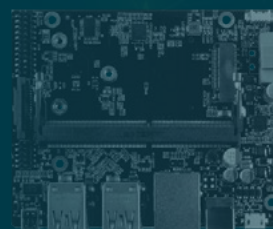
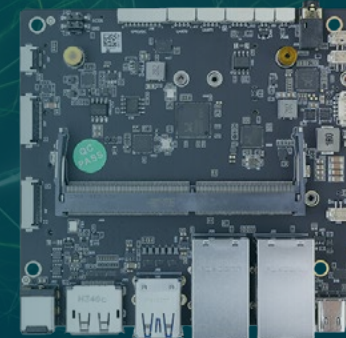
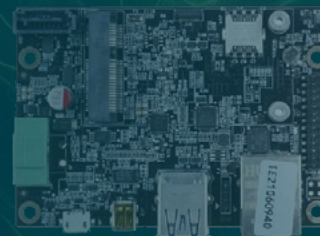
PCIe to M.2 hat for Raspberry Pi 5

SKU [103110063](#)

AI Kit & HAT

Elite Partner in NVIDIA Jetson® Ecosystem

Seeed Studio plays a pivotal role in contributing AI at the edge with a comprehensive selection of compatible carrier boards, accessories, and full systems. We commit to simplify access to cutting-edge technology, accelerating the development of intelligent devices and applications, and facilitating the creation of smarter, more efficient solutions across diverse industries.



reComputer & reServer Jetson Series

Compact and powerful edge AI computing solutions for efficient data processing and insights.



SO-ARM100 AI Arm Kit

NEW

AI-Native



Hugging Face



Support by Hugging Face LeRobot Open-source platform, try imitation learning at your fingertips.

SKU

Basic Motor Kit

[114993608](#)

Pro Motor Kit

[114993609](#)

Arm Skeleton Kit

114993637

Price from

\$200

Features



• 6 Degrees of Freedom

Enable flexible and stable movement in 3D space.



• High-Torque Motors

Reduce joint jitter caused by excessive load.



• Precise Sensing

Ensure high-sensitivity motion control and synchronized teaching.



• End-to-End Inference

Able to access NVIDIA Isaac Lab for data collection, training, and verification. Support deployment of large models such as Diffusion Policy/ACT/Pi0.

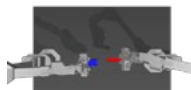
Imitation Learning Workflow



Synchronizing for
Data Collection



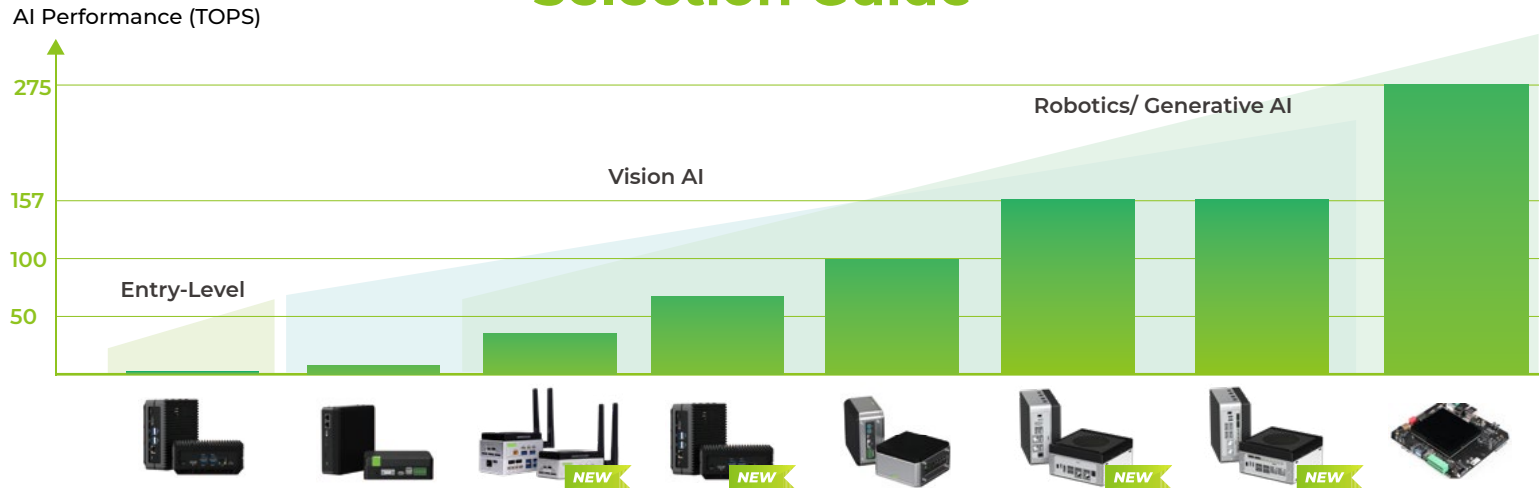
Diffusion Policy
Utilized



Model Training and
Deployment



reComputer & reServer Jetson Series Selection Guide



Devices	reComputer Classic J1010 NVIDIA Jetson Nano 4GB	reComputer Industrial J2012 NVIDIA Jetson Xavier NX 16GB	reComputer Mini J3011 NVIDIA Jetson Orin Nano 8GB	reComputer J4012B NVIDIA Jetson Orin NX 16GB	reServer Industrial J4012 NVIDIA Jetson Orin NX 16GB	reComputer Jetson Super Series NVIDIA Jetson Orin Nano/Orin NX	reComputer Jetson Robotics Series NVIDIA Jetson Orin Nano/Orin NX	reServer AGX Orin J501 Board NVIDIA Jetson AGX Orin 32/64GB
Interface (USB + Network)	1×M.2 Key E; 2×CSI; 2 x USB 3.0; 2×USB 2.0; 1×Ethernet	1×M.2 Key M; 1×M.2 Key B; 1×M.2 Key E; 3×USB 3.2; 1×USB 2.0; 2×CSI; 2×Ethernet	1×M.2 Key M; 1×M.2 Key E; 2×USB 3.2; 3×USB 3.0; 2×USB 2.0; 1×CAN; 1×Ethernet	1×mini-PCIe; 1×M.2 Key M; 1×M.2 Key E; 2×USB 3.2; 3×USB 2.0	1×M.2 Key M; 1×M.2 Key B; 4×USB 3.1; 2×USB 2.0; 1×DB9 (RS-232/422/485); 5×Ethernet	1×M.2 Key M; 1×M.2 Key E; 2×Drive Bays; 4×USB 3.1; 2×USB 2.0; 5×Ethernet	1×mini-PCIe; 1×M.2 Key M; 1×M.2 Key E; 4×USB 3.2; 4×CSI; 2×Ethernet	1×mini-PCIe; 1×M.2 Key M; 1×M.2 Key E; 1×M.2 Key B; 6×USB 3.2; 4×CAN; 1×GMSL2; 2×Ethernet
Heat Dissipation	Fan	Fanless	Fan	Fan	Fanless	Fan	Fan	Fan
Wireless Communication	Wi-Fi/BT	Wi-Fi/BT/4G/5G	Wi-Fi/BT	Wi-Fi/BT/4G/5G	Wi-Fi/BT/4G/5G	Wi-Fi/BT/4G/5G	Wi-Fi/BT/4G/5G	Wi-Fi/BT/4G/5G
Power	USB-Type C 5 V 3 A	DC 12-24 V Terminal block 2 pin	XT30 Connector (12-54 V DC)	DC 9-19 V (DC Barrel Jack 5525)	DC 12-36 V Terminal block 2 pin	DC 12-19 V (DC Barrel Jack 5525)	XT30 (2+2) 19-54 V DC	XT30 (2+2) 19-54 V DC
Size(mm)	130×120×58.5	159×155×57	63×95×66.7	130×120×58.5	194.33×187×95.5	194.33×187×95.5	130×121×66	130×121×66

reComputer Jetson Classic Series



AI-Native

Stable Supply until January 2032

Compact Edge AI computer, classic design covering wide range of NVIDIA® Jetson™ modules.

SKU

Jetson Nano

[110061362](#), [110061441](#)

Jetson Xavier NX

[110061381](#), [110061402](#)

Jetson Orin Nano

[110110146](#), [110110147](#)

Jetson Orin NX

[110110144](#), [110110145](#)

Price from

\$219

Features



• Design for Both Development and Production

Open-source carrier board with rich set of I/O: 4×USB3.2, HDMI, GbE, M.2 Key M, M.2 Key E, GPIO, etc.



• Immediately Go-to-Market

Pre-installed Jetpack, Linux OS BSP, Certification including ROHS, CE, FCC, KC, UKCA, REACH.



• Long Life Time Supply

Available through 2032 for continuous production supply.

AI Framework



Hugging Face



ONNX



PyTorch



AI Performance

0.5 TFLOPS



100 TOPS



reComputer J401B Series

NEW

AI-Native

Stable Supply until January 2032

Updated reComputer classic edge AI computer, adding-on mini PCIe for LTE module integration.

SKU

Jetson Orin Nano
114993486, 114993487

Jetson Orin NX
114993488, 114993489

Price from

\$505

Features



• Design for Both Development and Production

Equip with rich set of I/O: 2×USB3.2, HDMI, Ethernet, M.2 Key M/E, mini-PCIe also support multiple wire/wireless communication options such as Wi-Fi and LTE.



• Immediately Go-to-Market

Pre-installed Jetpack 5.1.3, Linux OS BSP ready. Certification includes ROHS, CE, FCC, KC, UKCA, REACH.



• Long Life time Supply

Available through 2032 for continuous production supply.

LLM & Physical AI Framework



Hugging Face



NVIDIA
TAO



NVIDIA
ISAAC



NVIDIA
OMNIVERSE



ONNX



PyTorch



ROS



AI Performance

20 TOPS



100 TOPS



3

Edge Computing

reComputer Super Series

NEW

AI-Native

Stable Supply until January 2032



Supercharging reComputer with up to 1.7× AI performance boost.

SKU

Jetson Orin Nano
114110311, 114110312

Jetson Orin NX
114110313, 114110314

Releasing By

2025. Q2

Features



• Design for Both Development and Production

Rich interfaces including M.2 Key E/M, 2×Ethernet, Mini-PCIe, 4×USB 3.2, HDMI 2.1, 4×CSI, CAN.



• Boost Your Application with MAXN Performance

Deliver up to 157 TOPS AI performance, while efficiently handle 40W heat dissipation needs.



• Immediately Go-to-Market

Pre-installed Jetpack 6.2, Linux OS BSP ready.

LLM & Physical AI Framework



Hugging Face



NVIDIA
TAO



NVIDIA
ISAAC



NVIDIA
OMNIVERSE



ONNX



PyTorch



ROS



AI Performance

34 TOPS



157 TOPS

reComputer Jetson Robotics Series

NEW



AI-Native

Stable Supply until January 2032

Robotics brain reference design for rapid validation and policy training & deployment.

