seeed studio

The AI Hardware Partner
2025 Product Catalog

www.seeedstudio.com

V1.0

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Popular Platforms

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About Us

the AI hardware partner

Seeed 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 availalbe 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 glocalized matters.

Solution

Things to AI | AI to Things

Service

From possibilities to productivities
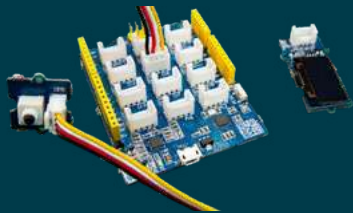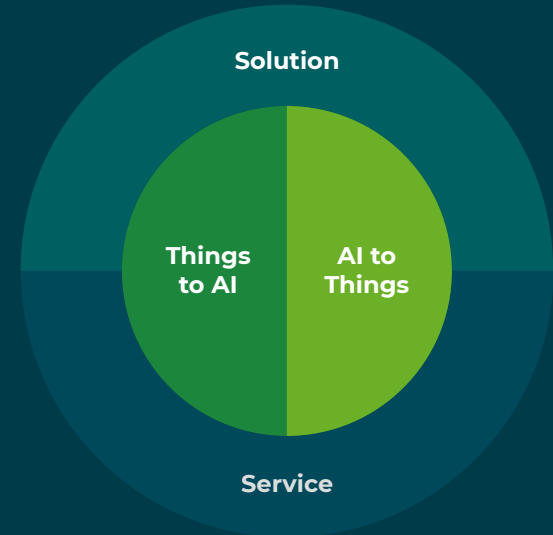
How it started 2008
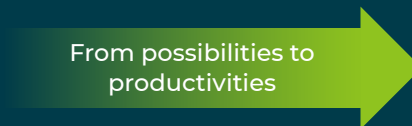
How it's going 2025

From Technology to Industry

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

Global Developer Communities

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

Emerging Technologies

Chips   **Algorithms**   **Accessories**

001001010010
0101001 11001
001001 01000
0101001011001

Software   **Scientific Research Achievements**   **New Materials**

open source hardware

Collaborative Innovation

Integration

Sensor Network
tinyML Ready
Rich Sensor Portfolio
Diverse Connectivity

Edge Computing
IPCs, HMIs, Edge Controllers
From Basic to High-End Performance
Cutting-Edge AI APP integration

SenseCraft — AI Model / dAPP Distribution, Device Config + Data Management

Services — Design & Manufacturing & Co-Create

Solution

Digital Economy

Traditional Industries

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

Featured Product Lines

NVIDIA® Jetson	Raspberry Pi	Home Assistant	Meshtastic®	XIAO	Arduino	Grove	LoRaWAN®	BeagleBoard®	dePIN

AI Hardware Portfolio

Build Apps in 1 Min with SenseCraft | Cover All Computing Needs | Custom Model | Open Source

Compact HMI
Wio Terminal

Microphone Array Add-ons
reSpeaker

SBC AI Cameras
reCamera Series

AI Add-ons
Hailo AI Kit
Coral TPU

Industrial SBC
reComputer R Series

Compact Size
reComputer Mini J Series

Screen Requirements | Enhanced Audio Quality | Professional Vision | Excellent AI Capabilities | Industrial Scenarios | AI-enabled Solution Design

Integrated AI Development Kits
All-in-one AI development kits ideal for rapid prototyping

Linux Preference

XIAO ESP32S3 Sense
- Low-power MCU with moderate AI capabilities
- IoT devices, wearable technology

General-Purpose SBCs
Highly flexible, suitable for various basic applications

Local CUDA Support

Raspberry Pi
- Low to medium power consumption, good scalability
- Basic edge computing, smart home control, education and learning platform

High-Performance AI SBCs
Suitable for complex and compute-intensive AI tasks

NVIDIA Jetson
- Higher power consumption, powerful AI and general computing capabilities
- Autonomous driving, advanced robotics, complex computer vision tasks, real-time AI inference

NVIDIA Elite Partner

Enhanced Performance

AI Accelerators
Grove Vision

Future Interaction

LLM AI Agents
Watcher

Real-world Applications

Fanless Industrial AI SBC
reComputer, reServer Industrial J Series

Maximum Computing Power

Maximum Performance
reServer J501 Series

· Long-Range Capability
· Low-Power Consumption

LoRa AI Sensors
SenseCAP A1101/A1102

Customization Options

LoRa AI Sensor Prototype
SenseCAP K1100

Embodied Intelligence Hardware Portfolio

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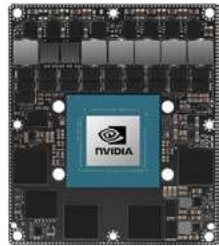
Robot Brains

34-275TOPS

- 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 Al 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
- Home Automation
- Local Control
- Privacy First

Host Devices

NABU CASA

Home Assistant Green / Yellow

Home Assistant Connect ZBT-1

seeed studio

Raspberry Pi Powered Devices

Raspberry Pi SBCs

reTerminal

reTerminal DM

Control Devices

NABU CASA

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

Smart Home Situation Awareness Autonomous Operations

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

Upgrade Your Systems
with a Simple Plug-in

UART & HTTP

Arduino · Node-RED · ESP32 · Robot

Push to Talk
Simply speak out your command

Voice interaction   Emotional Response

SenseCraft APP / API Control
Free with Basic Plan

Multi-modal Sensing
Extensive with 100+ Grove Sensor   **100+**

Underst and What It Sees
- Scene understanding
- Trigger action accordingly

Dog is playing ball

Work with LLMs   Public or Private

OpenAI   ollama   Llama3   LLaVA   Amazon Bedrock

Open Source

Support Local Deployment

ESP32 S3   Wi-Fi/BLE   USB Type-C   5MP Camera

Built-in Battery   SD Card   Touchscreen   Microphone

"Good choice! This is our newest handle."

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

Potential customer detected

Powered By WiseEye2 HX6538

See   Hear   Talk   Understand   Custom Emotion

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.

S • 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

roboflow · ultralytics · ONNX

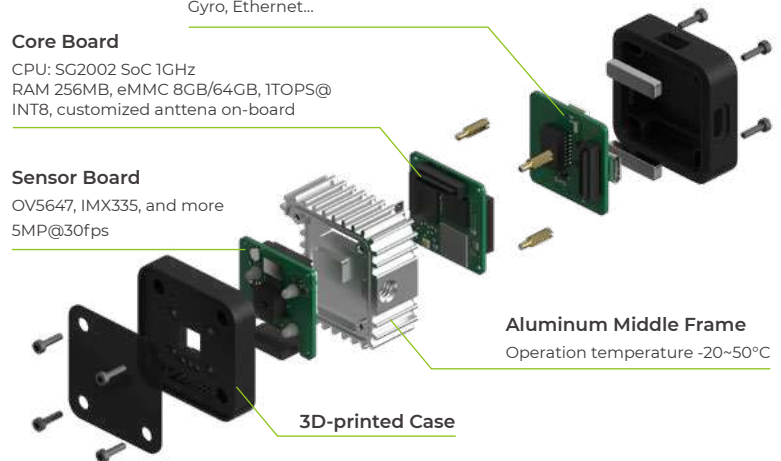SenseCraft · TensorFlow · PyTorch

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 anttena 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

| Web UI | Code Editor |

reCamera

Fully open-source Linux system, develop by your stack:

- Node-RED
- C/CPP

Build Application

User

Multi-device management

- CV application one-click deployment
- Supported by

ultralytics

roboflow

| Model Community | Public Application Flow |

SenseCraft AI Platform

All-in-one AI model platform, where you can easily find:

- Self-training model zoo
- Applications built by Node-RED flow

Explore & Share

Video/Audio stream

AI analysis

Define Your Application

- Human pose estimation
- Object segmentation
- Gesture recognitio
- Oriented object detection (OBB)
- Queue management
- License plate recognition
- More...

Logic Control

Integrate with Other Open-source Hub

FRIGATE

More...

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-enabledsmart 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**
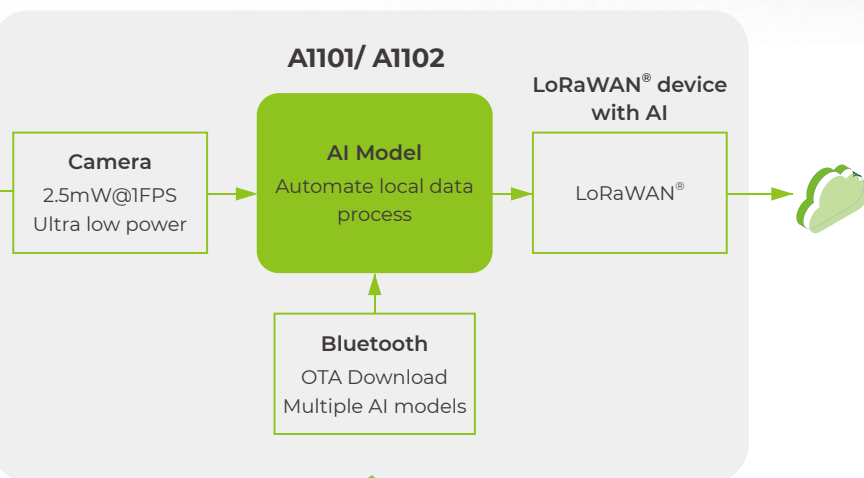 Down to 2.3 uWh in deep sleep mode, battery life last over a year.
- **Long Range**
  Leverage the Wio-E5 LoRaWAN® module, up to 10km eye-sight communication distance.
- **Local LoRa® Hub for IoT Connectivity**
  Powered by Himax HX6538, Cortex-M55, Ethos-U55, running rich local vision models.

