AI-Based Smart Agriculture Local Model Demonstration and Pilot Implementation in Malaysia

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KGID CAIRO

Introduction

KGID CAIRO

National Information Society Agency

- Statutory organization of the Ministry of the Science and ICT and the Ministry of the Interior and Safety

National Digital Strategy

National Informatization Plan,
Digital Platform Government Roadmap,
etc.

National Digital Infrastructure

Open Data | Network | Cloud | Artificial Intelligence | Digital Government

Digital Inclusion

Smart Village

AI Hub
AI OPEN INNOVATION HUB

AI Training Data Release

Capacity Building

IT Cooperation Project

Joint Project with IOs & MDB

Domestic Projects (Budget: $700M, 2023)

Global Projects (Budget: $10M, 2023)

Overview

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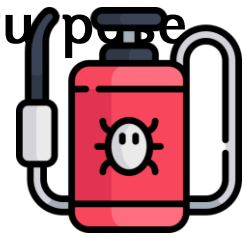
AI-Based Smart Agriculture Local Model Demonstration and Pilot Implementation

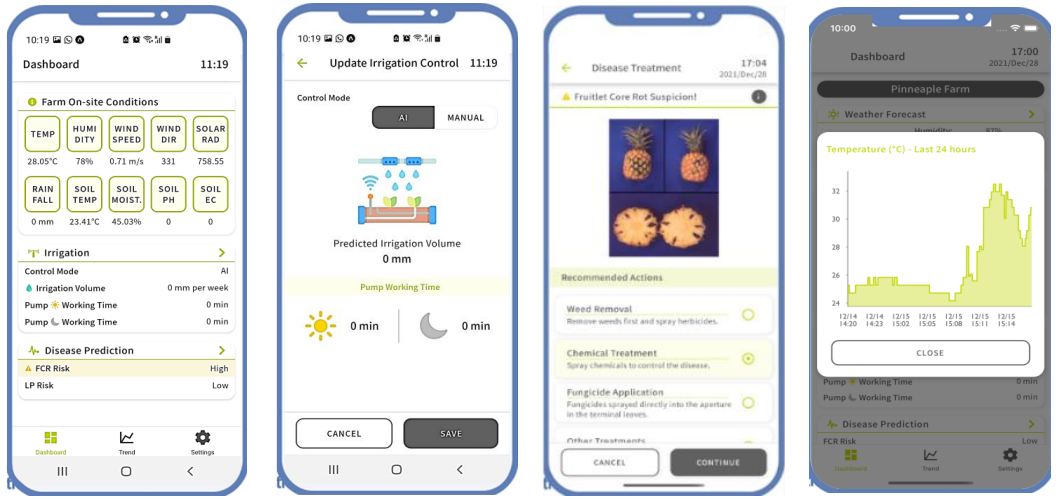
- ✓ **Country**: Malaysia
- ✓ **Period**: August 20, 2021 – September 20, 2022
- ✓ **Project Location**: Alex NP Farm, Selangor
- ✓ **Target Crop**: Pineapple
- ✓ **Target Area**: 5 acres (Pilot Test Area 330m²)
- ✓ **Purpose**



Reduced Pesticide Use

Decreased Irrigation and Fertilizer Use

Convenient Control



Challenges

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- **Field Situation**
  - ✓ Unstable **power supply**
  - ✓ Lack of **Internet Connection**
  - ✓ Lack of **Water Supply Infrastructure**
  - ✓ Farmers are not familiar with **smart devices**
  - ✓ Consideration of **environmental factors** such as floods, lightning, and insects is necessary

Overview of AI-based Smart Agriculture Local Model

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1

Power Supply Solar Panel

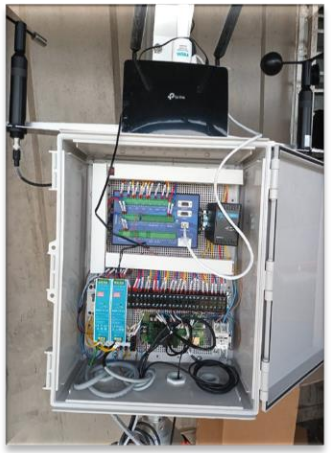
2

IoT Sensor
(Wind Speed, Soil Moisture, Temperature, Humidity, Rainfall, etc.)