SKU

Jetson Orin Nano
114110307, 114110308

Jetson Orin NX
114110309, 114110310

Releasing By

2025. Q2

Features



• Dedicated Design for Robotics

Support 19-54 V range battery power input, rich set of I/Os including 6×USB, 2×CAN (1 with XT30 (2+2), 1 with JST connector), 1×GMSL, 2×I2C, etc.



• Boost Your Application with MAXN Performance

Delivering up to 157 TOPS AI performance, while efficiently handle 40 W heat dissipation needs.



• Immediately Go-to-Market

Pre-installed Jetpack 6.2, Linux OS BSP ready.



• Long Life Time Supply

Available through 2032 for continuous production supply.



LLM & Physical AI Framework



Hugging Face



NVIDIA
TAO



NVIDIA
ISAAC



NVIDIA
OMNIVERSE



ONNX



PyTorch



ROS



AI Performance

34 TOPS



157 TOPS

reComputer Jetson Mini Series

NEW



AI-Native

Stable Supply until January 2032

Tiny edge AI computer, capable of integrating into any autonomous machine system seamlessly.

SKU

Jetson Orin Nano 8GB

102110999,

114993551 (with extension)

Jetson Orin NX 16GB

102111001,

114993553 (with extension)

Price from

\$599

Features



• Customized Expansion for More Possibilities

Dual channel CAN, RJ-45 Ethernet, 4×USB ports up to 8 with expansion.



• Immediately Go-to-Market

Pre-installed Jetpack 6.0, Linux OS BSP ready.



• Wide Range DC Power Input Supporting 12-54 V

Able to directly connect with 48 V battery power supply system.

LLM & Physical AI Framework



Hugging Face



NVIDIA
TAO



NVIDIA
ISAAC



NVIDIA
OMNIVERSE



ONNX



PyTorch



ROS



AI Performance

20 TOPS



100 TOPS



reComputer Jetson Industrial Series



Fanless

AI-Native

Stable Supply until January 2032

Robotize machines in the harsh environment of facility or the wild.

SKU

Jetson Xavier NX
[110110188](#), [110110189](#)

Jetson Orin Nano
[110110192](#), [110110193](#)

Jetson Orin NX
[110110190](#), [110110191](#)

Price from

\$799

Features



Industrial Interfaces, Robotize Machine Facilities

2×RJ-45 GbE (1×PoE), RS-232/422/485, 4×isolated DI/DO, 1×CAN.



Fanless Compact PC, Designed for Harsh Environment

Thermal reference design, wider temperature support -20°C ~ 60°C.



Support Flexible Mounting Options

Desk, DIN rail, wall-mounting, VESA.



Vision AI & LLM Framework



Hugging Face



ONNX



PyTorch



ROS



AI Performance

20 TOPS



100 TOPS

reServer Jetson Industrial Series

Fanless

AI-Native

Stable Supply until January 2032

Local Inference Center with ultra high computing power, ideal for vision AI and Large Language Models.

SKU

Jetson Orin Nano
[114110250](#), [114110249](#)

Jetson Orin NX
[114110248](#), [114110247](#)

Price from

\$899

Features



- Support Multiple Streams for Complex Task Inferencing
4×PoE in 5×GbE interfaces, Optional GMSL2, FPD LINK III.



- Local Storage Expansion
2×SATA SSD/HDD



- Hybrid Connectivity
1×M.2 Key B, 1×miniPCIe for 4G/5G/LoRaWAN®, 1×CbE, 1×10 GbE (RJ45).

Vision AI & LLM Framework



Hugging Face



AI Performance

20 TOPS

100 TOPS



Enrich Perception & Precise Control at the Edge

Accelerate generative AI & robotics to the real-world with NVIDIA® Jetson™



Text Generation

Run LLM-based chat bot on Jetson.



Image Generation

Run diffusion models to generate stunning images interactively on Jetson.



Text + Vision

Run multimodal Vision-Language models to give your AI access to vision.



Vision Transformer (ViT)

Vision Transformer examples, with models optimized to run in real-time on Jetson.



Whisper

Run OpenAI's Whisper model to transcribe audio.



Llamaspeak

Live interaction with Llama LLM using NVIDIA Riva ASR/TTS.



AMR

Mapping in depth, precise navigation and route optimization.



Humanoid Robot

AI-driven gait control, balance, and dynamic movement, multimodal deployed for flexible human interaction.



Manipulator

Accurate motion planning, real-time thinking strategy for adaptive tasks.

Pioneering Embedded AI Partner

Support every stage of edge AI hardware development



Jetson Developer Kits



NVIDIA® Jetson Orin™
Nano Super Developer Kit
SKU [102110839](#)



NVIDIA® Jetson AGX Orin™ Developer Kit
SKU [110991725](#)

Carrier Boards



J101
Jetson Nano
SKU [102991694](#)



J202
Jetson Nano/
Xavier NX
SKU [102991695](#)



J401
Jetson Orin™
NX/Nano
SKU [102110770](#)



J501
Jetson AGX Orin
SKU [E24081601](#)



A203v2
Jetson Nano/
Xavier NX
SKU [103110043](#)



A603
Jetson Orin™
NX/Nano
SKU [102110840](#)



A607
Jetson Orin™
NX/Nano
SKU [102110841](#)



A608
Jetson Orin™
NX/Nano
SKU [105110001](#)

Lidar



RPLIDAR A1M8
SKU [114992561](#)



RPLIDAR S3
SKU [101090041](#)



RPLIDAR C1
SKU [101090061](#)

Camera Module



IMX219-77
8MP Camera
SKU [114992260](#)



IMX219-200
8MP Camera
SKU [114992265](#)



IMX219-160IR
8MP Camera
SKU [114992264](#)



Raspberry Pi
HQ Camera
SKU [114993032](#)



Raspberry
Pi Camera
Module V2
SKU [113990214](#)



IMX390 2.12MP
118°(H) FOV
4-lane MIPI CSI
Camera
SKU [114993127](#)

Accessories



Aluminum Heatsink for
Jetson Nano Module
SKU [114992686](#)



Aluminum Heatsink with
Fan for Jetson Nano
Module
SKU [114993641](#)



Aluminum Heatsink with
Fan for Jetson Xavier NX
Module
SKU [114992687](#)



Aluminum Heatsink with
Bigger Fan for Jetson
Xavier NX Module with
Long Cable
SKU [114992746](#)



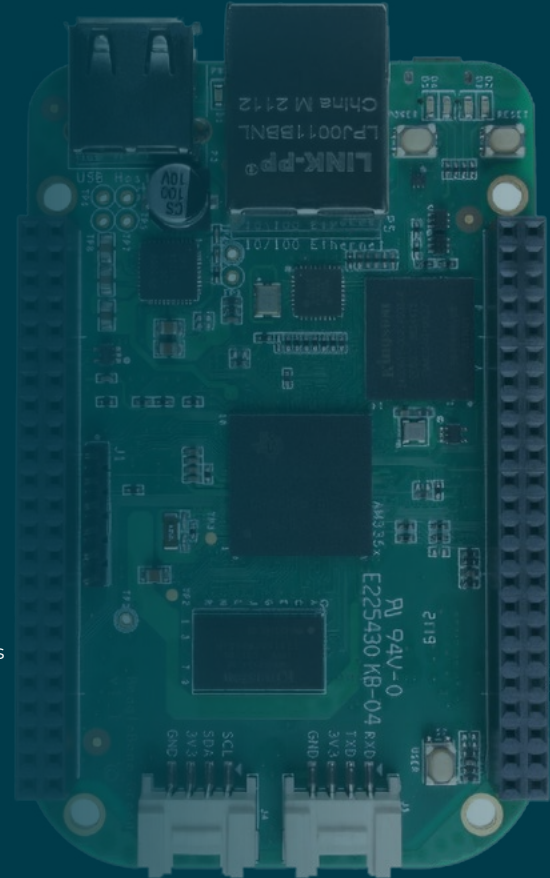
Aluminum Heatsink with
Fan for Jetson TX2 NX
Module
SKU [114992731](#)



Aluminum Heatsink with
Fan for Jetson Orin NX/
Orin Nano/Xavier NX
Module
SKU [110991904](#)

Strategic Partner of BeagleBoard®

BeagleBoard®, designed by BeagleBoard.org Foundation, is a series of open-source, low-cost single board computers with high expandability, supported by a vibrant community through BeagleBoard.org. As BeagleBoard®'s strategic design partner, Seeed Studio actively contributes to hardware development and community building, making this powerful platform accessible to developers.



Seeed Studio BeagleBone® Green Series

Jointly developed by Seeed Studio and BeagleBoard.org



Seeed Studio BeagleBone® Green

SKU [102010027](#)

- Processor AM335x 1GHz ARM® Cortex-A8
- Based on BeagleBone® Black's open-source hardware design
- Built-in Grove connectors for fast prototyping
- Compatible with Debian, Android, Ubuntu, Cloud9 IDE on Node.js via BoneScript library



Seeed Studio BeagleBone® Green Wireless

SKU [102010048](#)

- First BeagleBone® board with Wi-Fi + BLE capabilities
- Based on BeagleBone® Black's open-source design
- Built-in TI WiLink™8 2.4GHz wireless module with dual antenna configuration
- Supports AP+STA communication mode
- Includes MRAA library support

Official BeagleBoard® Series

Seeed Studio has been closely collaborating with BeagleBoard.org to help manufacture official BeagleBone® development boards to serve prosperous AIoT/IIoT needs.



NEW



BeagleBone® Black, Black Industrial

A low-cost, community-supported development platform. Features fast Linux boot (under 10 seconds) and quick setup via single USB cable. The Industrial variant offers extended temperature range for industrial applications.

PocketBeagle 2

SKU [102110780](#)

An ultra-compact single-board computer featuring TI's AM6232 SoC with dual A53 cores. It includes pre-soldered headers, USB-C, 512MB RAM, UART debug port, TI MSPM0L1105 MCU for ADC, and LiPo battery charging.

BeagleV® - Ahead

SKU [102991698](#)

A RISC-V SBC featuring 4 TOPS AI acceleration, Wi-Fi 2.4G, Bluetooth 5.2, and Gigabit Ethernet. The board includes mikroBUST™ socket, dual CSI cameras, HDMI, and DSI display interfaces, ideal for complex AI applications and embedded projects.

BeagleV® - Fire

SKU [102110898](#)

An open-source RISC-V single board computer with integrated FPGA fabric for custom applications. It features 2GB memory, 16GB eMMC storage, Gigabit Ethernet, M.2 Key E slot, CSI camera interface, microSD expansion, dual 46-pin BeagleBone® headers, and 12 user LEDs.

BeagleY®-AI

SKU [102991834](#)

A SBC featuring TI's AM67A AI vision processor with 4 TOPS deep learning performance. It offers comprehensive connectivity, including a 40-pin header, making it suitable for robotics, automation, and vision projects in an open-source design.