Use Case

- Person Detection
- Specific Object Detection
- Automatic Meter Reading

Open for Customization

Raw Data

Animal

Gesture

Meter

A1101/ A1102

Camera
2.5mW@1FPS
Ultra low power

AI Model
Automate local data process

Bluetooth
OTA Download
Multiple AI models

LoRaWAN® device with AI

LoRaWAN®

Update with Bluetooth

Collect   Design   Test   Deploy

No-Code AI Model Training with SenseCraft
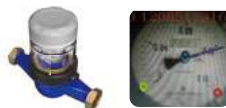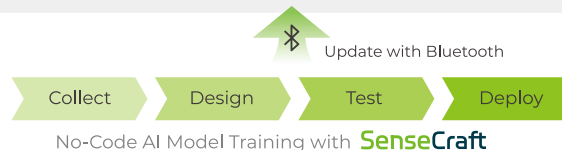
reSpeaker Lite 2-Mic Array

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**
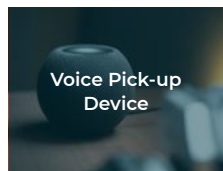 Allows for plugging in headphones or speakers (speaker not included).
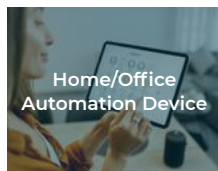
- **Compatible with Linux, macOS, and Windows.**

Applications

Voice Pick-up Device

Home/Office Automation Device
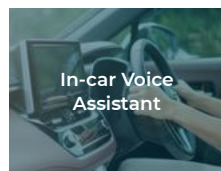
In-car Voice Assistant

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, CO_2, and optional AHT20 sensor.
- Acts as a LoRa® IoT hub with optional SX1262 chip.
- Fully open source with ESP32 and Raspberry Pi compatibility.

Scenarios under Spot Light

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

Model	D1	D1S	D1L	D1Pro
tVOC sensor	/	●	/	●
CO₂ sensor	/	●	/	●
Grove TH sensor	/	●	/	●
Wi-Fi	●	●	●	●
Bluetooth	●	●	●	●
LoRa® Chipset (SX1262) for LoRaWAN® & Meshtastic® Applications	/	/	●	●

Applications

Meshtastic® Node

SenseCAP Local Dashboard

Desk Air Quality Monitor

Sensor Data Console

Home Assistant Hub
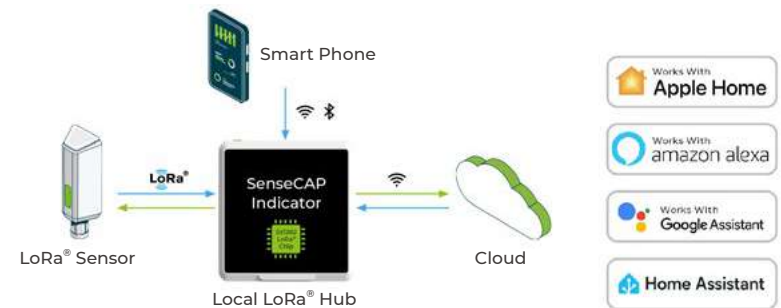
Physical Agent Development Tools

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	**500,000+**	**2,000,000+**
= Thumb-Size	Developers' Choices	Pieces Shipped Globally

Seeed Studio XIAO Dev Boards

ESPRESSIF   **MICROCHIP**   **NORDIC** SEMICONDUCTOR   **Raspberry Pi**   **RENESAS**   **SILICON LABS**

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
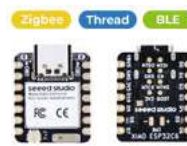
XIAO ESP32-C6

SKU   113991254

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

XIAO MG24 NEW

SKU   102010590

Super-low power for battery-powered Matter projects

XIAO MG24 Sense NEW

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

Clip Base for Seeed Studio XIAO
NEW
SKU 114993644

Expansion Board for Seeed Studio XIAO
SKU 103030356

Grove Base for Seeed Studio XIAO
SKU 103020312

PowerBread for Seeed Studio XIAO
NEW
SKU 114993507

Debugger for Seeed Studio XIAO
NEW
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

Logger HAT (Temp, Hum & Light)
NEW
SKU 114993446

Connectivity Modules

Wio-SX1262 LoRa® Add-on for XIAO
NEW
SKU 113010003

Wio-WM6180 Wi-Fi HaLow Module
NEW
SKU 109100041

RS-485 Breakout Board for XIAO
SKU 113991354

CAN-Bus Breakout Board for XIAO
SKU 105100001

Actuators

Servo Driver Board for XIAO
NEW
SKU 114993612

LED Driver Board for XIAO
NEW
SKU 105100021

ePaper Driver Board for XIAO
NEW
SKU 114993558

One-Channel DC Relay for XIAO
NEW
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

RS-485

SenseCAP S2110 Sensor Builder

SKU   114992986

AI

OpenUC2 10x AI Microscope

SKU   114993409

SenseCAP Watcher Physical AI Agent

SKU   113991315 / 113991275

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

Seeed 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.

LoRaWAN®

Sensors

Tracker

Indicator

20 23

LoRaWAN® Gateway

SenseCraft / Your Server

3.5 km

4 km

Client / Repeater A

3 km

3 km

Client B

3 km

Client C

Client / Repeater G

LoRa

Client / Repeater R

5 km

3.5 km

Powered

3 km

2 km

3 km

Client / Repeater D

2 km

Client / Repeater E

2 km

Client / Repeater F

Client G

Application

| Off-Grid Communication | Smart Agriculture | Asset Tracking | Environmental Monitoring | Smart Building |
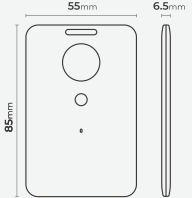
SenseCAP T1000-E

Low-Power

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

5+ Years Supply

LoRaWAN

Powered

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
Powered		**$ 0**	

Open-Source	LoRa® Mesh	4G No 4G/5G Required	-20℃ ~ 60℃ Operating Temperature	2 Days+ Rechargeable Battery

Credit - Card Size

6.5 mm
Thickness

32 g
Lightweight

55mm   6.5mm

85mm

SenseCAP Card Tracker T1000-E for Meshtastic

Frequency
863-928 MHz

CE   FC   RoHS

Can be Customized for

Personnel Safety	Wearable Size	Industrial Use

Onboard Sensors

Temperture	GPS	Light

Works Anywhere Even Without Any Network Infrastructure

T1000-E

No-Code Onboarding
Pair with your phone in 3 steps

Meshtastic App

Start Chatting, and Sharing Your Position

4km

LoRa

5km

8km

Applications

Outdoor Adventures

Remote Event and Festivals

Disaster Response
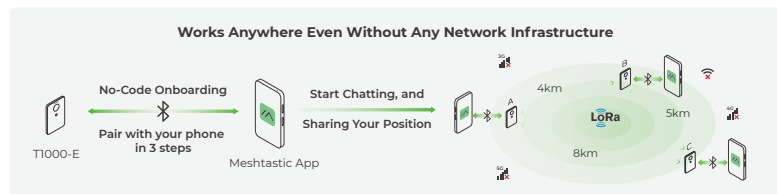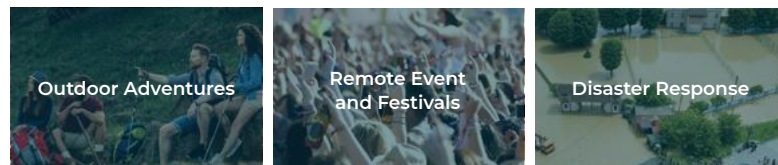
SenseCAP Solar Node

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
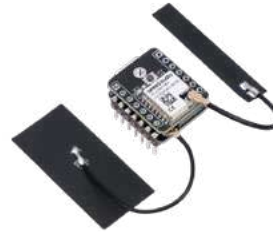
XIAO ESP32S3 & Wio-SX1262 Kit

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

Temperature accuracy
±0.5°C

IP65

Credit - card size with just
6.5 mm thickness

55mm   6.5mm
66mm

915MHz
868MHz
Auto-switch Frequency

SOS button & buzzer

Months of battery life with a single charge

Natively compatible with

LoRaWAN CERTIFIED   **helium**   amazon sidewalk

available in
160+
countries

SenseCAP T1000
Tracker

Can be customized for

Personnel safety   Wearable size   Industrial use

Operating temperature
-20°C to 60°C

Live on **KICK STARTER** soon

Get location in
4 easy steps

Status sensors

°C **Temp**   **Light**   **Motion**

Store data offline
when out of connection

1000+
Records

CE   FC   REACH   RoHS

LoRaWAN®

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

Applications

Asset Tracking

Logistics Tracking

Search and Rescue

SenseCAP S210x LoRaWAN® Sensors

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. TThe 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.
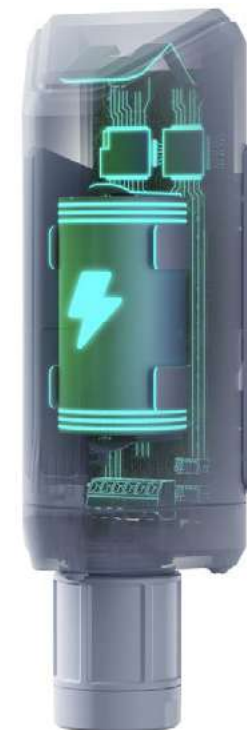
Product Model						
	S2101/S2103	S2102	S2104/S2105	S2106	S2107	S2108
Product Name	Air Temperature & Humidity Sensor (and CO_2)	Light Intensity Sensor	Soil Temperature and Moisture Sensor (and EC Sensor)	pH Sensor	PT100 Temperature Sensor	Soil Moisture, Temperature and Pore EC Sensor
SKU	114992867/ 114992869	114992868	114992870/ 114992871	101070001	114993078	101070021

SenseCAP S2100 LoRaWAN® DTU

`Industrial-Grade` `Low-Power` `Rugged`   **LoRaWAN®**

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 **NEW**

Industrial Turbidity Sensor

SKU 101990793 **NEW**

Multi-Depth Soil Moisture, Temperature and EC Sensor

SKU 101990982 **NEW**

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

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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

NH_3/H_2S/CO_2 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 CO_2. 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.

