## **System Requirements**

## **Hardware Requirements**

* **Processor:**

Intel Core i7/i9 or AMD Ryzen 7/9 (8-core or higher)

NVIDIA RTX 3060/4070 or equivalent AMD GPU for

deep learning

* **Memory (RAM):**

Minimum 16GB DDR4, Recommended 32GB-64GB

DDR5

* **Storage:**

1TB NVMe SSD (for fast processing)

4TB+ HDD (for historical traffic data storage)

* **Network & IoT Devices:**

High-speed internet (Wi-Fi 6/Gigabit Ethernet)

GPS trackers, surveillance cameras, LiDAR sensors

* **Software Requirements**
* **Operating System:**

Windows 10/11, Linux (Ubuntu, CentOS), macOS

Cloud platforms (AWS, Azure, Google Cloud) for scalable

data processing

* **Programming & AI Frameworks**:

Python (NumPy, Pandas, Scikit-learn, TensorFlow,

PyTorch)

OpenCV (for video-based traffic analysis)

Flask/FastAPI (for API integration)

* **Database & Big Data Solutions:**

PostgreSQL / MySQL (for structured accident data storage)

MongoDB, Apache Hadoop (for real-time traffic analytics)

* **Visualization Tools:**

Power BI, Tableau, Matplotlib, Seaborn for traffic pattern

visualization

* **Geospatial & Mapping Libraries:**

GeoPandas, Folium (for accident hotspot mapping)