Software Suites

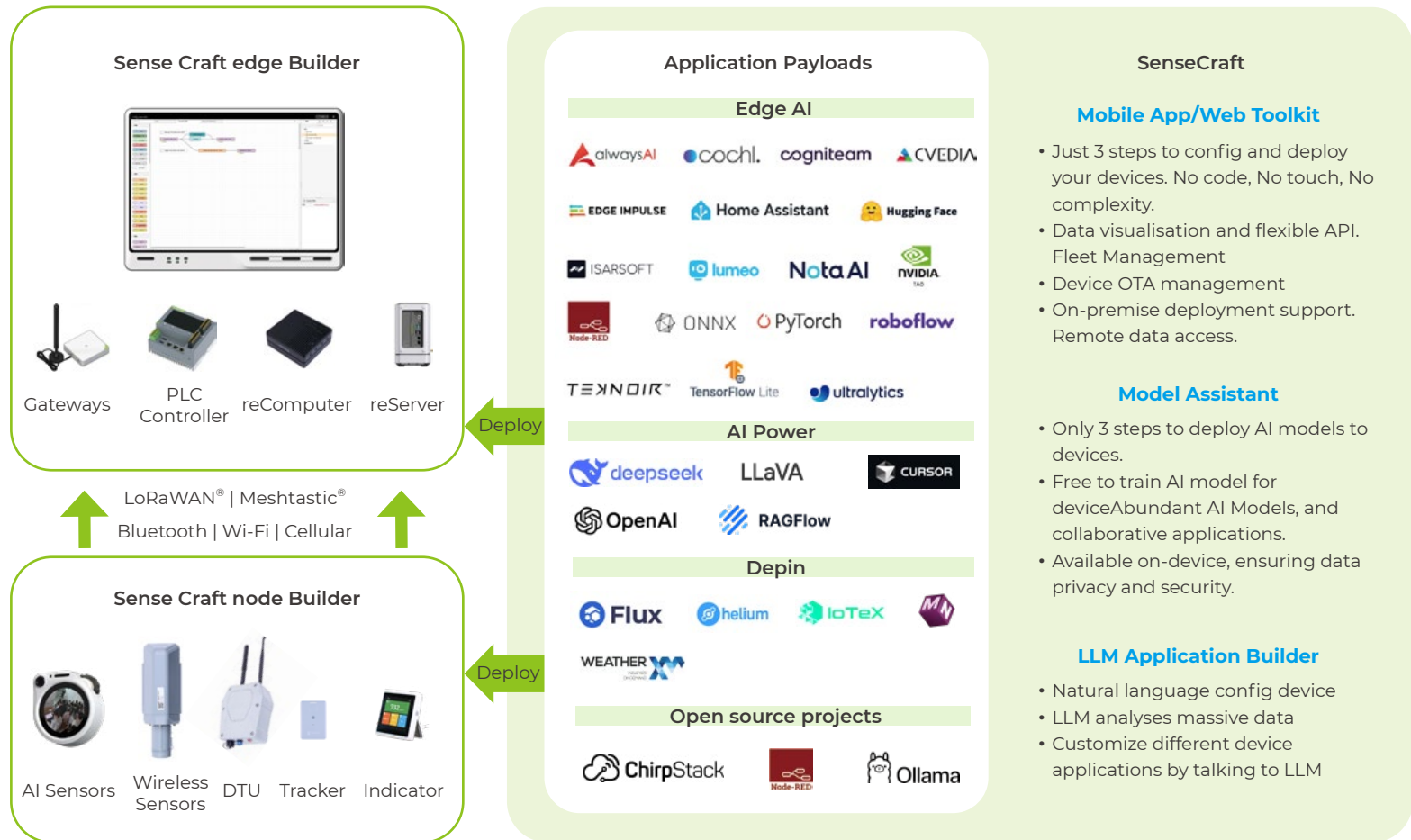
Integrated no code tools to orchestrate them all.



SenseCraft

<https://sensecraft.seeed.cc/>

Automate device deployment and MLops in the field



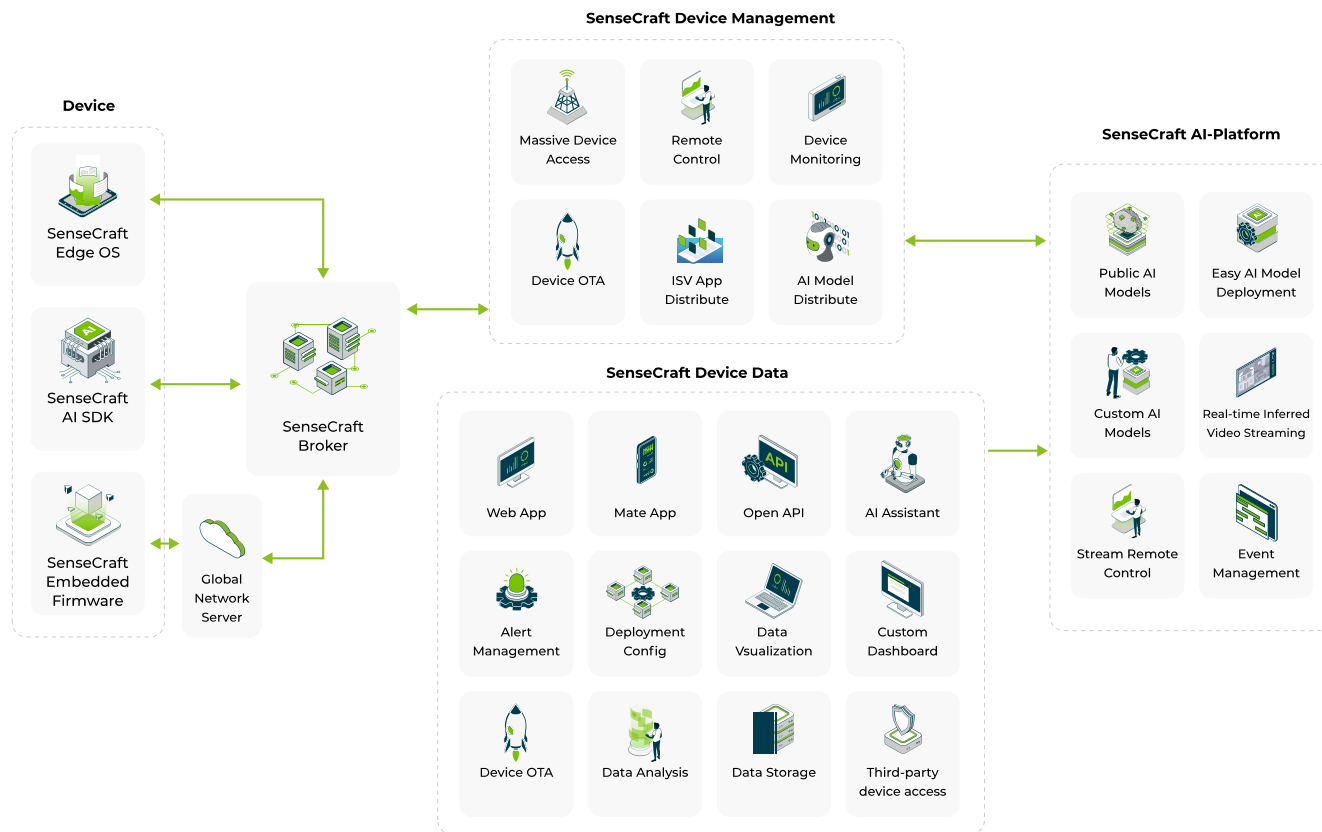
SenseCraft Under the Hood

We work closely with software partner to enable easier and more powerful solutions for customer of any skillsets. All firmware on devices are open source, and you have full control on your data flow for edge center systems.

1. The open source client firmware for MCU/ Linux based devices.

2. One stop management tool available in mobile and web.

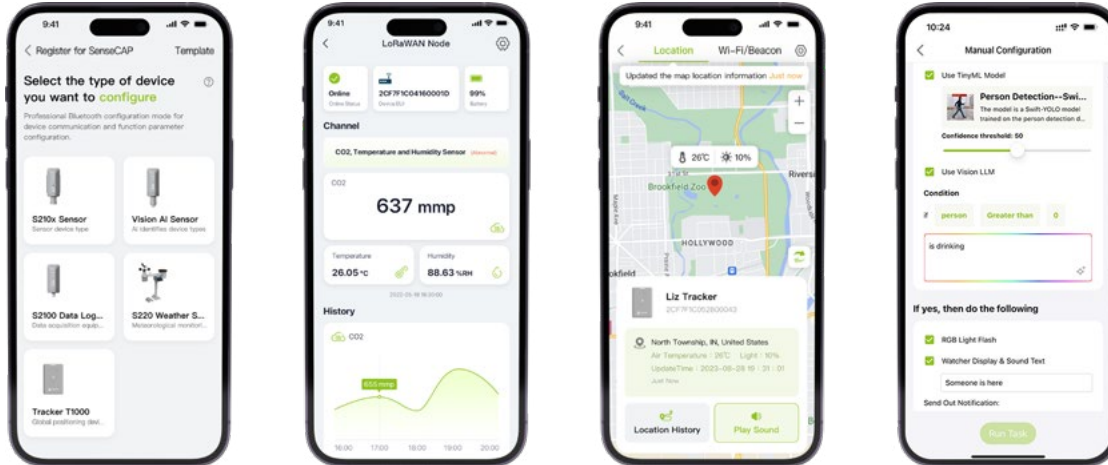
3. MLops service for on-site data collection and model distribution.



SenseCraft Mobile App / Web Toolkits

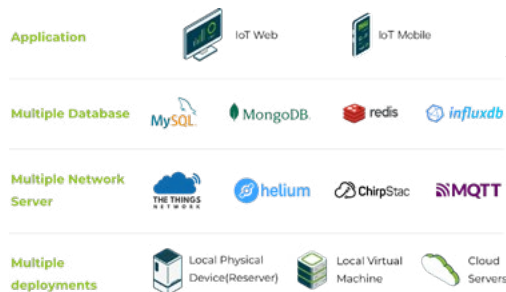
One-stop management tool available in mobile and web extensibility

SenseCraft provides convenient and practical applications for IoT device control and management, which can help users to realize remote monitoring and control of a series of IoT devices and provide data monitoring, alarm, and visualization functions, allowing users to manage IoT devices more conveniently.



Download QR Code

Customized services



Enterprises have their
your private cloud.

White label your own platform and app. Build your brand.