Solar Panel

CO$_2$ Sensor

RS-485 Expansion Port

Light Sensor

Temperature Humidity

UV resistance case

Applications
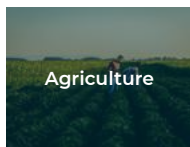
Agriculture

Raise Livestock

Storage

Education

User Server — 4G — SenseCraft Cloud — API — Agriculture / Smart City / Environment

DC / Solar / Rechargeable Battery — Power Supply — SenseCAP Outdoor Combo

Built-in Sensors: Air Temperature, Air Humidity, Light Sensor, Dew point Temperature, CO_2

RS485 expand sensors: Soil Temperature, Soil Moisture, HN$_3$, H$_2$S, More
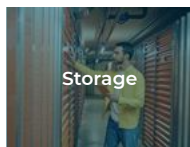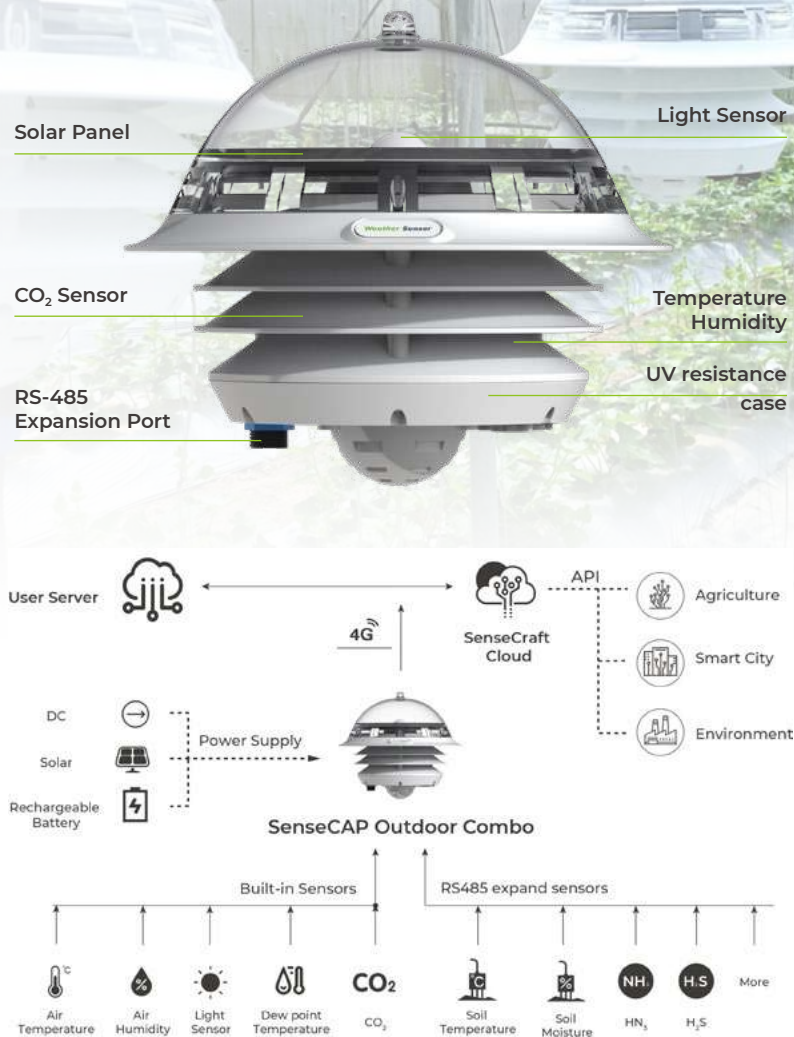
SenseCAP LoRaWAN® Gateways _Industrial-Grade_

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
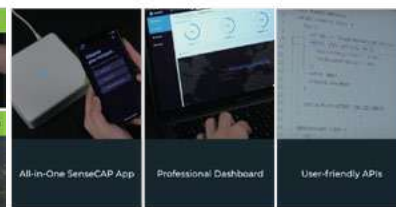
SenseCAP 4G Sensor Hub _Rugged_

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

Network
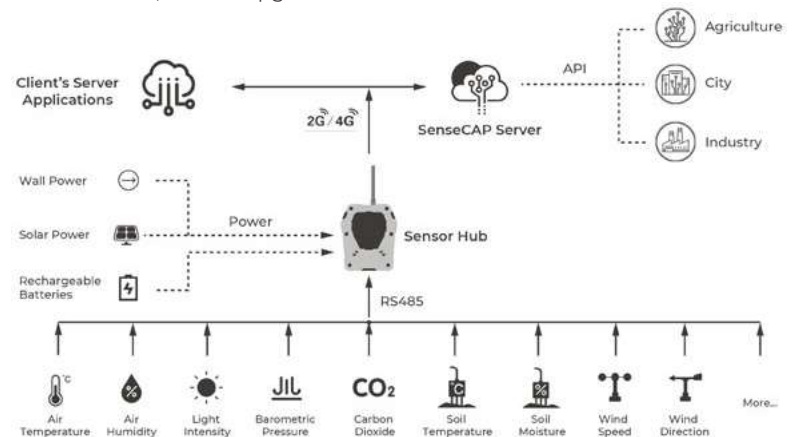
Compact all-in-one weather sensors measure multiple parameters

S200   S500   S700-B   S700-A   S700   S800   S1000   S2120

	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, CO_2, 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 CO_2 accuracy: 1% of MV.

- **Industrial Grade Design**

  IP66, working on -40℃ ~85℃ , 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

Carbon Neutrality

Energy

Agriculture

Get the Weather Data via SenseCAP Data Logger

- Data transmit via LoRa® Network

LoRaWAN®

SenseCAP M2 Multiplatform LoRaWAN® Gateway

Weather Sensor

S2100 LoRaWAN® Data Logger

Junction Box

12 V DC

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

4G Sensor Hub

Built-in 6 Ah Rechargeable Battery

Weather Sensor

12 V Solar Panel

Other Sensors

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

Domestic Gardens and Backyards

Agricultural Farms

Meteorology

Smart Cities

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.

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.

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-SX1262 LoRa® Add-on for Seeed Studio XIAO

SKU 113010003

NEW

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

SKU Available Soon

NEW

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 µA 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 µA 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 stanby 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.

Grove is a modular, standardized connector prototyping system which allows for easy connection of any input or output. Explore hundreds of Grove modules here.

Standardized interfaces   Standardized module sizes   Multiple connecting cables

Sensor   **Actuators**   **Network**   **Accessories**

400+

Compatible with a rich collection of courses in **P97**

Grove Kits Compatible with

XIAO Starter Kit

SKU   110010044
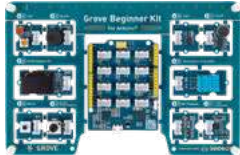
Grove Beginner Kit for Arduino

SKU   110061162

Grove Inventor Kit for micro:bit

SKU   110060762

Grove Starter Kit for Seeed 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.

3

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.
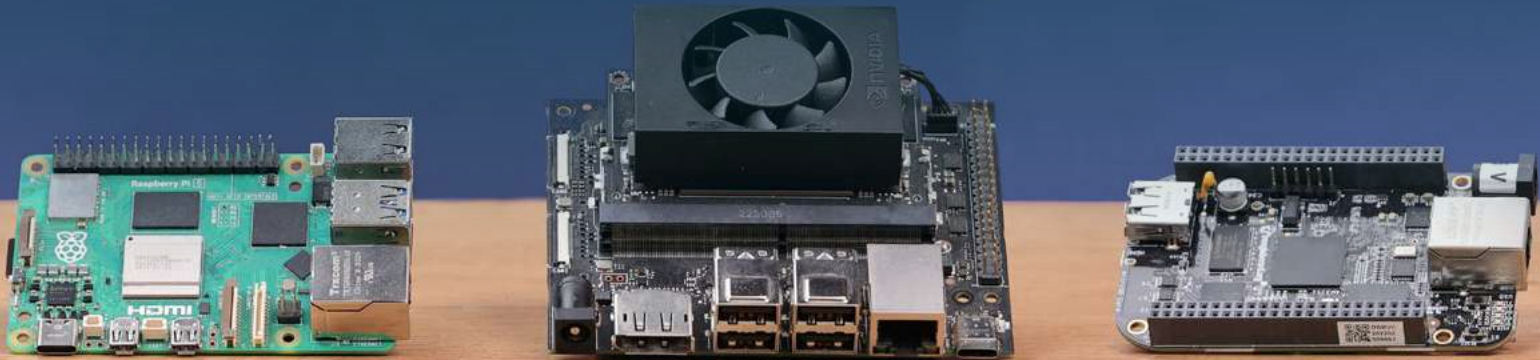
Raspberry Pi

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.

