

1. Preface

The "Agro-informatics: Farm Boundary Extraction and Crop Type Detection Using Machine Learning and Deep Learning" project uses cutting-edge computational approaches to enhance agricultural management and decision-making. Precise crop type detection and accurate farm boundary extraction are the project's two primary objectives. Machine learning and deep learning algorithms have the potential to automate the labour-intensive process of farm boundary extraction. Geospatial data analysis methods, such as convolutional neural networks (CNNs), are used to make sure the data is accurate and consistent.

Crop type identification is essential for efficient resource management, yield estimation, and crop health monitoring in agriculture. The project uses advanced ML and DL techniques to classify and detect various crop types from remote sensing data, using techniques like support vector machines (SVM), random forests, and deep learning architectures like convolutional neural network CNNs.

The project's final component is the integration of extracted farm boundaries and detected crop types into a user-friendly dashboard, facilitating informed decision-making for farmers, agronomists, and policymakers. This dashboard will facilitate monitoring agricultural activities, resource management, and strategic interventions.