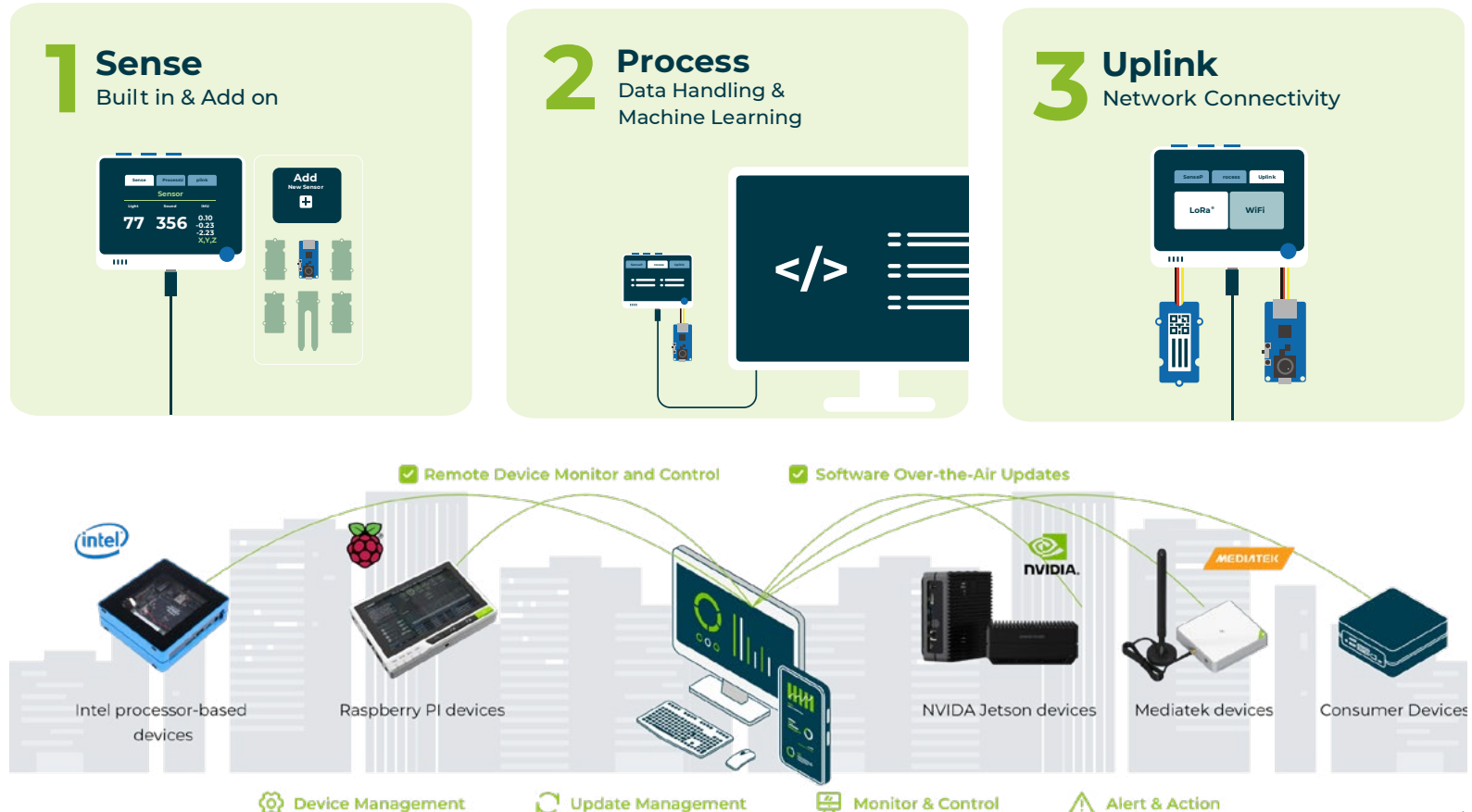
Source Code: <https://github.com/Seeed-Studio/SenseCraft-Web-Toolkit>



SenseCraft Sensor / Edge Builder

The open source client firmware for MCU based devices

SenseCraft Sensor / Edge Builder is an open source software platform for building no-code MCU and Linux based smart hardware. It provides a complete out-of-the-box solution for sensing the real world in the easiest and fastest way, supporting processing data at the edge and sending it to the cloud with no coding experience at all!



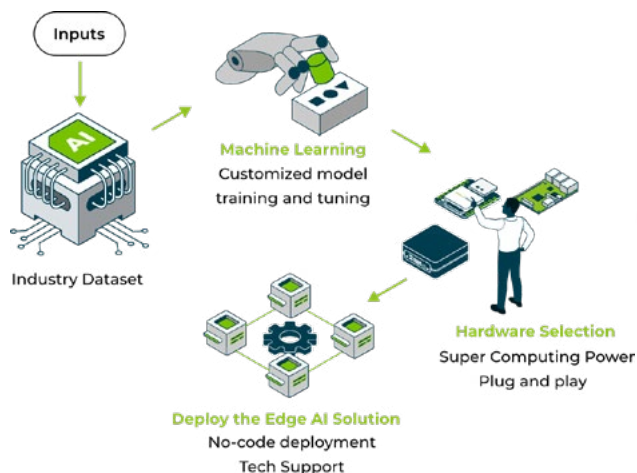
SenseCraft AI

<https://sensecraft.seed.cc/ai/>

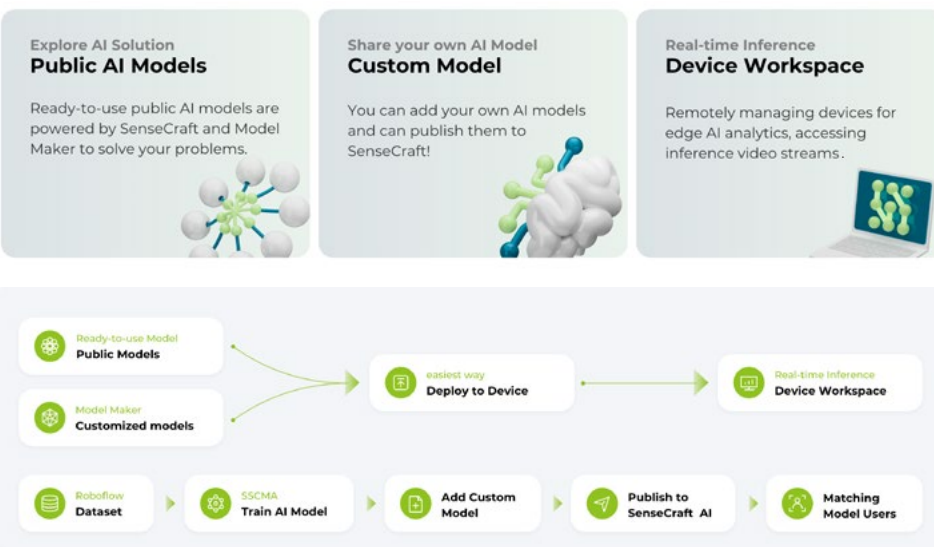
MLOps service for on-site data collection and model distribution

SenseCraft AI is an AI platform dedicated to simplifying the training, distribution, and deployment of AI models. With just a few clicks, you can easily deploy models and say goodbye to tedious configuration and coding. It supports users to upload and share self-trained models, build a shared model library, and promote collaboration and innovation among AI enthusiasts. Currently supports computer vision algorithms (such as target detection, image classification, image segmentation, and pose) and LLM, making it possible to realize high-speed and accurate inference on low-cost hardware, unlocking the powerful potential of AI in edge devices.

Build Your Own AI Solutions



Key Functions



SenseCraft - DePIN Suite

Deploy Web3 hardware and diagnosis with ease

SenseCAP Hotspot App



APP Store



Google Play



APP Center

Decentralized Sensors



Community powered
weather network



Helium WXM Weather
Station



Decentralized IoT
Platform



DePIN Dev Kit

Decentralized Gateways



People-Powered LoRaWAN® Network

~200K



SenseCAP M1
Hotspot



SenseCAP M2
Hotspot



SenseCAP M4
Square



Decentralized VPN
Network



SenseCAP M1
Hotspot

Decentralized Computing



SenseCAP M4 Square

Power By



SenseCAP Hotspot App / Dashboard



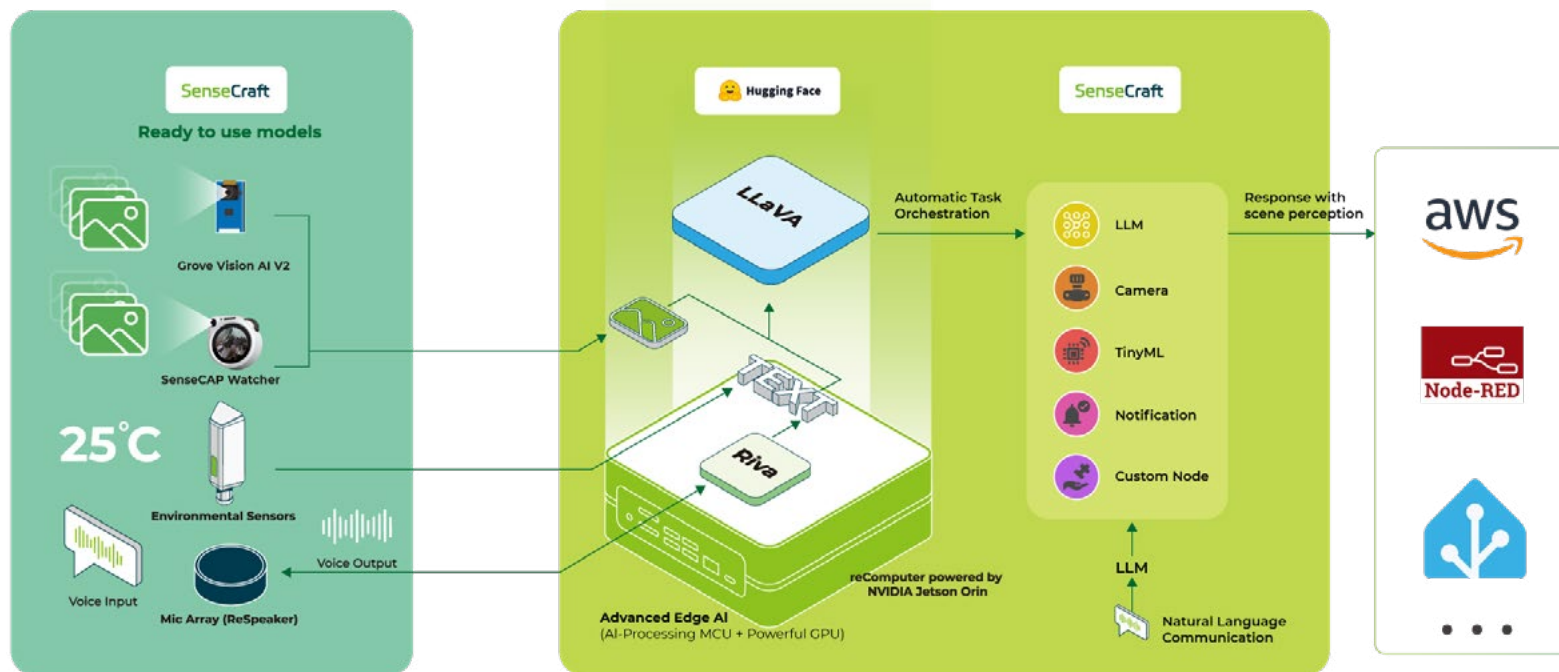
SenseCraft Device Management

Firmware payloads : Local LLM Based Projects

Upgrade no-code system with generative AI interaction

Combining tinyML with Generative AI at the edge represents a forward thinking approach to harnessing the potential of AI technologies for real-world applications.

Leveraging tinyML's capability to efficiently process sensor data (vision, voice, sound, environmental) directly on edge devices, it serves as a trigger for activating more powerful, local Generative AI models like LLMs on NVIDIA Jetson.

