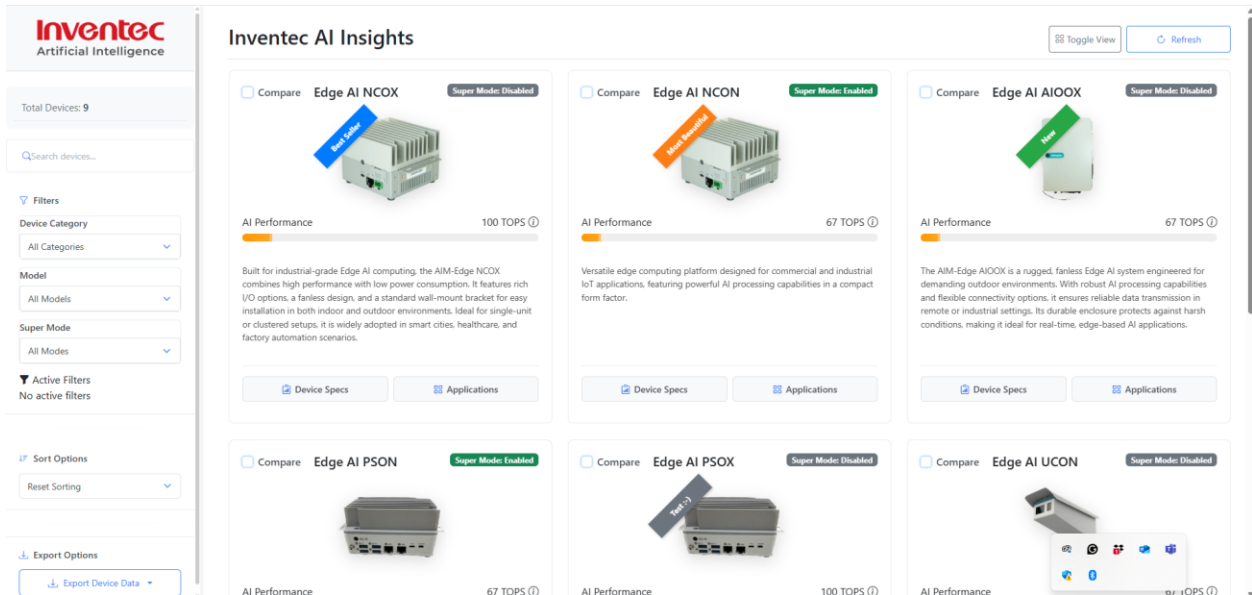


Edge AI Insights App Architecture Summary



The Edge AI Insights application uses a modular three-tier architecture, with distinct roles for the frontend server, backend API, and database layer. This report outlines the technologies used, their configurations, and how they interact in the system.

Frontend Server: Python http.server

Python's built-in http.server module serves static content such as:

- It is a static file server
- HTML interface templates
- JavaScript logic for dynamic rendering
- CSS files for styling
- Icons, logos, and other media assets
- Hosts content on port 8000 for browser access via `http://localhost:8000`
- Pass on all dynamic data needs to the Flask backend through API calls

Backend Server: Flask (Python)

The Flask application serves as the RESTful API backend, responsible for:

- Handling HTTP requests from the frontend (GET, POST, etc.)
- Performing logic such as filtering, sorting, and formatting device data
- Connecting to and querying the MongoDB database
- Runs on port 5000 and listens for frontend API calls
- Exposes API endpoints such as:
 - /api/devices
 - /api/device/<id>
- Processes data and returns JSON responses for frontend rendering

Database Layer: MongoDB

MongoDB is used to store and manage structured and semi-structured data related to Edge AI devices.

- device_specifications:
Stores all core technical specs for each device (e.g., CPU, memory, I/O, AI capabilities)
- device_applications:
Stores real-world use cases, markets, and supported application scenarios
- Runs locally on port 27017
- Accessed by Flask via PyMongo or another MongoDB client library

Data Flow

1. Frontend sends a request to Flask (e.g., fetch devices with Super Mode).
2. Flask queries MongoDB and formats the result.
3. Flask sends a JSON response back to the frontend.
4. Frontend dynamically updates the UI.

Summary: This lightweight, modular design allows for efficient development.

- Frontend Server (http.server) serves the user interface.
- Backend API (Flask) handles logic and data access.
- MongoDB stores all device data and use cases.