Planned compute

NVIDIA Jetson Series

NANONAVI

NanoNavi

Self-localizing indoor 3D positioning

Pursuing low-micrometer absolute 3D positioning

ONBOARD SELF-LOCALIZATION | PRECISION + INTEGRITY | RESEARCH PROGRAM

LOCALIZE
IN REAL SPACE

MAP
IN 3D

ENABLE
A SMARTER WORLD



PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC

A MORE PRECISE
TOMORROW
INSIDE

NANONAVI

Planned compute
NVIDIA Jetson Series

The Problem

Indoor positioning already exists. NanoNavi targets precision + integrity.

Indoor Positioning Is An Established Field
Optical iGPS and terrestrial RF systems exist. [1,3]

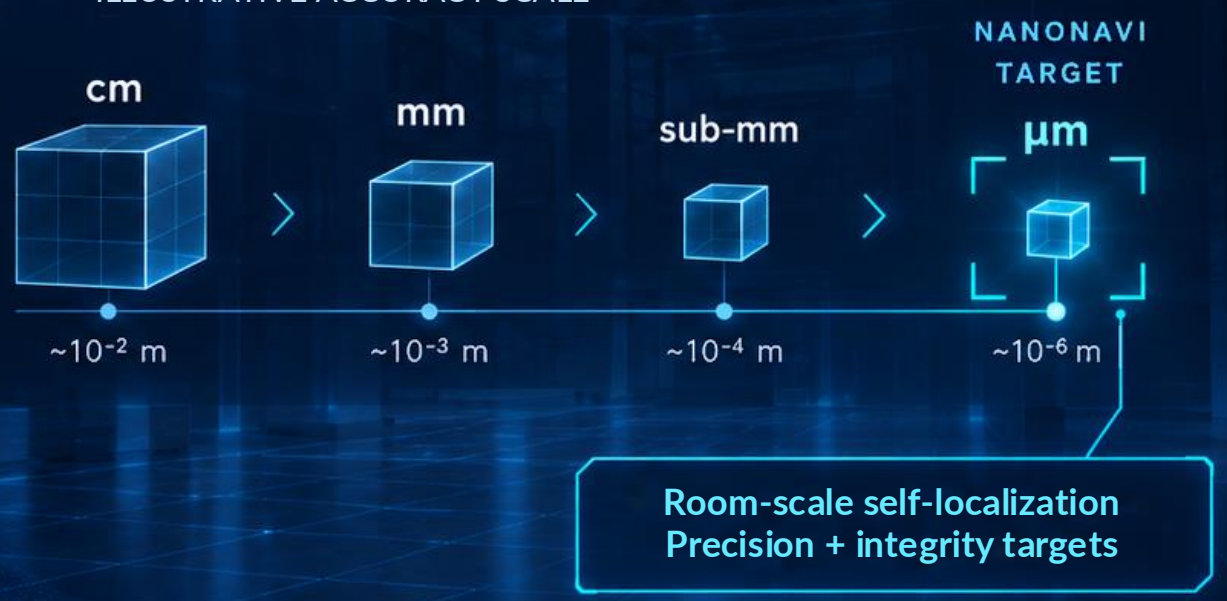
A Relevant Optical Benchmark
iGPS: 0.25 mm uncertainty at 95% confidence. [2]

NanoNavi's Development Objective
1–10 µm + room-scale + onboard calculation

Higher Integrity Is Part Of The Goal
Uncertainty, fault flags and security testing

A MORE PRECISE TOMORROW INSIDE

ILLUSTRATIVE ACCURACY SCALE



Targets, not demonstrated performance. Benchmarks are configuration-specific; sources in the appendix.

PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC

NANONAVI

Planned compute
NVIDIA Jetson Series

The Opportunity

A foundational positioning layer for high-precision industries



PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC



A MORE PRECISE TOMORROW INSIDE



Advanced Robotics

Precise guidance in specialized workspaces



Semiconductor & Cleanrooms

Positioning within controlled environments



Industrial Metrology

Tool and process localization



Neuro & Surgical Systems

Future clinical research; validation required

An established field. A new precision and integrity objective.

Target applications, not validated deployments. Industrial development first; clinical research later.

A MORE PRECISE TOMORROW INSIDE

NANONAVI

Planned compute
NVIDIA Jetson Series

The NanoNavi Solution

The room supplies the references.
The device determines where it is.



PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC

Fixed Reference Stations
Surveyed, non-following optical references



Onboard Receiver
Multi-face optical sensing + inertial measurements



Measurement Electronics
Dedicated timing, angle or phase capture



Jetson Positioning Engine
Onboard estimation, calibration and uncertainty





A MORE PRECISE
TOMORROW
INSIDE

X/Y/Z coordinates | Orientation | Uncertainty | Status

DESIGN GOALS: Onboard calculation | Monitored references | Independent validation

Optical paths remain required. Fixed references do not follow the receiver. [6]

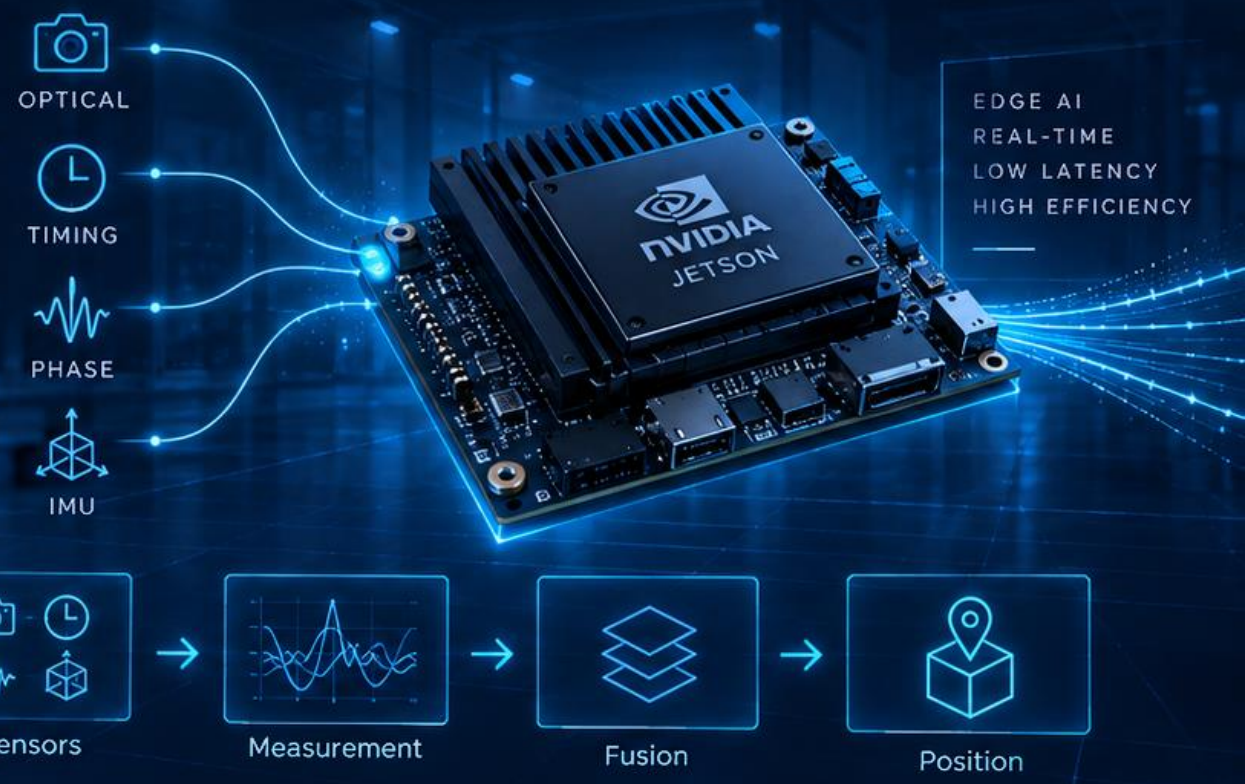
NANONAVI

Planned compute
NVIDIA Jetson Series

Why NVIDIA Jetson

Edge intelligence for onboard self-localization

- Onboard estimation of the receiver's own position and uncertainty
- Fuse optical observations, calibration and IMU data on the device
- CUDA / JetPack tools for estimation, AI diagnostics and sensor processing [4]
- Select the Jetson module around power, heat and workload requirements
- Prototype first. Validate motion, latency and recovery with real hardware.



Jetson supplies compute, not a positioning guarantee.

A MORE PRECISE TOMORROW INSIDE

NANONAVI

Planned compute
NVIDIA Jetson Series

Roadmap & Milestones

De-risking the micrometer journey step by step

PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC



01 Architecture Demo

Freely moving receiver; onboard absolute 3D

02 100 µm

Measure calibration, geometry and motion errors

03 10 µm

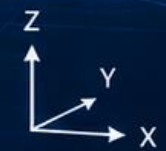
Validate across the qualified room-scale volume

04 1 µm

Tighten the full 3D error budget and verify

05 Beyond

Investigate nanometer absolute positioning as a separate research task



Research targets, not achieved results. Independent verification is required at every stage.