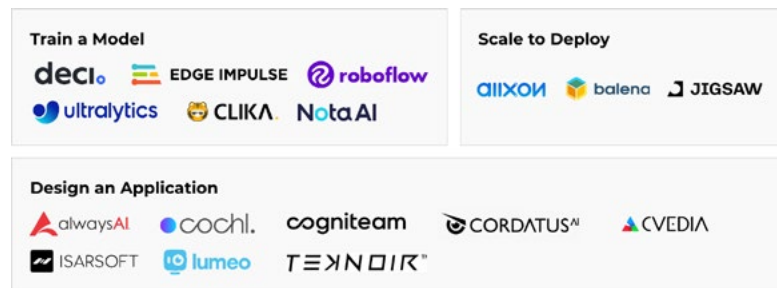


<https://github.com/Seeed-Projects/LocalJARVIS>

Firmware Payloads: Growing ISV Partnerships

<https://www.seeedstudio.com/blog/ecosystem>

AI ISV partners specialize in training models, designing applications, and scaling for deployment, thereby accelerating project development and implementation. Solution partners deliver comprehensive, integrated hardware and software solutions to end customers.



Ultralytics offers advanced object detection, classification, and segmentation models trained on COCO and ImageNet, with exports to ONNX, Core ML, and TFLite. It also provides Ultralytics HUB for easy AI model training and deployment without coding.

Application:

Object Detection, instance segmentation, image classification, pose estimation.

roboflow

Roboflow is an all-in-one computer vision platform that simplifies data labeling, custom model training, and deployment to any edge device or server. It also offers the Roboflow Inference Server for easy deployment of computer vision models for object detection, classification, and instance segmentation, using foundation models like CLIP and SAM.

Application:

Computer Vision.



Balena offers a complete technology stack for developing, deploying, and managing IoT fleets at scale. Its balena cloud provides cloud-based infrastructure for deploying and managing containerized AI/ML applications on a fleet of devices.

Application:

Container-based AI application deployment, fleet management.



Lumeo is a flexible, no-code video analytics platform that uses vision AI to bring intelligence and automation to various industries. It allows clients to leverage their existing cameras and infrastructure to analyze video data for applications like alarm monitoring, customer experience, marketing, compliance, and security.

Application:

Video Analytics.

NotaAI

Nota AI is a tech startup focused on optimizing AI models for edge devices using Python. Its platform, NetsPresso, streamlines the process of model training, compression, framework transition, and benchmarking.

Application:

Hardware-aware AI model optimization and edge AI.

5

Solutions and Case Studies

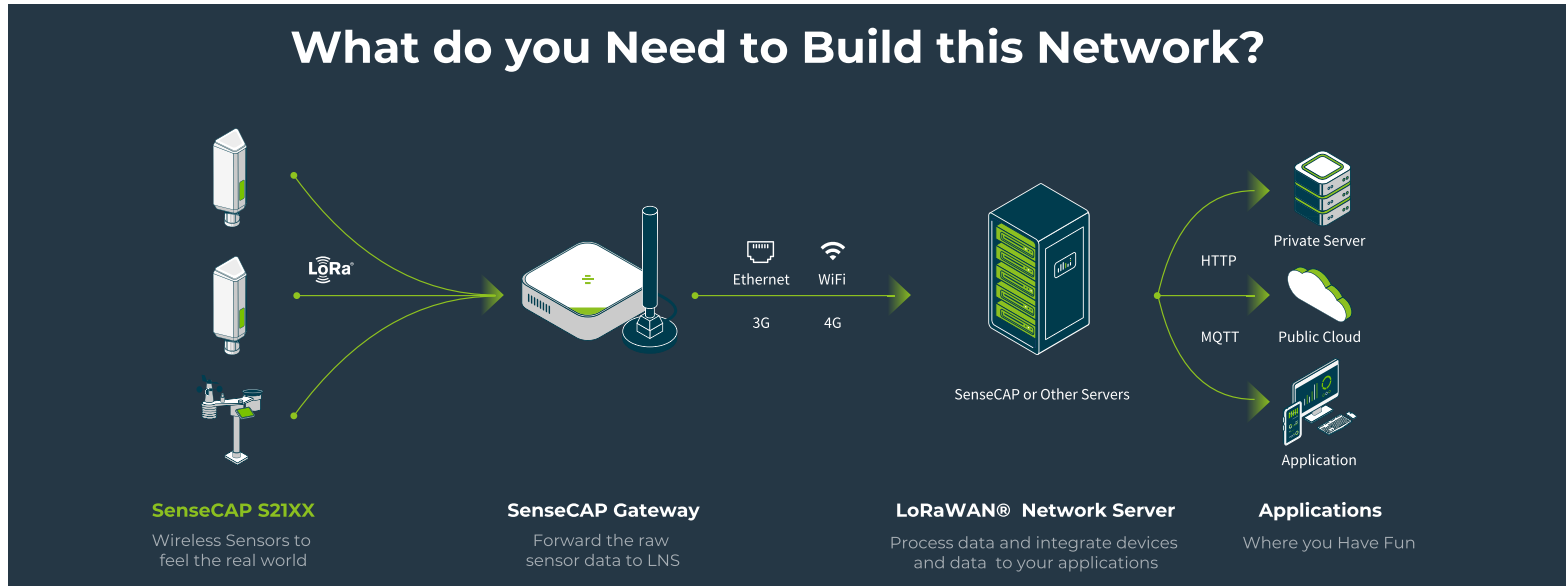
Implementable Solution

Based on years of implementation, we have established complete solutions across various industries. You can check our deployment guides and code on our [GitHub](#).



Scan or Click for
GitHub Source Code

Architecture



Our solutions encompass sensors, gateways, edge computing, AI capabilities, and data management. They have the following features :



Do You Know How to Improve Survival Rate for Baby Chickens?

Baby chickens need right temperature (34-35 °C for the first few days), humidity (60-70%), good ventilation, proper lighting.



Scan or Click for
Project Details

Our solution

Wireless Environmental Sensor

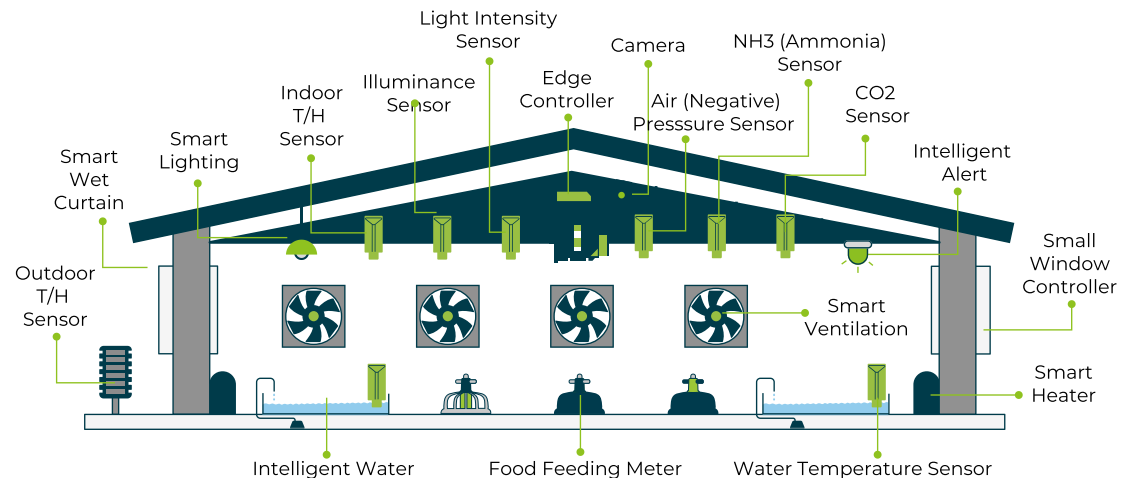
Industrial-grade sensors can operate for several years on battery alone and area without cellular network coverage.

Automated Control

Automated control of ventilation and shading systems adjusts temperature and indoor lighting to create the optimal environment for chicken growth.

AI Health Detection

By integrating vision AI, unhealthy chickens can be automatically identified, reducing the time spent on manual inspections.



More Cases

[Replacing manual field inspections in durian cultivation.](#) | [Driving pigsties indoor renovations.](#) | [Supports full-process traceability for customers in tea garden](#)

How On-Premises Sensor & Automation Helps Reduce Both Energy Use and Costs?

By integrating energy consumption data, the automation of commercial area equipment control, and energy storage management, can reduce electricity usage and lower operational costs.

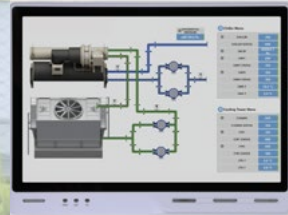


SCAN or Click for
Project Details

Our solution

On-premises sensor

Edge computing enables local collection and analysis of energy data, with easy access to the data via LAN APIs.

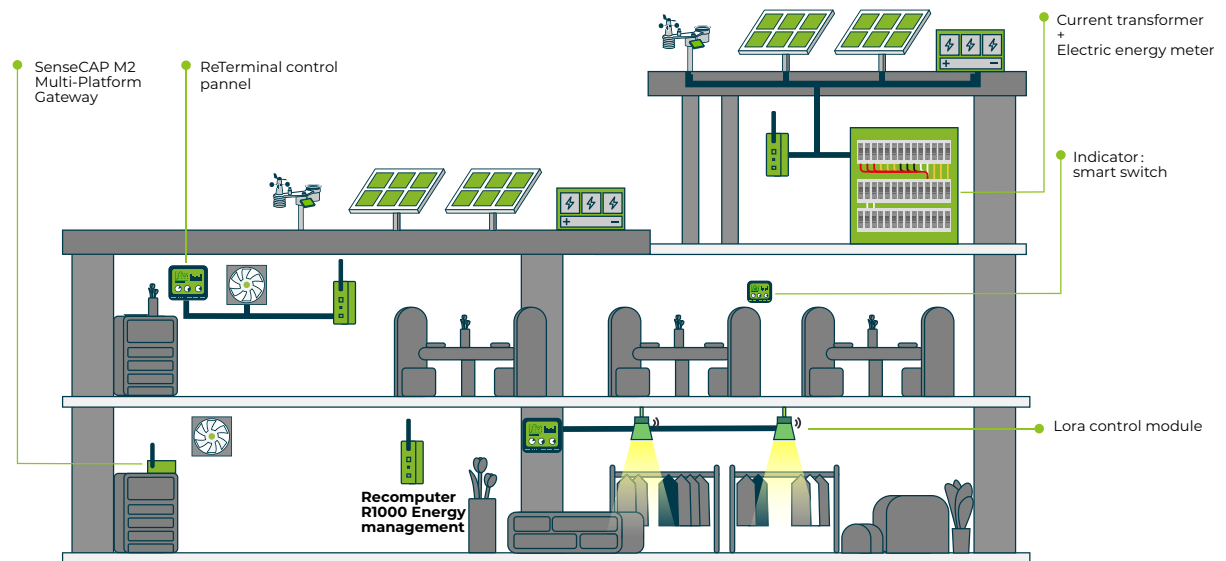


Device Automation

Based on rich sensor data, the switching and adjustment of public area equipment can be automatically controlled.