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.org

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 anddevices for various domains tailored to your needs.

reComputer AI R Series

NEW | Low-Power | 10+ Years Supply |

Powered by Raspberry Pi

EMPOWERED BY HAILO

The World's Most Powerful Raspberry Pi AI Box.

SKU

| reComputer AI R | reComputer AI Industrial R |
| 114993560 | 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

Hailo AI Accelerator
Up to **26 TOPS**

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.

| Commercial Grade | | Industrial Grade | |
| 8GB | RPI 5 | 8+32GB | RPI CM5 |

Applications
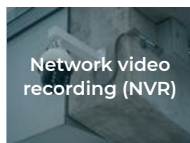
Network video recording (NVR)

Digital signage
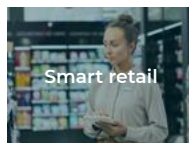
Smart retail
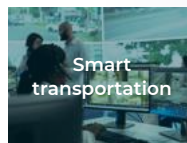
Smart transportation

reComputer R1 Series

Industrial-Grade   **Low-Power**   **10+ Years Supply**

Powered by Raspberry Pi

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

reComputer R1100

reComputer R1000

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

3x RS-485

Applications

Smart Building

Energy Management

Remote Device Management

Facility Management

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`

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

SKU 110070048, 110070108

Raspberry Pi Approved Reseller

Raspberry Pi Design Partner

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

aws | Azure | balena | BuildRoot Making Embedded Linux Easy | FRIGATE

Grafana | Home Assistant | MENDER by Northern.tech | Node-RED | TensorFlow | yocto PROJECT

Applications

| Water Management | Fruit Packing | Real-time Human Activity Recognition | Streamline Event Photography | Sugar Painting |
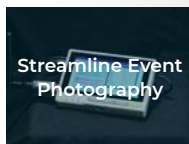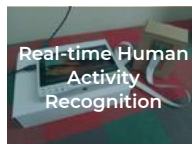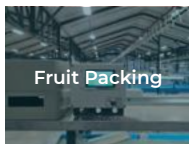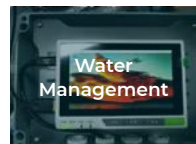
reTerminal DM

Industrial-Grade   Low-Power   5+ Years Supply

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

aws   Azure   balena   FRIGATE

IgnitionEDGE   machinechat®   N3uron   Node-RED

Applications

Water Treatment   Energy Management   Production Automation   Automotive & Marine HMI

Raspberry Pi Approved Reseller   Raspberry Pi Design Partner
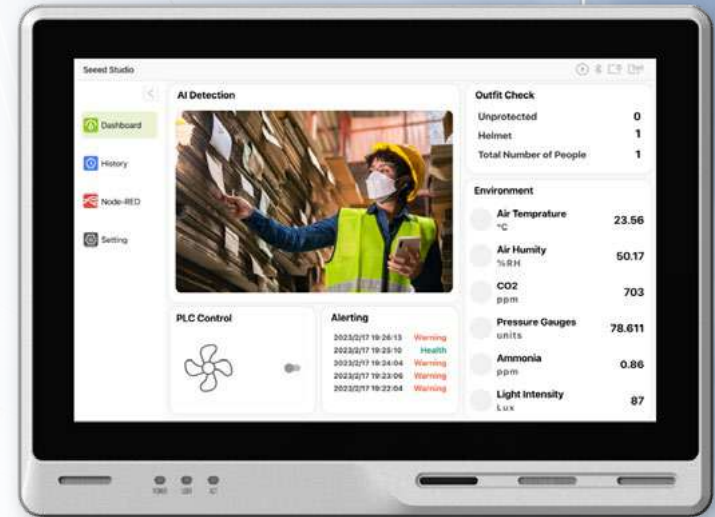
Devices		reTerminal	reTerminal DM
MSRP		$209	$364
Description		A 5-inch hand-size HMI with integrated modular design. Flexible with high expandability for home and industry.	10.1-inch Integrated Device Master, HMI, PLC, Panel PC and Gateway in one, perfect for distributed hub device.
	CPU	Raspberry Pi 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

AI Kit & HAT

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
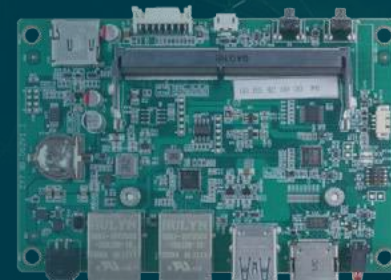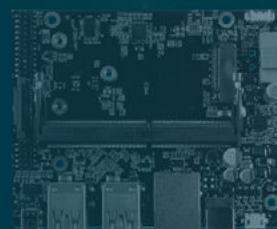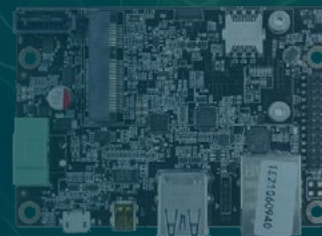
Elite Partner in NVIDIA Jetson® Ecosystem

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 · LeRobot

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 Issac 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
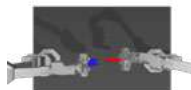
Model Training and Deployment

reComputer & reServer Jetson Series Selection Guide

NVIDIA Elite Partner

AI Performance (TOPS)

275

157

100

50

Entry-Level

Vision AI

Robotics/ Generative AI
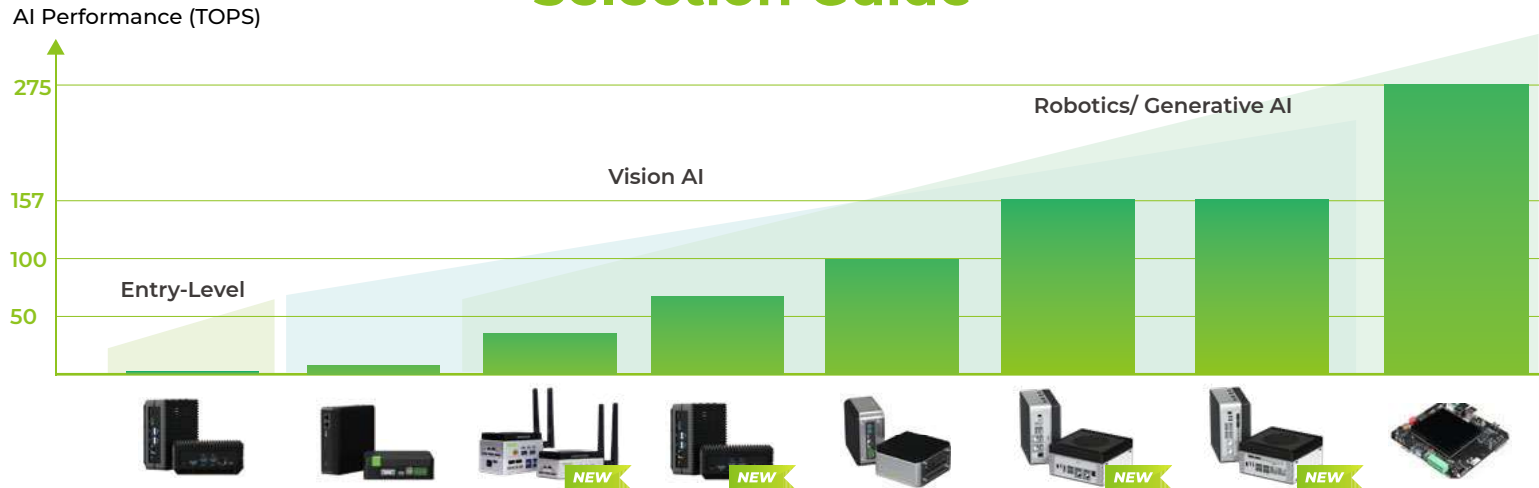
Devices	reComputer Classic J1010	reComputer Industrial J2012	reComputer Mini J3011	reComputer J4012B	reServer Industrial J4012	reComputer Jetson Super Series	reComputer Jetson Robotics Series	reServer AGX Orin J501 Board
	NVIDIA Jetson Nano 4GB	NVIDIA Jetson Xavier NX 16GB	NVIDIA Jetson Orin Nano 8GB	NVIDIA Jetson Orin NX 16GB	NVIDIA Jetson Orin NX 16GB	NVIDIA Jetson Orin Nano/Orin NX	NVIDIA Jetson Orin Nano/Orin NX	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 Communica-tion	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

aws | Hugging Face | Node-RED

NVIDIA TAO | 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	Jetson Orin NX
114993486, 114993487	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

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

Super Mode upgraded on-device

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   TF

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	Jetson Orin NX
114110307, 114110308	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

AI Performance

34 TOPS ━━━━━━━━━━━━━━━━━━ 157 TOPS

reComputer Jetson Mini Series *NEW*

NVIDIA | Elite Partner

`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

aws · Hugging Face · Node-RED · NVIDIA TAO · 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

aws

Hugging Face

Node-RED

NVIDIA TAO

ONNX

PyTorch

AI Performance

20 TOPS ──────────────── 100 TOPS

NVIDIA Elite Partner

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.
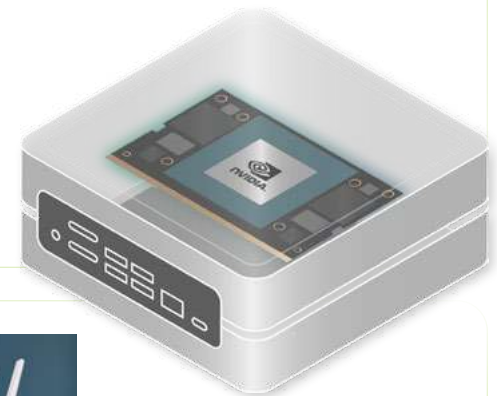
AMR
Mapping in depth, precise navigation and route optimization.

