**ABSTRACT**

"Green Intelligence" is an innovative machine learning project focused on enhancing agricultural productivity through the prediction of crop yields. By harnessing the power of data analytics and machine learning algorithms, the project aims to transform the way farmers approach crop management. The core objective is to develop a robust prediction model that utilizes diverse data sources, including historical climate conditions, soil health metrics, and past crop performance, to forecast future crop yields. Through techniques such as regression analysis, decision trees, and deep learning, the project builds predictive models that can adapt to a variety of crops and environmental conditions. The primary goal is to assist farmers in making informed decisions on resource allocation, irrigation, and cultivation practices, thereby optimizing overall crop production and improving food security.

The project also focuses on sustainability, utilizing technology to promote environmentally friendly farming practices. By improving the accuracy of yield predictions, "Green Intelligence" helps minimize the overuse of resources such as water and fertilizers, promoting sustainable farming. The machine learning models are designed to continuously improve as new data is collected, providing real-time insights that farmers can act upon. Ultimately, "Green Intelligence" aims to bridge the gap between technology and traditional farming methods, enabling farmers to use data-driven insights to adapt to climate change, reduce environmental impact, and increase agricultural productivity, thereby contributing to long-term global food security.