PANIMALAR ENGINEERING COLLEGE

An Autonomous Institution

[JAISAKTHI EDUCATIONAL TRUST]

Approved by AICTE | Affiliated to Anna University | Recognized by UGC

All Eligible UG Programs are Accredited by NBA

Bangalore Trunk Road,Varadharajapuram, Poonamallee, Chennai- 600 123

TECHDIVATHON

Empower, Innovate, Elevate: Code the Future Together

Domain: AGRICULTURE

Problem Statements:

S.No	Title	Problem Statement	Description
1	Automated Soil Quality and Nutrient Sensor System	Farmers face difficulty in consistently monitoring soil health, leading to suboptimal crop management.	This system automatically tracks soil pH, moisture, and nutrient levels, wirelessly transmitting data for timely decisions.
2	Drone-Based Crop Health Monitoring	Manual crop monitoring is labor-intensive and delays disease detection.	A drone with infrared cameras scans crops to detect diseases and pests early, ensuring timely action to prevent losses.
3	Smart Irrigation Control System	Farmers waste water due to inefficient irrigation practices, leading to resource depletion and lower yields.	This system uses soil moisture sensors to optimize water usage, delivering precise irrigation only when needed.
4	Pest Detection and Repellent Device	Pests damage crops, and chemical pesticides harm the environment and human health.	This device uses sensors to detect pests and ultrasonic waves to repel them, providing an eco-friendly alternative to pesticides.
5	Low-Cost Greenhouse Monitoring Sensors	Greenhouse farming is expensive to automate, making it inaccessible to small-scale farmers.	Affordable sensors monitor temperature, humidity, and light, enabling farmers to maintain optimal crop conditions.
6	Seed Planting Robot	Manual seed planting is time-consuming and lacks precision, reducing efficiency and crop yield.	This robot automates seed planting, ensuring accurate depth and spacing for optimal crop growth and resource use.
7	Weather Monitoring Station for Farms	Unpredictable weather events lead to crop losses and unprepared farmers.	A weather station monitors local conditions and provides real-time alerts, helping farmers mitigate weather risks.
8	IoT-Enabled Livestock Health Tracker	Monitoring livestock health and location is cumbersome, especially for large herds.	A wearable device tracks livestock vitals and location, sending alerts about health anomalies or potential threats.
9	Portable Soil Testing Kit	Farmers in remote areas lack access to quick soil health analysis, delaying corrective measures.	A compact kit providing instant on-site analysis of soil parameters like pH and nutrients, empowering farmers with actionable insights.

10	Real-Time Crop Growth Monitoring Device	Tracking crop growth stages manually is inefficient and often inaccurate.	This device uses image sensors to monitor crop growth and sends real-time updates to a dashboard for planning.
11	AI-Powered Crop Disease Identification App	Farmers struggle to identify crop diseases accurately and quickly.	This app leverages AI to diagnose plant diseases from photos and suggests treatments to improve crop health.
12	Crop Yield Prediction Using Weather and Satellite Data	Predicting crop yield under varying environmental conditions is challenging.	This software uses satellite imagery and weather data to forecast crop yields, aiding in resource planning.
13	Farm-to-Market Optimization Platform	Farmers face difficulties in selling produce efficiently due to disconnected supply chains.	A platform connecting farmers with local markets, tracking demand, and optimizing logistics for better profitability.
14	Fertilizer Usage Optimization Tool	Overuse or underuse of fertilizers results in lower yields and environmental harm.	This tool analyzes crop and soil data to recommend optimal fertilizer use, enhancing productivity while reducing waste.
15	Soil and Crop Analysis Dashboard	Managing large amounts of data for soil and crop health is overwhelming for farmers.	A centralized dashboard aggregates data from sensors, providing actionable insights to improve yields.
16	Virtual Farming Simulator	Farmers lack accessible training to adopt modern farming techniques.	This simulator offers interactive virtual training to educate farmers on innovative practices.
17	Weather-Adaptive Crop Management App	Adverse weather conditions often catch farmers unprepared, leading to crop losses.	This app provides real-time weather alerts and suggests adaptive farming practices to mitigate risks.
18	Agri-Supply Chain Tracker	Lack of transparency in supply chain logistics reduces farmers' profits and increases waste.	An app that tracks crop movement from farm to market using QR codes, ensuring transparency and accountability.
19	Pest Management Mobile Application	Farmers need sustainable and effective pest control solutions.	An app that logs pest infestations and provides eco-friendly treatment recommendations for sustainable farming.
20	Water Usage Analysis Tool for Irrigation	Inefficient water management leads to waste and poor crop health.	A tool that tracks irrigation water usage and suggests optimization strategies for conservation and efficiency.
21	Precision Farming Robot for Small-Scale Farms	Small-scale farmers lack access to advanced tools for soil and crop analysis.	This robot performs real-time soil and crop analysis, with data visualized on a mobile app for actionable insights.
22	Intelligent Seed Sowing Drone	Seed planting in large areas is time-consuming and imprecise.	A drone that automates seed planting with precision, controlled via a mobile app to streamline operations.
23	Automated Greenhouse Management System	Greenhouse environmental control is tedious and often inaccurate when done manually.	A system integrating sensors to monitor temperature, humidity, and lighting, controlled via a centralized dashboard.
24	Livestock Monitoring and Alert System	Monitoring livestock health and safety manually is inefficient for large-scale operations.	Wearable sensors and an app track livestock health and location, sending alerts for abnormalities.
25	Solar-Powered Smart Irrigation System	Traditional irrigation systems rely heavily on electricity and waste water.	This system uses solar-powered pumps and soil sensors for precise irrigation, reducing energy use and water wastage.