Ethernet

Real-Time IoT Sensor Data

3



WiFi Router Set
(WiFi Routers, Gateway, Data Logger)

3G or LTE

4 Real-Time Weather Information API

3G or LTE Open API

5

NAVER Cloud Server
Cloud-Based AI Algorithm

Irrigation Predictive model

Disease/Pest Predictive Model

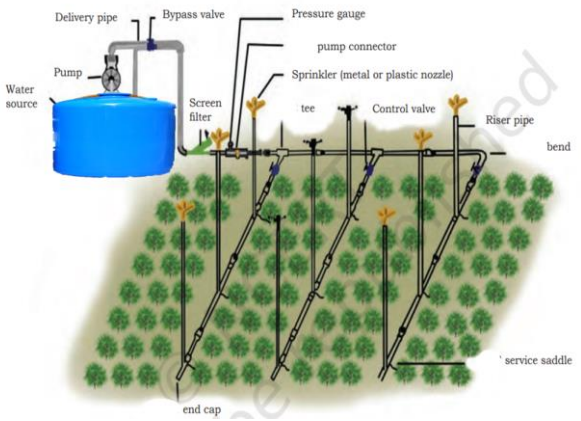
3G or LTE

6

Mobile App
- Real Time System Monitoring & Control
- Weather Data Updates and Analysis

Manual Operation

Alert of Irrigation Schedule
Disease/Pest Risk Warning



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- ✓ Irrigation
- ✓ Fertigation
- ✓ Disease & Pest Prediction
- ✓ Mealy Bug Detection

Cloud-Based AI Algorithm

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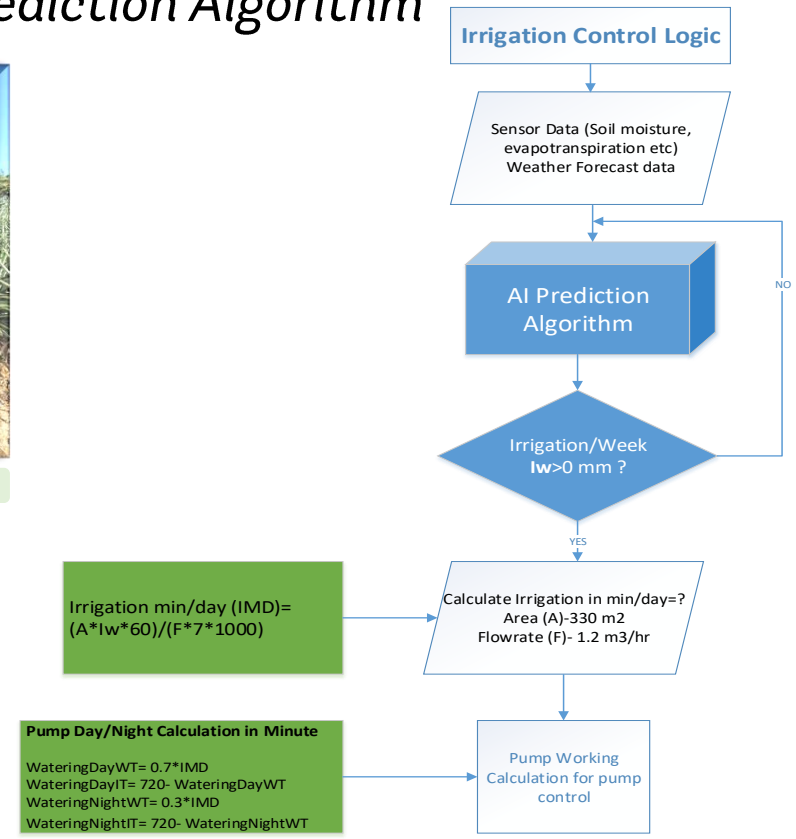
1. Irrigation Prediction Algorithm

