Abstract:

"AgroSense: ML-Powered Solutions for Sustainable Agriculture" this project is based on Agriculture faces critical challenges such as weed infestations, inefficient water usage, and crop health deterioration, necessitating advanced technology for precision farming. To address these issues, AgroSense is introduced as an AI-powered system that integrates machine learning for efficient crop management. The system utilizes image recognition to detect and classify weeds, reducing manual intervention. It employs sensor-based analysis to predict soil moisture levels, optimizing irrigation. Additionally, water footprint calculation ensures sustainable water resource management. CNN-based crop health monitoring enables real-time detection of plant stress and diseases. AgroSense features an intuitive user interface with graphical insights and a streamlined workflow, empowering farmers with actionable insights to enhance productivity, conserve resources, and promote sustainable agriculture.