A MORE PRECISE TOMORROW INSIDE

NANONAVI
A MORE PRECISE TOMORROW INSIDE

Planned compute
NVIDIA Jetson Series

PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC

Applications

From industrial precision to neuro-scale futures

Precision Robotics

Guidance and control in specialized indoor workspaces



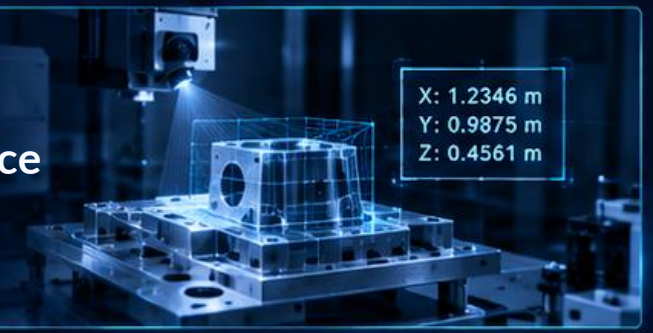
Semiconductor & Cleanrooms

Positioning for highly controlled production spaces



Metrology & Spatial Intelligence

Tool and process localization



Neuro / Surgical Navigation

Future instrument navigation; separate clinical validation



Industrial validation first. Medical applications require separate clinical development.



A MORE PRECISE TOMORROW INSIDE

NANONAVI

INVESTMENT THESIS

Building The Positioning Layer

For the next era of precision

Planned compute

NVIDIA Jetson Series



PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC

Potential Technical Moat
Measurement design, calibration and integrity

An Airport51 Initiative
AI Research Port 51 Inc

Jetson-Based Development
Onboard estimation for precision environments

Evidence-Led Milestones
Accuracy, resilience and security testing

Use Of Funds

- Prototype hardware
- Optical infrastructure
- Sensor fusion software
- Calibration & validation
- IP & partnerships

A MORE PRECISE TOMORROW INSIDE

Seeking strategic capital and technical partners to validate a new class of high-integrity indoor positioning.

A MORE PRECISE TOMORROW INSIDE

Trust The Position.
Know when not to.

High integrity is a design and testing objective, not a certification.

01

Measurement Integrity

Cross-check references and calibration. Report uncertainty, measurement age and degraded or unavailable states.

02

Operational Resilience

Test blocked optical paths, drift and signal reacquisition. Report validity rather than silently hiding loss of lock.

03

Security Engineering

Define threats; protect configuration and updates; test signal manipulation and physical tampering.

Accuracy, measurement integrity and cybersecurity must be validated separately.

Proposed workstream informed by NIST PNT risk guidance. Shielding and onboard compute alone do not prove security. [5]

NANONAVI

The Ambition Is Bold. The claims stay measurable.

External benchmarks support context. NanoNavi performance remains to be demonstrated.

[1] Existing Optical Positioning

iGPS uses fixed optical transmitters and mobile sensors.
Its FAQ describes central position processing.

7D Kinematic Metrology • iGPS FAQ

[2] A Configuration-Specific Benchmark

2012 iGPS study: ~1 mm basic / 0.25 mm optimized
expanded coordinate uncertainty, both at 95% confidence.

Muelaner et al. • DOI: 10.1007/s10845-010-0488-y

[3] Terrestrial RF Is Also Established

Locata describes indoor/outdoor positioning and EC tests.
Its figures are not evidence of NanoNavi security superiority.

Locata • account of EC testing

[4] Jetson Is The Planned Compute Platform

NVIDIA documents edge modules and CUDA-X / JetPack.
It does not supply a micrometer positioning guarantee.

NVIDIA Developer • Jetson modules

[5] Security Has Its Own Validation Path

NIST IR 8323 Rev. 1 provides PNT risk-management guidance.
The proposed NanoNavi security work is not certification.

NIST • IR 8323 Rev. 1 (2023)

[6] Project Requirements, Not Measured Results

The supplied NANONAVI working document defines the architecture, optical coverage and independent validation.

Supplied working document • architecture and validation

Concept-stage program. No achieved accuracy, clinical authorization, security superiority or NVIDIA endorsement is asserted.