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.

3

Edge Computing

Pioneering Embedded AI Partner

Support every stage of edge AI hardware development

NVIDIA | Elite Partner

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

seed studio   beagleboard.org

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.
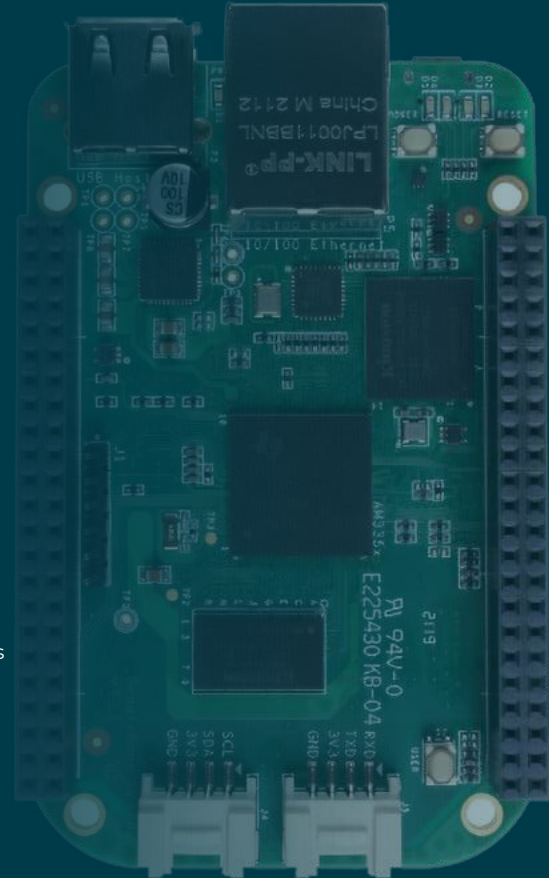
Seeed Studio BeagleBone® Green Series

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 mikroBUS™ 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

Automate device deployment and MLops in the field

Sense Craft edge Builder

| Gateways | PLC Controller | reComputer | reServer |

LoRaWAN® | Meshtastic®

Bluetooth | Wi-Fi | Cellular

Sense Craft node Builder

| AI Sensors | Wireless Sensors | DTU | Tracker | Indicator |

Application Payloads

Edge AI

alwaysAI · cochl. · cogniteam · CVEDIA
EDGE IMPULSE · Home Assistant · Hugging Face
ISARSOFT · lumeo · Nota AI · NVIDIA TAO
Node-RED · ONNX · PyTorch · roboflow
TEKNOIR · TensorFlow Lite · ultralytics

AI Power

deepseek · LLaVA · CURSOR
OpenAI · RAGFlow

Depin

Flux · helium · IoTeX · MN
WEATHER XM

Open source projects

ChirpStack · Node-RED · Ollama

Deploy

Deploy

SenseCraft

Mobile App/Web Toolkit

- Just 3 steps to config and deploy your devices. No code, No touch, No complexity.
- Data visualisation and flexible API. Fleet Management
- Device OTA management
- On-premise deployment support. Remote data access.

Model Assistant

- Only 3 steps to deploy AI models to devices.
- Free to train AI model for deviceAbundant AI Models, and collaborative applications.
- Available on-device, ensuring data privacy and security.

LLM Application Builder

- Natural language config device
- LLM analyses massive data
- Customize different device applications by talking to LLM

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.

Device

- SenseCraft Edge OS
- SenseCraft AI SDK
- SenseCraft Embedded Firmware
- Global Network Server
- SenseCraft Broker

SenseCraft Device Management

- Massive Device Access
- Remote Control
- Device Monitoring
- Device OTA
- ISV App Distribute
- AI Model Distribute

SenseCraft Device Data

- Web App
- Mate App
- Open API
- AI Assistant
- Alert Management
- Deployment Config
- Data Vsualization
- Custom Dashboard
- Device OTA
- Data Analysis
- Data Storage
- Third-party device access

SenseCraft AI-Platform

- Public AI Models
- Easy AI Model Deployment
- Custom AI Models
- Real-time Inferred Video Streaming
- Stream Remote Control
- Event Management

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
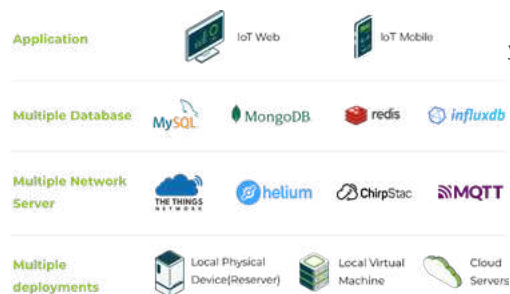
Enterprises have their your private cloud.

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!

1 Sense
Built in & Add on
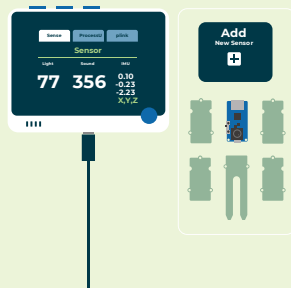
2 Process
Data Handling &
Machine Learning
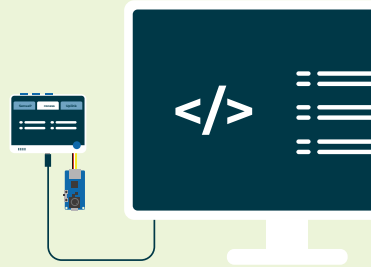
3 Uplink
Network Connectivity

☑ Remote Device Monitor and Control   ☑ Software Over-the-Air Updates

Intel processor-based devices

Raspberry PI devices

NVIDA Jetson devices

Mediatek devices

Consumer Devices

⚙ Device Management   ↻ Update Management   🖥 Monitor & Control   ⚠ Alert & Action
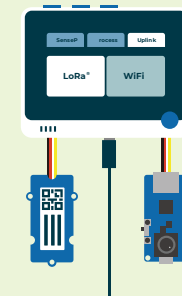
SenseCraft AI

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
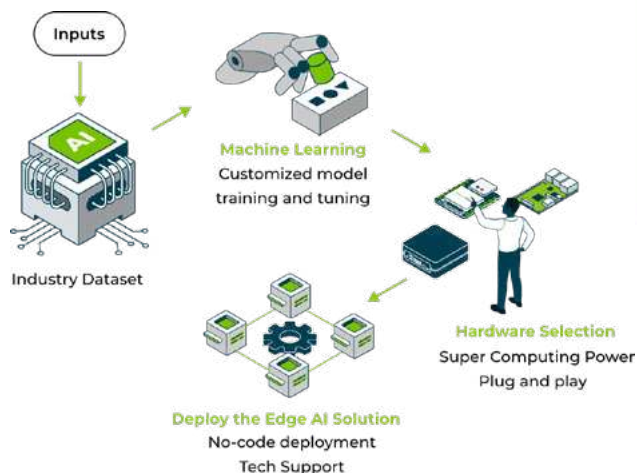
Key Functions
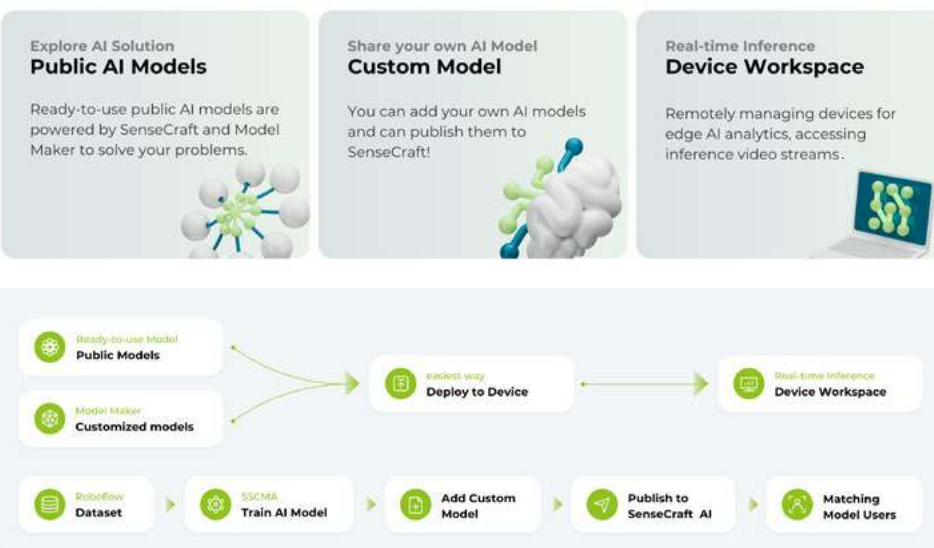
SenseCraft - DePIN Suite

