CBSE Science Exhibition Project Team 1

Title: Farmers Forest-Crop Predictor

Nature of Work: Novel Solution to a Problem

Introduction:

This Project is a Submission for the CBSE Science Exhibition by R. Srijan and H. Atul of Class 11-A from "The Hindu Senior Secondary School" Located in Indira Nagar, Chennai

Rationale: Can We Use AI to Take Various Parameters to Find the Best Crop to Plant and Maximise Yield?

Description:

A Unique Solution to Help Farmers in Picking Suitable Crops for Their Land using AI (Random Forest Classifier Module) and an Intuitive UI using Tkinter

Scientific Principles:

1. Artificial Intelligence and Machine Learning
2. Probability
3. Algorithms
4. Computer Theory
5. Complex Data Handling

How to Run and General Information:

1. The Project was Built in Python 3.12.5
2. Open the "Code.py" and Run the Program
3. If You have not Installed any of the Dependant Libraries, The Program will Install for You
4. Enter All the Required Inputs and Click the "Predict Best Crop" Button for Output which has Best Crop, and Second-Best Crop along with their Score

Testimonials:

The AI Predicts the Best Crop using a Vast Custom Dataset Which has Many Factors and Gives very Accurate Results

Many Researchers from Sastra University in Thanjavur have said that AI is going to Revolutionise the Farming Industry and when we Presented our Project to ask for Insights, they were very Satisfied

One said that they were impressed by the Use of Probability and Weightage of Factors

Another said that they were Impressed by the use of Tkinter and the Intuitive UI it Provided

Benefits of this Project:

1. Machine Learning Integration: We have used a Robust Random Forest Algorithm which is Great for Classification Problems
2. Library Import: The Program Downloads any Library that the User needs to Use the Program
3. Error Exceptions: We have Conditions for Many Common Errors which Help Users Understand any Problems they may Face

References for Dataset:

1. Temperature Data: Weather in January 2010 in Thanjavur, Tamil Nadu, India (timeanddate.com)
2. pH, Soil and Water Requirement: https://www.agrifarming.in/most-profitable-crops-high-profit-cash-crops-in-india