AI energy management

Historical-data based AI can automate the energy storage. Reducing the average energy cost.



More Cases

[Automated management of building HVAC systems](#) | [AI-driven store traffic analysis and queue detection](#) | [AI-driven airport passenger flow and luggage detection](#)

How Could We Predict Fire Risks in Advance?

Rich sensor data, combined with AI analysis, provides economical yet effective support for forest fire prediction, monitoring, and extinguishing.



SCAN or Click for
Project Details

Our solution

Reliable Sensor

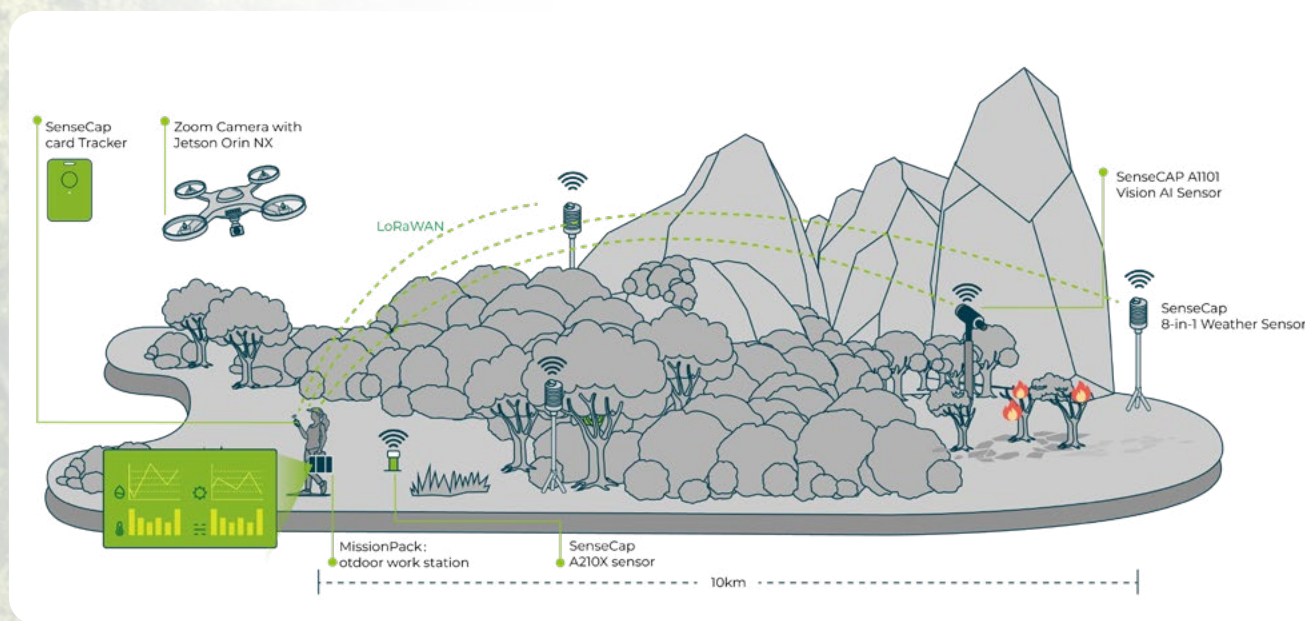
Our equipments are well support for outdoor environment data collection.

Wireless Communication

LoRaWAN® and MeshTastic technologies support for long range signal transmission and communication

Intelligent Patrols

AI sensor data analysis and AI fire point detection provides fact-based analysis for fire early warning and situation prediction.



More Cases

[IP camera prevent property crime and block unauthorized intrusion](#) | [Monitoring urban heat island effect](#) | [AI-powered perception enables drone-based fire early warning](#)

Mission Pack

Customisable Solution in a Box

The Mission Pack integrates our remote sensing, data transmission, and edge computing capabilities into an out-of-the-box solution. You can customize your own solution by combining the devices as needed.

Customize your own Mission Pack

MissionPack offers a variety of expansion interfaces for scene scalability, supporting integration with different devices via RS485, USB, LoRaWAN®, Meshtastic and Wi-Fi.



RS485 Sensor



LoRaWAN® Sensors



Vision Sensor



SCAN or Click for
GitHub Source Code



Open Tech for a Sustainable Future

We believe in leveraging open-source technology to drive real-world solutions for the UN Sustainable Development Goals (SDGs). Our solution and technologies have empowered developers, researchers, and organizations to create SDG-focused innovations that address global challenges.

Learn more: <https://www.seeedstudio.com/blog/sdg/>

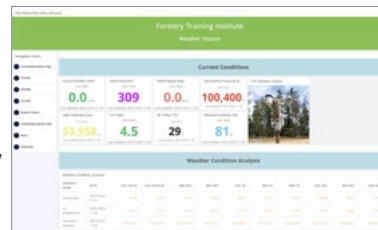


Carbon Sequestration Monitoring

Deployed in: Liberia

Monitor climate and greenhouse gas data in rainforests for climate research.

This project contributes to SDG 4, 9, 11, 13, 15, and 17.

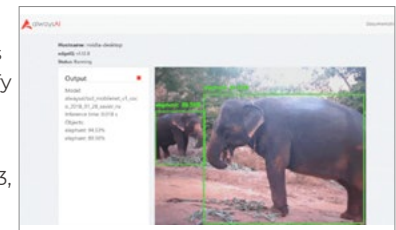


Animal Behavior Analysis & Habit Pattern Tracking

Deployed in: US, Australia

Leverages computer vision AI models to optimize zoo management, identify and tracks animals within their enclosures.

This project contributes to SDG 9, 11, 13, 15, and 17.



Smart Black Soldier Fly Farming

Deployed in: Tanzania

A resource-efficient and low-cost protein production method by monitoring and optimizing BSFs' living environment.

This project contributes to SDG 1, 2, 9, 11, 12, 13, 15, and 17.

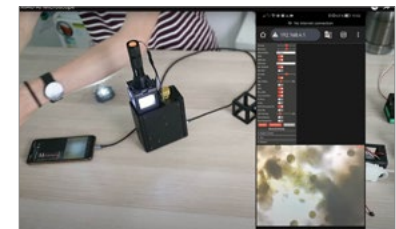


Open Science: OpenUC2 10x AI Microscope

Deployed in: Global

A collaborative innovation between openUC2 and Seeed that brings advanced, accessible microscopy to everyone. It is easy to assemble, customizable, and part of a broader initiative to democratize sophisticated scientific tools.

This project contributes to SDG 3, 4, 5, 6, 9, 10, 11, 15, 17.



Open Hardware and Co-Create

Seeed Studio elevates your innovative ideas into products and solutions across various verticals. With a comprehensive range of open-source modules, industry-grade devices, and expertise in product design, Seeed Studio is your go-to partner from 0 to ∞. **Co-create** with us means collaborating through various models, including OEM, ODM and Licensing Program, which are effective ways to innovate together.

By leveraging our capabilities in prototyping, production, and promotion, you can benefit from custom design and manufacturing services that cover the entire product lifecycle — from concept to market!

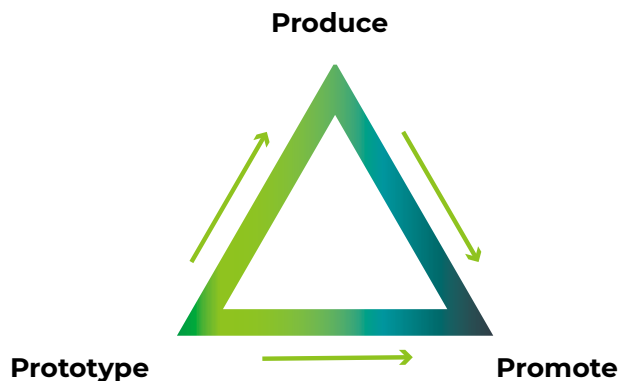


Co-Create

Know your Needs. Customized with Speed.

Seeed provides one-stop services tailored to your needs, **from design & customization to production and promotion**. Our Co-create provides solutions for every stage of your hardware journey, **whether you're starting from scratch, have a prototype, or need assistance with production and sales**.

Open Source + AI + Hardware



Seeed Fusion's PCB/PCBA - Prototype

https://www.seeedstudio.com/fusion_pcb.html

- Instant online quotes & lead times for PCB & PCBA.
- Dedicated engineers & project management.



Original Equipment Manufacture (OEM) - Produce

- Our OEM service manages manufacturing for finalized designs, ensuring quality production at scale.



Original Design Manufacture (ODM) - Prototype + Produce

- Our ODM service helps develop and manufacture your product, offering design and engineering support for prototypes and mass production.



Licensing Program - Prototype + Produce + Promote

- The Licensed program fosters collaboration between Seeed Studio and creators, providing services from prototype improvement to large-scale production and marketing.



100+

Market-ready products
as reference design



8-24 Weeks

to Customize a
NEW Product



15+

Years
Expertise in
AI Hardware Design



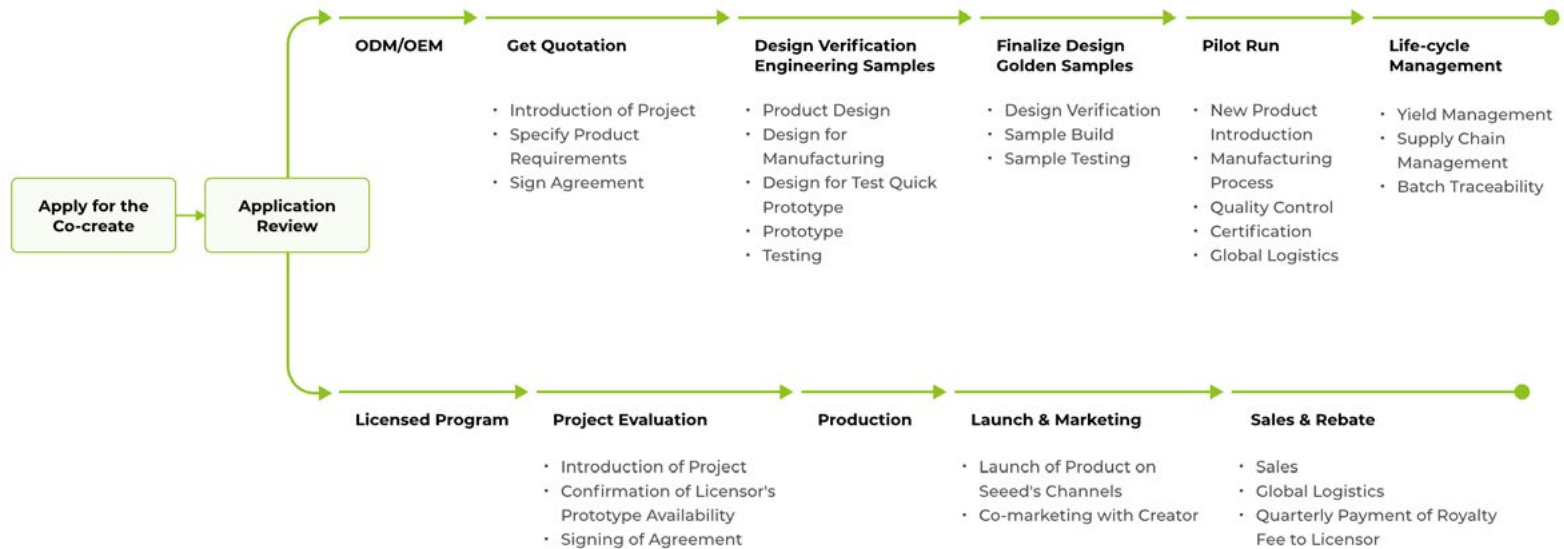
200K+

Customers
Served Globally

How to Co-Create with Seeed

You can take advantage of a diverse range of innovative products, including **XIAO Series**, **Raspberry Pi**, **NVIDIA Jetson solutions**, **LoRaWAN® trackers**, all designed to bring your ideas to life in fields ranging from IoT, AI, machine learning, smart homes, industry and agriculture, environmental sensing, electronics education and more.