Deploy Web3 hardware and diagnosis with ease

Decentralized Sensors

WEATHER XM
WEATHER ON DEMAND

IoTeX

Community powered weather network

Decentralized IoT Platform

Helium WXM Weather Station

DePIN Dev Kit

Decentralized Gateways

helium

People-Powered LoRaWAN® Network

~200K

MN

Decentralized VPN Network

SenseCAP M1 Hotspot

SenseCAP M2 Hotspot

SenseCAP M4 Square

SenseCAP M1 Hotspot

Decentralized Computing

Flux

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
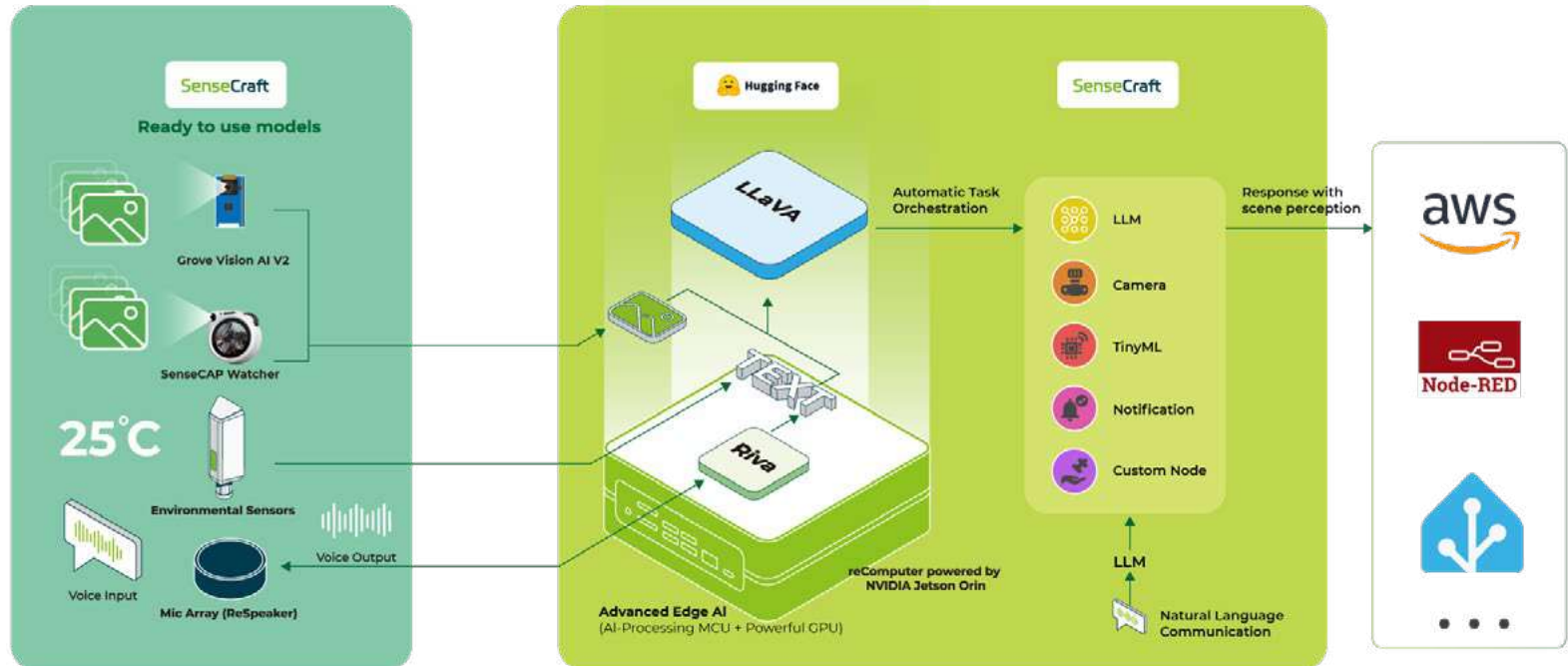
Firmware Payloads: Growing ISV Partnerships

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.

balena

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.

ultralytics

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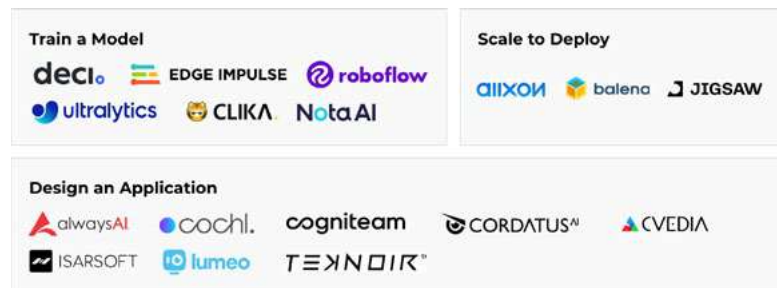
Application:
Object Detection, instance segmentation, image classification, pose estimation.

lumeo

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.

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.

Nota AI

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.

Architecture

What do you Need to Build this Network?

LoRa

Ethernet   WiFi

3G   4G

SenseCAP or Other Servers

HTTP

MQTT

Private Server

Public Cloud

Application

SenseCAP S21XX
Wireless Sensors to feel the real world

SenseCAP Gateway
Forward the raw sensor data to LNS

LoRaWAN® Network Server
Process data and integrate devices and data to your applications

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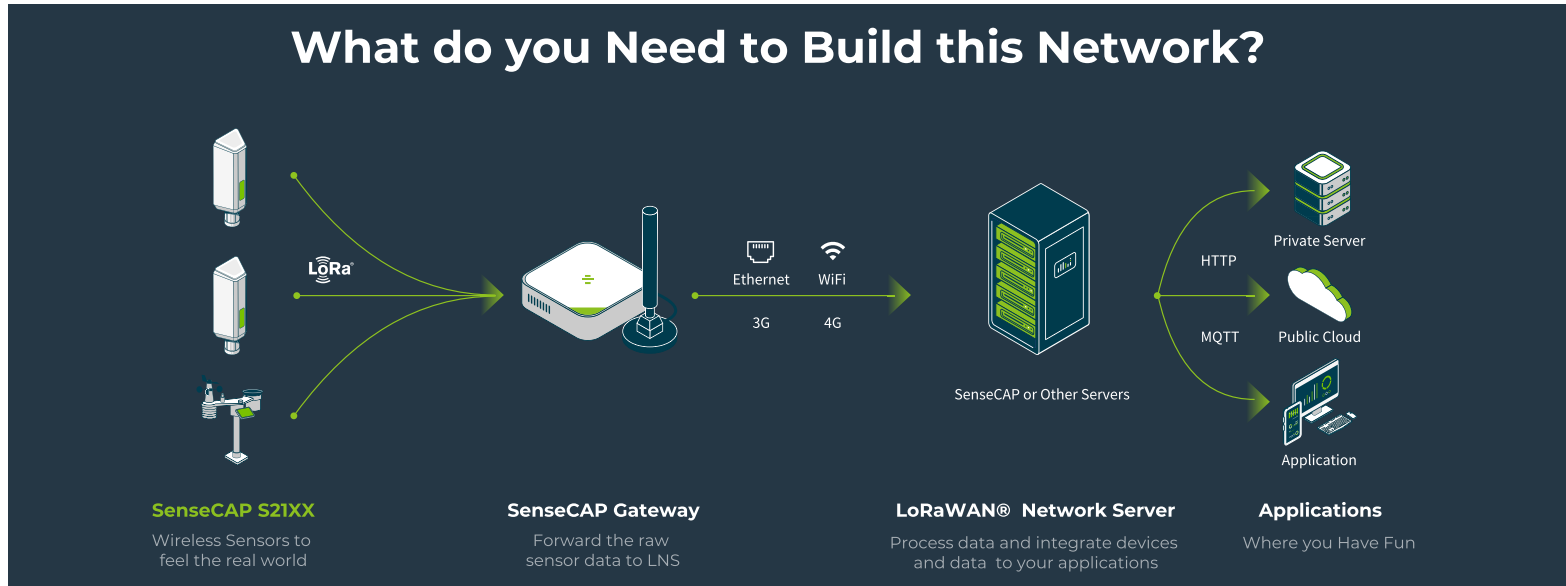
Our solutions encompass sensors, gateways, edge computing, AI capabilities, and data management. They have the following features :

Solid for the Wild

100+

100+ Sensors for Choices

Step 1 → Step 2 → Step 3 →

Easy to Deploy & Manage at Scale

AI Ready

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.

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.

5 Solutions and Case Studies

Light Intensity Sensor · Camera · NH3 (Ammonia) Sensor · Indoor T/H Sensor · Illuminance Sensor · Edge Controller · Air (Negative) Presssure Sensor · CO2 Sensor · Smart Lighting · Smart Wet Curtain · Intelligent Alert · Outdoor T/H Sensor · Small Window Controller · Smart Ventilation · Smart Heater · Intelligent Water · Food Feeding Meter · Water Temperature Sensor

More Cases   Replacing manual field inspections in durian cultivation. | Driving pigsties indoor renovations. | Supports full-process traceability for customers in tea graden

78

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.

