AgriSphere - Transforming Agriculture with Smart Solutions

A PROJECT REPORT

Submitted by,

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Under the guidance of,

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Assistant Professor
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in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

At

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

PRESIDENCY UNIVERSITY

PRESIDENCY SCHOOL OF COMPUTER SCIENCE ENGINEERING

CERTIFICATE

This is to certify that the Project report **"AgriSphere - Transforming Agriculture with Smart Solutions"** being submitted by "Bhanu Prakash N", "Vishnu Karthik S", "S R Bharath ", "P S Venkat Karthik" bearing roll number(s) "20211CSE0345", "20211CSE0295"," 20211CSE0317"," 20211CSE0335" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a Bonafide work carried out under my supervision.

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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **AgriSphere - Transforming Agriculture with Smart Solutions** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering**, is a record of our own investigations carried under the guidance of **Mr. Ramesh T, Assistant Professor, Presidency School of Computer Science Engineering, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

Names	Roll No	Signature
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ABSTRACT

Agriculture is an important industry that keeps economies afloat and provides global food security, but farmers routinely face issues like crop choice, disease identification, and climate uncertainty. AgriSphere is an artificial intelligence-driven, web-based application meant to assist farmers with an array of intelligent modules comprising a talking chatbot, crop guidance system, plant disease forecasting tool, and live weather companion.

The system employs machine learning and deep learning to provide personalized agricultural counsel. A chatbot-based interface facilitates natural communication via NLP, while the crop suggestion engine, driven by a Random Forest model, recommends appropriate crops with respect to soil nutrients, temperature, and humidity. Plant disease prediction utilizes EfficientNetB0, a convolutional neural network, to identify diseases from images of plants with high accuracy. Integration with real-time weather APIs supports dynamic planning guidance for farm activities. All information and interaction are handled through a secure backend using MySQL for authentication and logging.

AgriSphere focuses on increasing productivity, minimizing crop loss, and supporting sustainable methods based on Sustainable Development Goals (SDGs) like Zero Hunger and Climate Action. It is scalable, easy to use, and adjustable to multiple agro-climatic conditions, providing a solid platform for intelligent agriculture in rural and semi-urban areas. This study proves that AI can be successfully used to transform conventional farming and enhance livelihoods with well-informed, technology-enabled decisions.