Weather Data



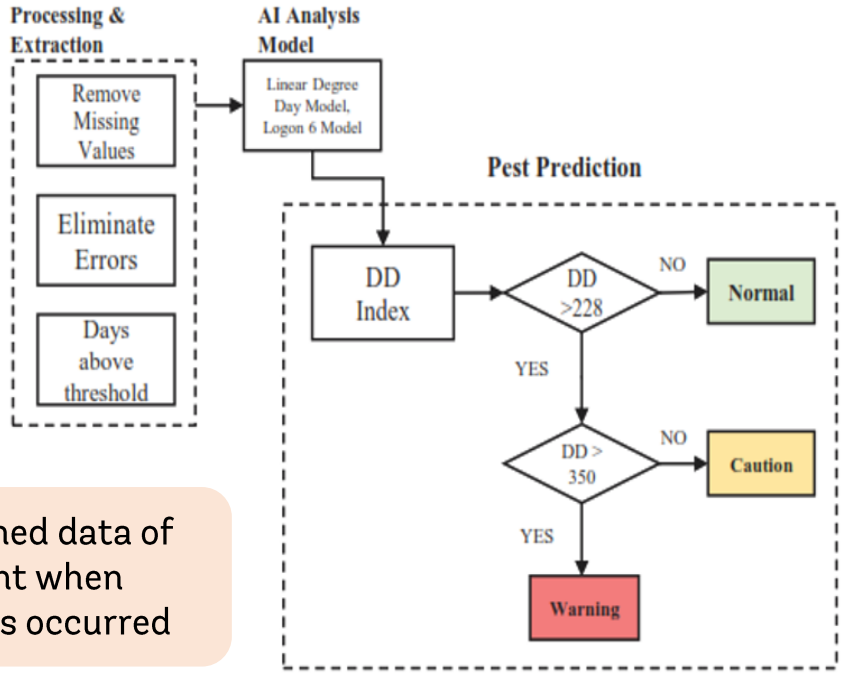
Irrigation & Fertilizer Scheduling

Pump Status Notifications

Automated Pump Control

2. Pest Prediction Algorithm

Weather Data



Based-on the trained data of the environment when pests and diseases occurred

Pest Forecast Monitoring

Pest Warnings

Fungicide Use Reminders

Mobile Service UX/UI

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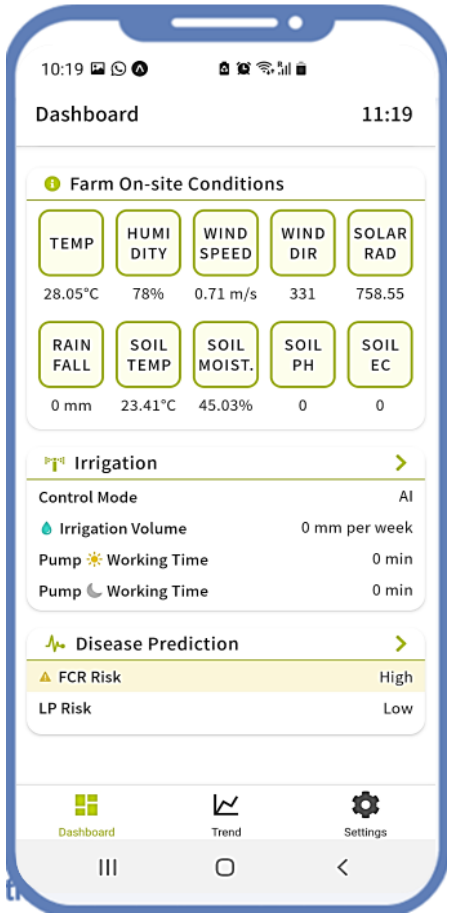