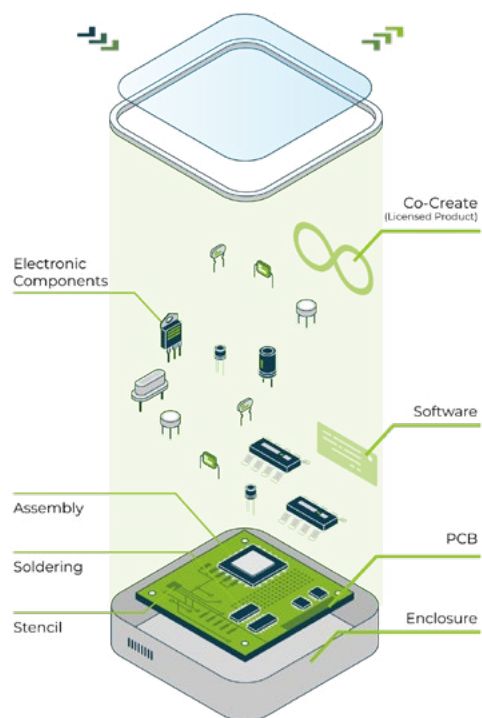
Apply Now: https://docs.google.com/forms/d/e/1FAIpQLSe2xs8bw8EK5WRd6-Uc2YbiOMW7FZi8NQIJ2mD6Vz5uMOYh3g/viewform?usp=sf_link



Comprehensive OEM/ODM Customization

Design and Customization for Diverse Needs

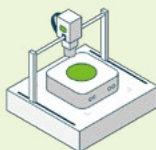
With 100+ in-house engineers, 16+ years experience in product design and production, Seeed Studio is your go-to choice for AI & IoT hardware design and customization.



Light Customization

Instant quotation & lead time | NO MOQ, starting from 1 unit |
Quality assurance

Order online



Logo Customization
(3 ~ 14 days)



Packaging Customization
(3 ~ 29 days)



Firmware Flashing
(3 ~ 7 days)

Deep Customization

Full-stack engineering support | Open reference design | DFM services |
Professional project management

Talk with experts



Functions Adding &
Trimming



Firmware Development



Robustness Improvement



Certifications

Contact us => Get quotation => Design verification => Golden samples => Pilot run => Mass production



Licensing Program

Additional Advantages Beyond Prototyping and Production

Solid Resources for Marketing and Sales



Fusion Gallery to test the water and receive feedback



Seed online shop to reach half a million direct customers

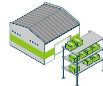


200+ online/ offline distributors to serve global & local need

After-Sales Service and Logistics Management



Provide timely assistance to customers



Global inventory management at warehouses



Shipment arrangements to customers and distributors

Revenue Sharing



Offer a fair revenue-sharing model to incentivize creators and encourage innovation



Pay licensor royalty fee quarterly

Co-Create Cases

Customization based on existing technology stacks

ODM Based on NVIDIA Jetson: Prototype + Produce

Vision AI Drowsiness Alert System for Truck Drivers Scenario

Our customer is an AI software provider offering solutions to logistics companies. As a large portion of traffic accidents are caused by fatigue driving, this customer comes up with a fatigue reminder based on computer vision. Seeed provided Jetson Nano module and a customized carrier board for this project.

Service we provide

Design Service
Customize carrier board
Manufacturing Service



ODM Based on Raspberry Pi: Prototype + Produce

reTerminal in Smart Packing

Our client has been operating end-to-end packing systems at several large fruit packhouses in South Africa, customizing packaging and labeling semi-robots. They have been using customized reTerminals as the smart labeling HMI at large fruit packhouses.

Service we provide

Design Service
Customize carrier board
Manufacturing Service



ODM: Prototype + Produce

Home Assistant Voice Preview Edition

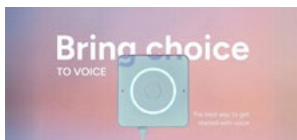
SKU [110992044](#)

NEW

Our client sought support to build a first-of-its-kind privacy-focused voice assistant for Home Assistant. Receiving praise from reviewers for its build quality. It features a custom PCB with an advanced audio processor, a semi-transparent injection-molded case, and tactile buttons.

Service we provide

Customized Device
Manufacturing Service



ODM: Prototype + Produce

Advanced Smartwatch for Enhanced Connectivity

NEW

Our client, a wearable tech innovator, developed a sleek smartwatch with features like health monitoring, notifications, and fitness tracking. Seeed Studio provided customized PCBA design to fit their housing and ensured seamless integration. We also delivered reliable mass production services, maintaining high-quality standards. This collaboration brought their vision to life, offering users a smart, connected experience.

Service we provide

Design Service
Customized PCBA
Manufacturing Service



Licensing Program: Prototype + Produce + Promote

Open UC2 10 x AI Microscope

NEW

SKU [114993409](#)

The OpenUC2 10x AI Microscope, a collaboration between openUC2 and Seeed Studio, democratizes advanced microscopy. Dubbed the "Raspberry Pi for Optics," it features high-resolution imaging with an XIAO ESP32S3 and OV2560 camera, motorized focusing, and a modular design for field and classroom use. With Wi-Fi connectivity and browser-based control, it supports autonomous functions like timelapse imaging, making it ideal for educators, researchers, and hobbyists.

Service we provide

Facilitate Prototype Development
Manufacturing Service
Promotion Service



Licensing Program: Prototype + Produce + Promote

Smart Citizen Kit 2.3

NEW

SKU [114993536](#)

Since 2014, Seeed Studio has partnered with Fab Lab Barcelona to enhance the Smart Citizen Kit, now at version 2.3. This open-source device introduces new sensors for improved data collection and features a user-friendly interface for easy use by beginners and researchers. Users can customize hardware and firmware, upload data to the Smart Citizen Platform, and utilize various data-logging options, including Wi-Fi and internal storage.

Service we provide

Facilitate Prototype Development
Manufacturing Service
Promotion Service



OEM: Produce

Everything Presence One Kit

NEW

The Everything Presence One Kit enhances smart home automation with advanced motion and presence detection sensors for automated device control. Seeed Studio significantly contributed to its launch by streamlining manufacturing, sourcing materials, and optimizing the supply chain for high order volumes. Their expertise ensured timely delivery and product quality, making the kit a reliable solution for smart home users.

Service we provide

Manufacturing Service



Licensing Program: Produce + Promote

Crazyfile 2.1

SKU [114993295](#)

The Crazyfile 2.1 is a lightweight, 27 g open-source micro-quadcopter with enhanced performance and durability. It features long-range radio, Bluetooth Low Energy (BLE), and an expandable interface for various decks. Powered by STM32F405 and nRF51822 microcontrollers, it includes an onboard LiPo charger, IMU, and pressure sensor, with a flight time of up to 7 minutes and a 15 g payload capacity. Users can customize its open-source software, making it ideal for developers, researchers, and hobbyists.

Service we provide

Manufacturing Service
Promotion Service



Shenzhen Tech Ecosystem and Open Manufacturing Whitepaper



Since 2009, **Seeed Technology** has offered customized manufacturing services globally with 16 years of experience. The company provides a complete suite of services, including prototype design, PCB manufacturing, parts procurement, PCBA, mechanical processing, mass production, testing, packaging, quality inspection, and logistics delivery. It operates a processing factory and a global warehousing center for rapid prototyping and small batch orders, along with three outsourcing factories for large-scale production. Seeed Technology has successfully collaborated on 7,200 cases with clients such as Microsoft, Schneider, ADI, Walmart, and Arduino, focusing on various industries, original chip development boards, IoT solutions, and educational products.



Open Manufacturing Whitepaper

Shenzhen, the Pearl River Delta's electronics manufacturing hub, has transformed from a small village into a global innovation center. Its concentration of talent and agile SMEs fosters rapid prototyping and product iteration.

Community Driven, Ecosystem Builder

At Sseed Studio, we're dedicated to catalyzing digital transformation across industries through collaborative AIoT solutions with our vibrant community and partners. Within this dynamic ecosystem, we collaborate with chip providers, embedded software partners, ML/CV experts, cloud and network partners, and a global community of enthusiasts and innovators. But our commitment doesn't stop there. We're passionately engaged in driving positive global impact, addressing diverse challenges such as climate action, education, agriculture, etc. Together, we're making a difference that matters.



Growing Partnerships

Chip Providers



Embedded SW



ML / CV



Cloud and Network



Community



Vibrant Community



Hackster:

2,938 Published Projects

22,200 Members

<https://www.hackster.io/seed/>



GitHub:

841 Followers

475 Repositories

<https://github.com/Seed-Studio>



Seed Studio Discord:

10,859 Members

<https://discord.com/invite/QqMgVwHT3X>



SenseCAP Discord:

27,565 Members

<https://discord.gg/4mKVXNNrgY>

At Seed Studio, we believe in community-driven innovation. Our vibrant community **connects** developers, industry professionals, and mentors worldwide to share knowledge, projects, and ideas. Through our **Seed Ranger program**, we expand this collaborative ecosystem by organizing workshops, exhibitions, and creating engaging content.



Instagram:

14430 Followers

<https://www.instagram.com/seedstudio/>



Threads:

2870 Followers

<https://www.threads.net/@seedstudio>



Bluesky:

276 Followers

<https://bsky.app/profile/seedstudio.com>



Seed Ranger:

13 Rangers

60 Workshops

9 Countries

<https://wiki.seedstudio.com/ranger/>



YouTube:

17,700 Followers 633 Videos

<https://www.youtube.com/@SeedStudioSZ>



X:

67,747 Followers

<https://x.com/seedstudio>



Facebook:

45,1642 Followers

<https://www.facebook.com/seedstudiosz>



LinkedIn:

46,502 Followers

<https://www.linkedin.com/company/seedstudio/>

Shenzhen, The Global Maker Hub



Maker Camp in Shenzhen

Delve into Shenzhen's thriving tech ecosystem, understand the intricacies of manufacturing processes and supply chain management, learn how to harness these resources to create innovative projects, and share knowledge.

