AI-ORIN-NANO

Jetson Orin Nano Developer Kit



FEATURES

AI Jetson Orin – Jetson Orin Nano

- The NVIDIA® Jetson Nano™ Developer Kit is a small AI computer for makers, learners, and developers.
- This kit includes a Jetson Orin Nano 8GB module and a versatile carrier board compatible with all Orin Nano, ideal for edge-AI prototyping. Equipped with an Ampere GPU, 6-core ARM CPU, and multiple connectors (including dual camera support), it enables seamless multitasking and high-performance inference.

SPECIFICATIONS

Jetson Nano Core Module

- The NVIDIA Jetson Orin Nano Super Developer Kit.
- Core Module: Jetson Orin Nano 8GB (SUPER)
- AI Performance : 67 TOPS (sparse),33 TOPS (dense)
- GPU: N-VIDIA Ampere architecture with 1024 CUDA cores and 32 tensor cores
- GPU Frequency: 1020MHz (Max)
- CPU: 6-core Cortex-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3
- CPU Frequency: 1.7GHz (Max)
- Memory: 8GB 128-bit LPDDR5, 102 GB/s
- Storage: SD card,external NVMe via M.2 Key M interface
- Power: 7 W | 15 W | 25 W

JETSON-IO-BASE-A Carrier Board

- TF Card Slot : TF/microSD card expansion
- M.2 Interface : M.2 Key E
- Wireless Support : AC8265 wireless network card
- Fan Header : 1 × 1.25 mm, 1 × 2.54 mm fan header
- PoE : PoE pins; external PoE module required
- GPIO : 40-pin GPIO header
- USB : 4 × USB 3.0
- Ethernet : Gigabit Ethernet, 10/100/1000 BASE-T
- HDMI : HDMI display output
- DisplayPort : DisplayPort connector
- Camera : 2 × MIPI CSI camera connectors
- Power Input : DC jack, 5 V power input
- Power/Data : Micro USB port
- Control Interface : Multi-function 12-pin header
- Power Button : Onboard PWR button.

EXPERIMENTS

- Setting up the Jetson Orin Nano developer kit with all the libraries and software dependencies.
- Real-Time Object Detection on Live Camera using YOLOv8n model.
- Real-Time Face Detection on Live Camera using the Mediapipe library.
- Real-Time Eye Detection on Live Camera using the Mediapipe library.
- Real-Time Hand Tracking on Live Camera using the Mediapipe library.
- Real-Time Object Tracking based on Colour on Live Camera with the HSV scheme.
- Real-Time Multiple Object Tracking based on Colour on Live Camera with the HSV scheme.
- Real-Time Object Contours detection based on Colour on Live Camera with the HSV scheme.
- Real-Time Face Recognition on Live Camera using the Face Recognition library.
- Real-Time Pose Detection on Live Camera using the Mediapipe library.
- Real-Time Hand Detection on Live Camera using the Mediapipe library.
- Distinguishing between the Right and Left Hands on Live Camera using the Mediapipe library.
- Real-Time Gesture Detection on Live Camera using the Mediapipe library.
- Storing the Trained Gestures in a pickle file to be uploaded directly on Live Camera using the Mediapipe library.
- Real-Time Object Detection based on User prompt on Live Camera.
- Implementation of Text Generation with Llama model using LLMs.
- Implementation of Text + Vision with Llava model using CLIP vision encoder.