SenseCAP M2 Multi-Platform Gateway

ReTerminal control pannel

Current transformer + Electric energy meter

Indicator : smart switch

Recomputer R1000 Energy management

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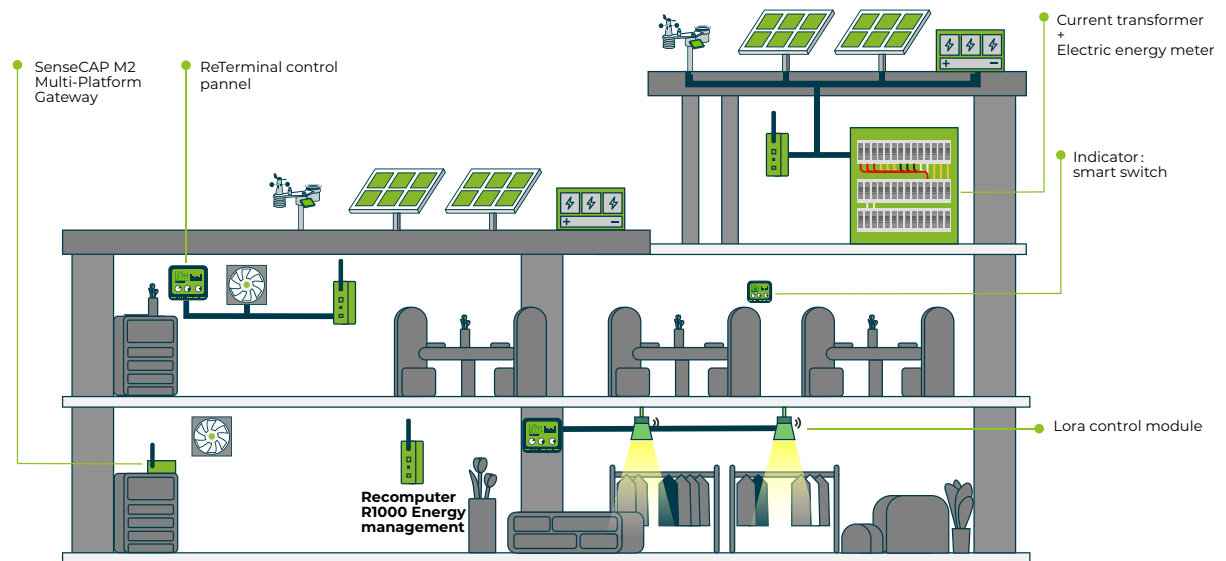
More Cases   [Automated management of building HVAC systems](#) | [AI-driven store traffic analysis and queue detection](#) | [AI-driven airport passenger flow and luggage detection](#)

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.
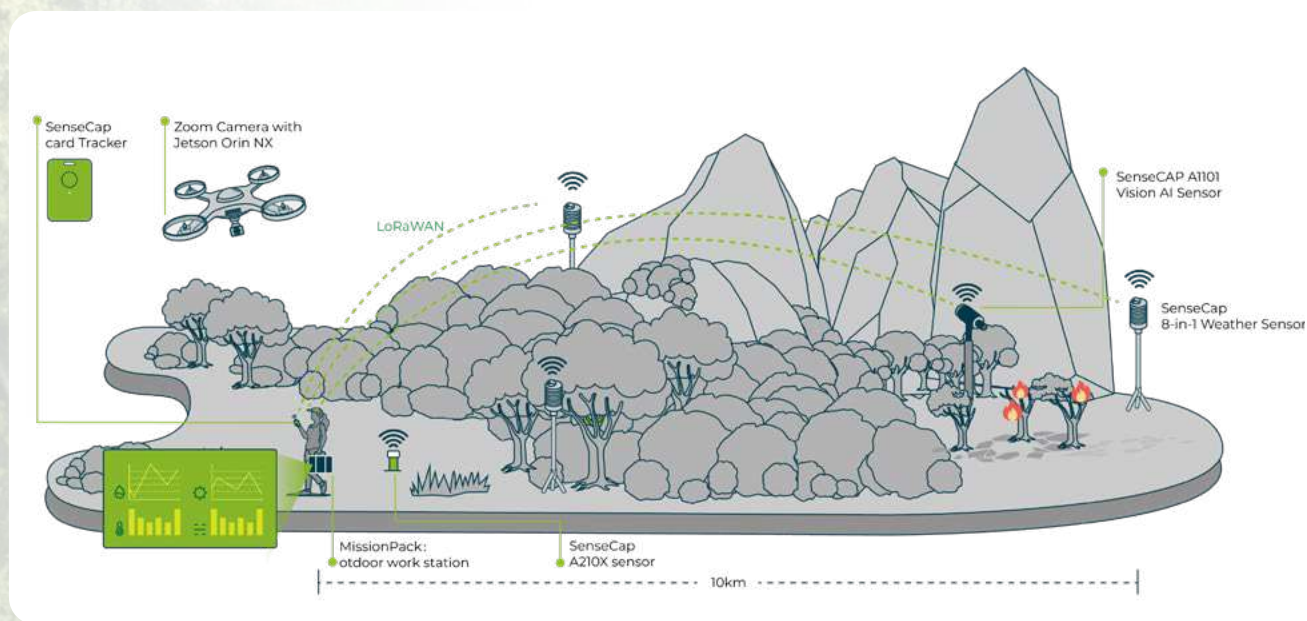
More Cases   IP camera prevent property crime and block unauthorized intrusion | Monitoring urban heat island effect | AI-powered perception enables drone-based fire early warning

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!
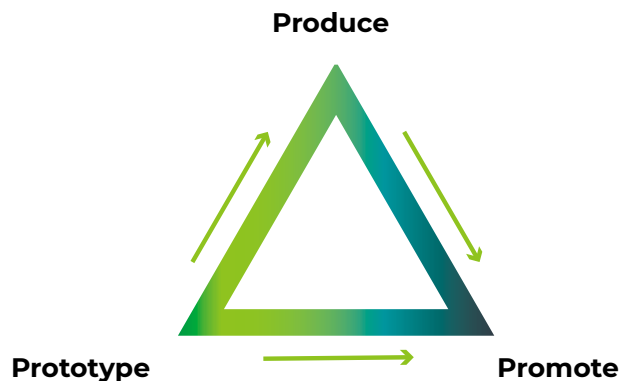
Co-Create
Know your Needs. Customized with Speed.

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

Produce

Prototype   **Promote**

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

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.

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.
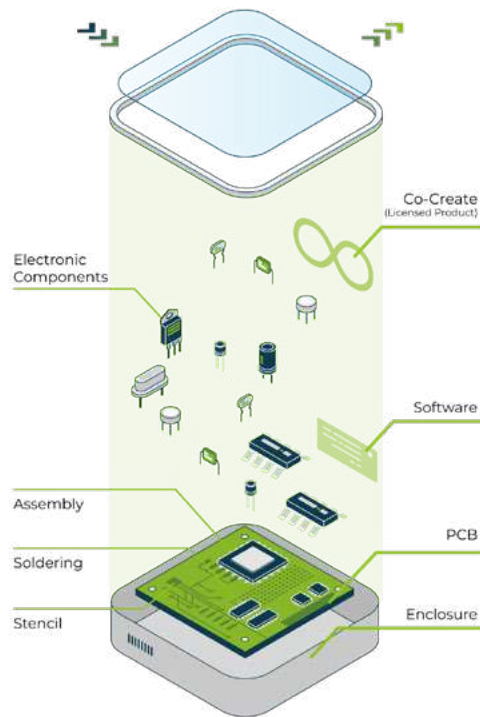
Apply Now: https://docs.google.com/forms/d/e/1FAIpQLSe2xs8bw8EK5WRd6-Uc2YbiOMW7FZi8NQlJ2mD6Vz5uMOYh3g/viewform?usp=sf_link
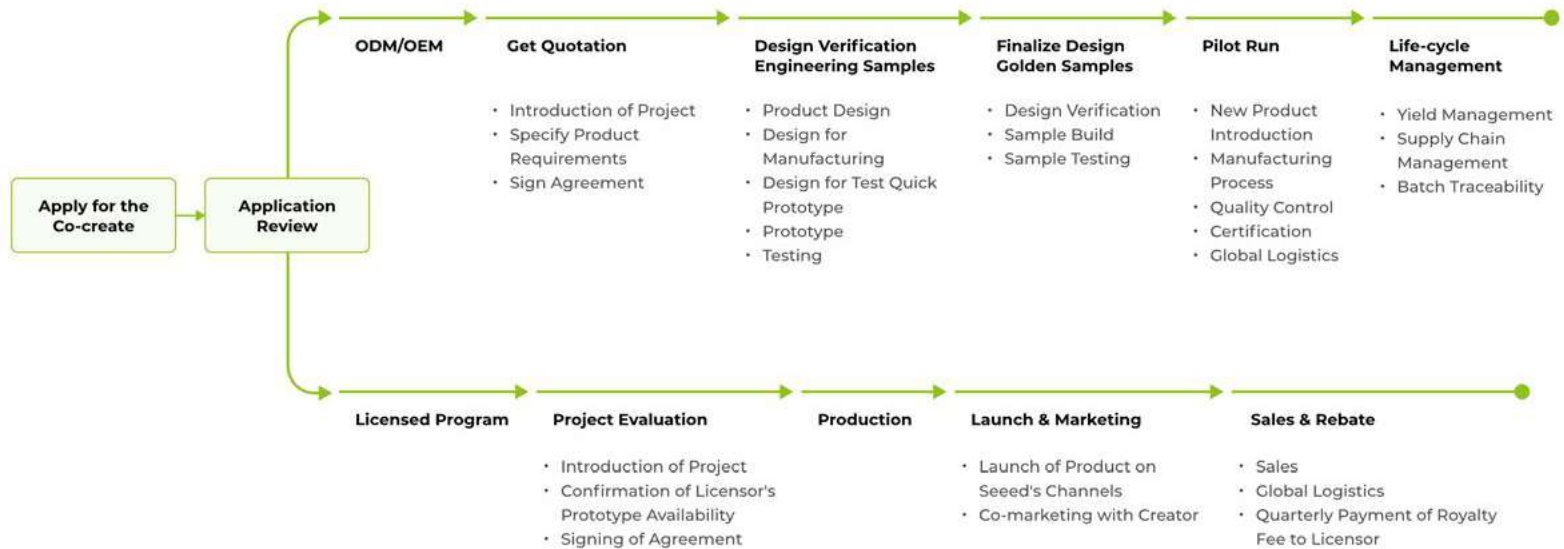
Comprehensive OEM/ODM Customization
## Design and Customization for Diverse Needs

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.