- **50+** Researchers, Engineers, and Students from
- **20+** Globally Recognized Institutions 20+ Research Backgrounds
- **8** Countries and Regions

Register now: <https://github.com/Seeed-Studio/MakerCamp>



Agile Manufacturing Center

Experience Shenzhen's vibrant manufacturing and supply chain ecosystem—home to rapid prototyping, global logistics, and cutting-edge production. Seeed's Agile Manufacturing Center (AMC) is your gateway to this ecosystem:

- **8000+** SKUs
- **20+** Types of Test Items
- **3000+** Functional Test Plans
- **50M+** Units Shipped



Chaihuo Makerspace

The first makerspace in Shenzhen and the second in China, a vibrant community hub where makers come together to share projects, connect with leaders in various fields, improve skills, and participate in community activities.

- **57,713** Registered Members
- **970** Innovative Projects
- **1,480** Community Events
- **32** Countries Members

Become a member: <https://www.seeedstudio.com/chaihuo-makerspace>



Maker Faire Shenzhen

Showcase your innovative ideas, meet like-minded makers, and explore the specific applications of cutting-edge technologies in various industries at one of the largest maker innovation events in the world.

- **593,900** Visitors
- **115** Country Participants
- **692** Global Exhibitors Top
- **7** Globally Recognized

Get on board: <https://www.shenzhenmakerfaire.com/>

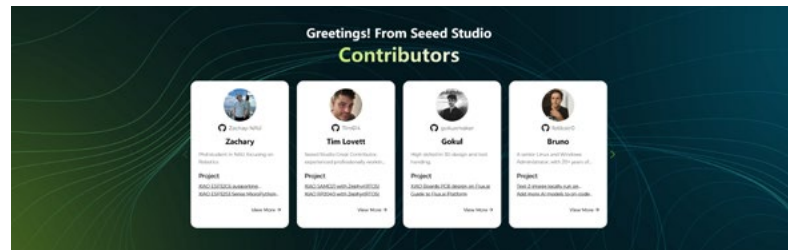
Open Wiki Platform & Contributor Program



Introducing Seeed Studio Wiki Platform

wiki.seeedstudio.com

- Preserve - Complete archive of Seeed Studio technical documentation with clear categorization.
- Interact - Multiple ways to engage with content and contribute to the community.
- Discover - Enhanced search functionality for quick access to specific information.
- Navigate - Intuitive documentation structure for seamless browsing experience.
- Contribute - Everyone is invited to report bugs, edit pages, and docs anytime via GitHub.



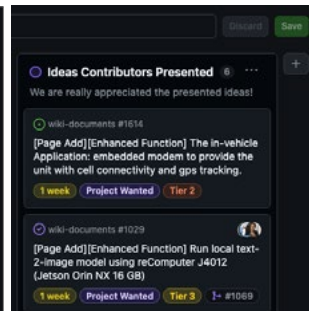
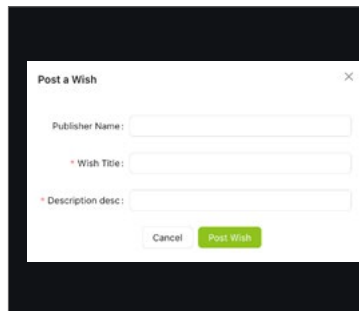
Join our Contributor Program

<https://wiki.seeedstudio.com/Contributor/>

- Reward with cash bonus.
- Our honor to have you and your work on our official platform.
- **Welcome everyone to the Open Calls.**

Share Ideas - Achieve It - Get Rewarded!

1. Share the ideas with us.
2. Anyone can achieve it as one assignment on GitHub.
3. Both get rewarded.



Academic Support

Seed Studio partners with academic institutions worldwide to equip students, educators, and researchers with educational hardware, curated curricula, research-grade co-create service, and exclusive sponsorships & discounts—bridging theory with hands-on innovation.

Learn more: <https://academic.seed.cc/>



Educational Hardware & Curriculum

Empower individuals and organizations to learn and adopt AI, IoT, and digital transformation.



Research-Grade Co-Crete Service

By collaborating with researchers, we co-create and help bring their innovations to market.



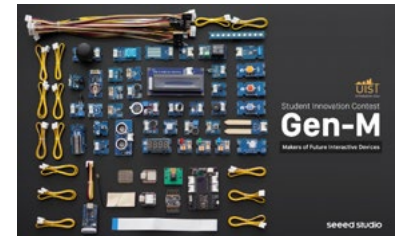
Hackathons & Workshops

Bridge technology and education through immersive, project-based learning.



Sponsorship & Discounts

Hardware sponsorships, exclusive discounts and funding opportunities to make technology accessible for all.



Open Source Courses



XIAO: Big Power, Small Board. Mastering Arduino and TinyML

tinyML Arduino Seed Studio XIAO 21 Lessons

“XIAO: Big Power, Small Board” guides readers from the basics of Arduino to intricate miniaturized projects using Seeed Studio XIAO boards and Grove Sensors. Whether you want to illuminate an LED or delve into Embedded Machine Learning (tinyML), this book covers them. This book takes a hands-on, project-based approach, ensuring readers grasp the concepts while implementing them. By the end, they will be adept with XIAO and inspired by many user-created projects showcasing the endless possibilities these tiny boards offer.

https://mjrovai.github.io/XIAO_Big_Power_Small_Board-ebook



Grove Beginner Kit for Arduino Courses

Arduino Grove 12+16 Lessons No-Code

To better support the educators and students to get started with the kit, our EDU team created pdf courses with project-based lessons. In each lesson, you can be guided to build projects with step-by-step tutorials. And all the programming is available in both our graphical programming platform Codecraft and Arduino C.

<https://files.seeedstudio.com/wiki/Grove-Beginner-Kit-For-Arduino/res/Grove-Beginner-Kit-For-ArduinoPDF.pdf>

<https://make2learn.tinkergen.com/course/?sku=604182009>



No-Code Programming to Get Started With TinyML

No-Code Arduino Grove Wio Terminal TinyML 5 Lessons

The No-code Programming TinyML course introduces beginners to Embedded Machine Learning using Wio Terminal and Codecraft. Through seven step-by-step projects, students learn to train and deploy neural network models on microcontrollers for motion recognition, gesture recognition, wake-up words, smell detection, and more, without requiring prior programming or electronics knowledge.

<https://tinkergen.github.io/No-code-Programming-to-Get-Started-with-TinyML/#/>

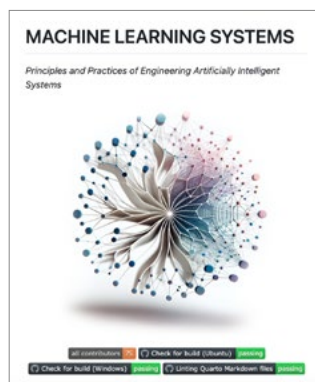


Microsoft IoT for Beginners Curriculum

IoT Arduino Raspberry Pi Grove 24 Lessons

Azure Cloud Advocates at Microsoft are pleased to offer a 12-week, 24-lesson curriculum all about IoT basics. Each lesson includes pre- and post-lesson quizzes, written instructions to complete the lesson, a solution, an assignment and more. Our project-based pedagogy allows you to learn while building, a proven way for new skills to 'stick'. The projects cover the journey of food from farm to table. This includes farming, logistics, manufacturing, retail and consumer - all popular industry areas for IoT devices.

<https://microsoft.github.io/IoT-For-Beginners>



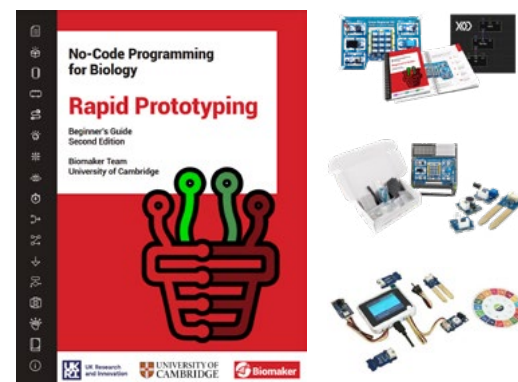
Machine Learning Systems

Principles and Practices of Engineering Artificially Intelligent Systems

tinyML Saeed Studio XIAO Arduino 21 Lessons

Engineering Machine Learning Systems by Harvard University's Prof. Vijay Janapa Reddi bridges ML theory with practical implementation through hands-on labs. The book features Saeed Studio XIAO ESP32S3 Sense for real-world exercises in image classification, object detection, keyword spotting, motion classification, and anomaly detection.

<https://mlsysbook.ai/>

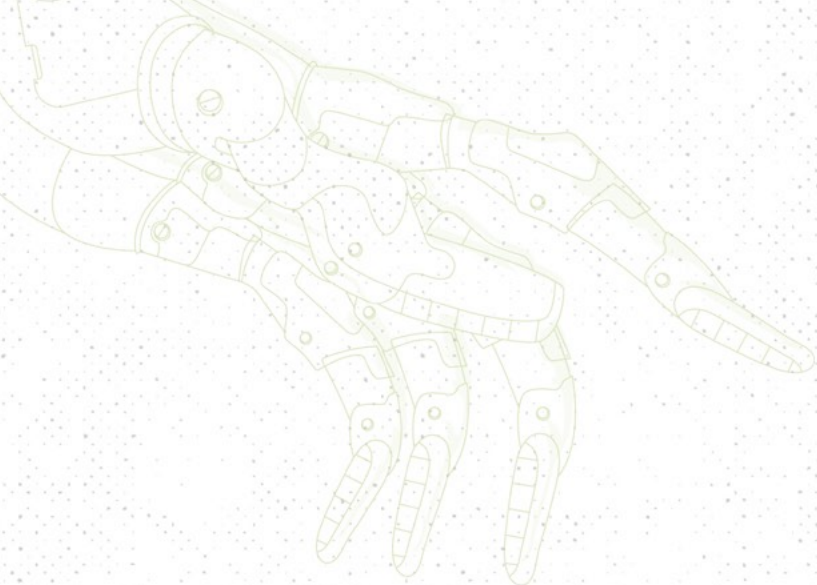


No-Code Programming for Biology Rapid Prototyping Beginner's Guide

Biology Grove Arduino Wio Terminal No-Code Arduino 5 Lessons

Developed by Biomaker, University of Cambridge, and UK Research and Innovation, this guide teaches prototyping with Arduino and Saeed Studio Grove Beginner Kit using XOD's no-code environment. Based on the Kit, it provides comprehensive information on hardware integration and compatible external devices with their corresponding XOD libraries.

<https://www.biomaker.org/training-programme>



Seed Studio

2025 Product Catalog V1.0

March 2025

CONTACT US



Scan this QR code to
download the PDF version
of our latest catalog

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Open Tech Project Hub
hackster.io/seed



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