Software and Hardware Requirements

Table 1.Software Requirements

Category	Requirements
Operating System	Windows -11
Programming Languages	Python (for ML, image processing, and AI model development)
Libraries & Frameworks	- TensorFlow / Keras (for deep learning models) - scikit-learn (for traditional ML) - OpenCV (for image processing) - PIL/Pillow (for image manipulation) - Pandas (for data processing) - NumPy (for numerical operations) - Matplotlib / Seaborn (for visualization) - Streamlit (for web interface) - GeoPandas (for geospatial data)
Development Environment	Jupyter Notebook (for prototyping): IDE VS Code
Database	SQL-based for data storage (optional)

Table 2.Hardware Requirements

Category	Requirements
Processor	Intel i7 or AMD Ryzen (for fast computations)
RAM	Minimum 8 GB, recommended 16 GB or more for ML tasks
Storage	SSD (at least 256 GB) for faster read/write operations