Electronic Components
Co-Create (Licensed Product)
Software
Assembly
PCB
Soldering
Stencil
Enclosure

Light Customization

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

Order online
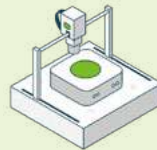
Logo Customization
(3 ~ 14 days)

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 Improvment

Certifications

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

beagleboard.org   ESPRESSIF   MICROCHIP   NORDIC SEMICONDUCTOR   NVIDIA   Raspberry Pi   SEMTECH   MESHTASTIC

Licensing Program

Additional Advantages Beyond Prototyping and Production

Solid Resources for Marketing and Sales

Fusion Gallery to test the water and receive feedback

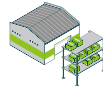Seeed online shop to reach half a million direct customers

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 `NEW`

SKU   110992044

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

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

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

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

Crazyfile 2.1

SKU 114993295

The Crazyflie 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

6 Open Hardware and Co-Create

Shenzhen Tech Ecosystem and 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.

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

Community Driven, Ecosystem Builder

At Seeed 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

arm   HAILO   NVIDIA   SEMTECH   SENSIRION THE SENSOR COMPANY   ST life.augmented

TEXAS INSTRUMENTS   MICROCHIP   NORDIC SEMICONDUCTOR   SILICON LABS   RENESAS   **30+**

Embedded SW

AWS IoT   balena   Linux   IgnitionEDGE   freeRTOS   Zephyr   **15+**

ML / CV

allxon   alwaysAI   CVEDIA   lumeo   roboflow   ultralytics YOLOv5   **20+**

Cloud and Network

Actility   aws   helium   Microsoft   THE THINGS NETWORK   Hugging Face   **40+**

Community

ARDUINO   beagleboard.org   Home Assistant   Raspberry Pi   TINY ML

Vibrant Community

Hackster:

2,938 Published Projects
22,200 Members

https://www.hackster.io/seeed/

GitHub:

841 Followers
475 Repositories

https://github.com/Seeed-Studio

Seeed Studio Discord:

10,859 Members

https://discord.com/invite/
QqMgVwHT3X

SenseCAP Discord:

27,565 Members

https://discord.gg/4mKVXNNrgY

At Seeed 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 Seeed Ranger program**, we expand this collaborative ecosystem by **organizing workshops, exhibitions, and creating engaging content.**

Instagram:

14430 Followers

https://www.instagram.com/
seeedstudio/

Threads:

2870 Followers

https://www.threads.net/@
seeedstudio

Bluesky:

276 Followers

https://bsky.app/profile/
seeedstudio.com

Seeed Ranger:

13 Rangers
60 Workshops
9 Countries

https://wiki.seeedstudio.com/ranger/

YouTube:

17,700 Followers   **633** Videos

https://www.youtube.com/@
SeeedStudioSZ

X:

67,747 Followers

https://x.com/seeedstudio

Facebook:

45,1642 Followers

https://www.facebook.com/
seeedstudiosz

LinkedIn:

46,502 Followers

https://www.linkedin.com/ company/
seeedstudio/

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

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

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

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.
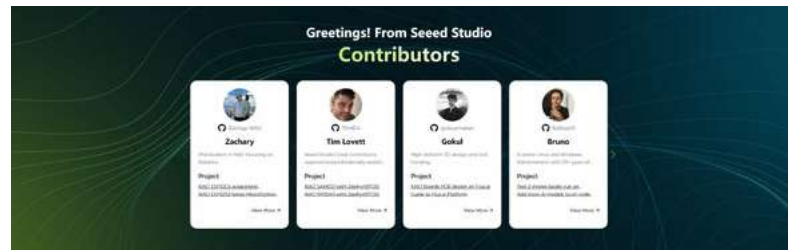
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1. Share the ideas with us.
2. Anyone can achieve it as one assignment on GitHub.
3. Both get rewarded.
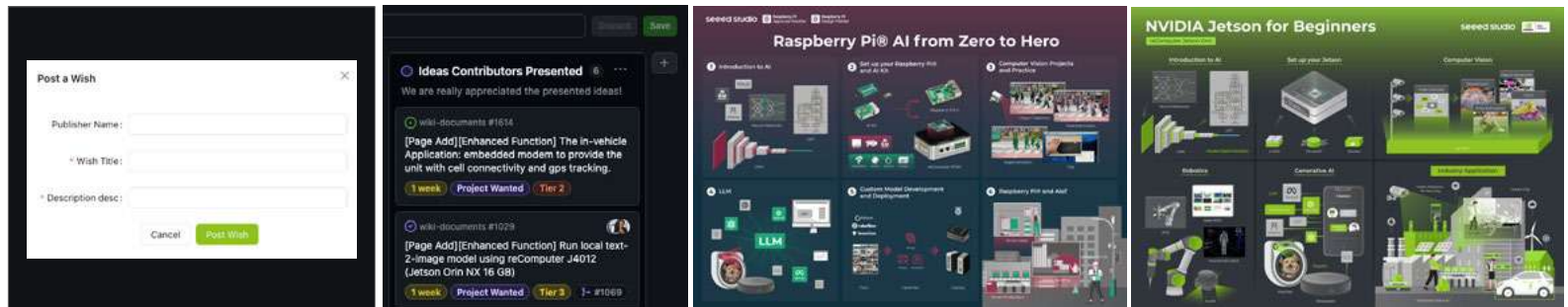
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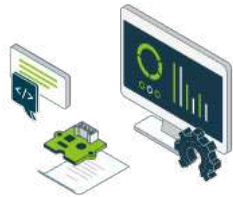
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Empower individuals and organizations to learn and adopt AI, IoT, and digital transformation.

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Open Source Courses

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

`tinyML` `Arduino` `Seeed 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
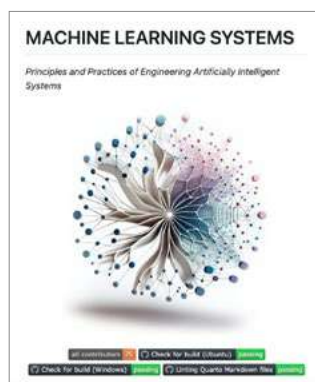
Machine Learning Systems

Principles and Practices of Engineering Artificially Intelligent Systems

tinyML · Seeed 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 Seeed Studio XIAO ESP32S3 Sense for real-world exercises in image classification, object detection, keyword spotting, motion classification, and anomaly detection.

https://mlsysbook.ai/
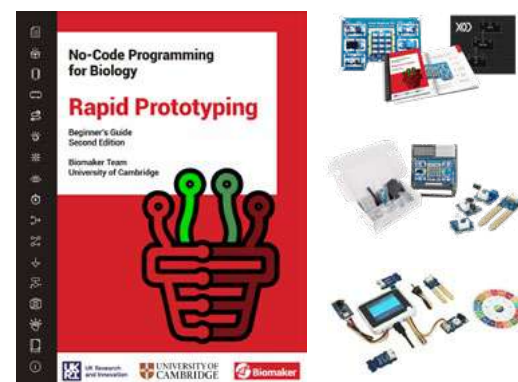
No-Code Programming for Biology Rapid Prototyping Beginner's Guide

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 Seeed 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
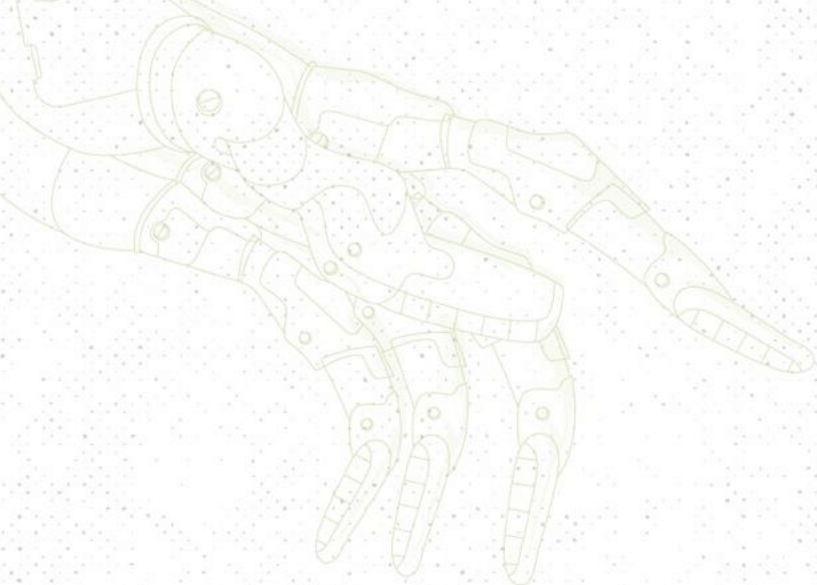
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March 2025

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