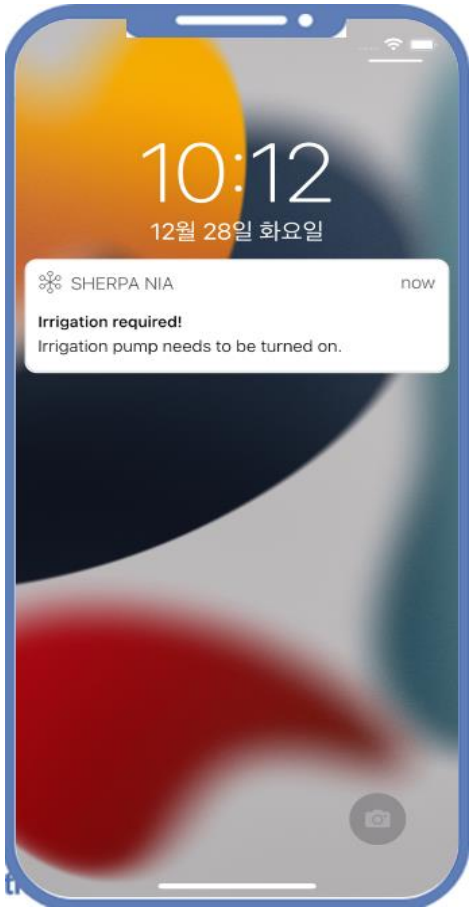
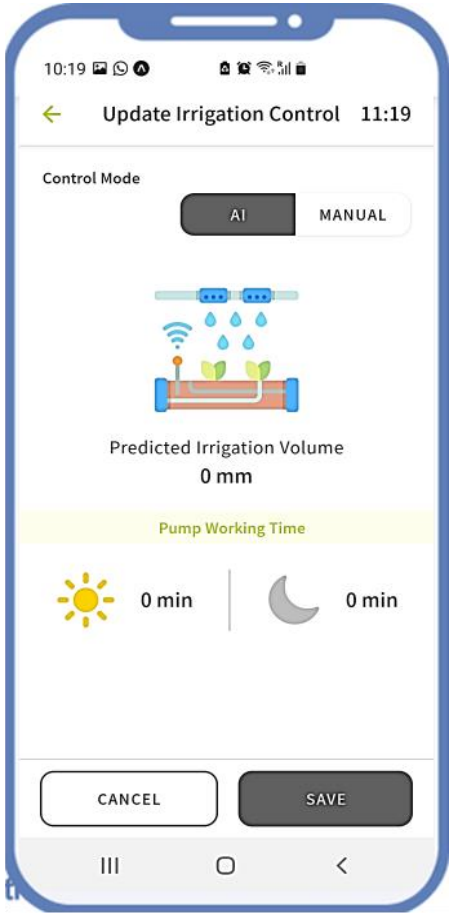


Dashboard

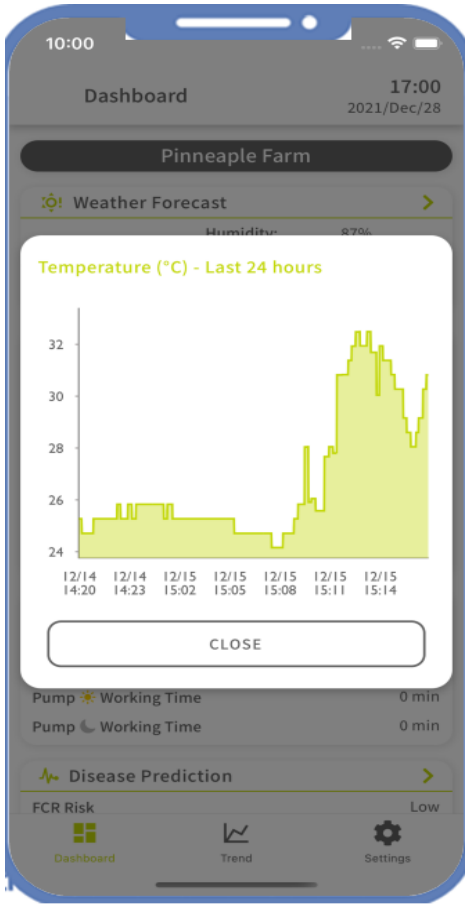


Irrigation Alert



Remote Irrigation Control

Pest Forecast Monitoring and Pest Warning



Weekly Weather Forecast, Daily Data Monitoring

Achievement at a glance

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Deliverables	Achievement
Irrigation System	30-40 % Water Savings
Fertigation System	30% Less Fertilizer
FCR and LP Disease Control	50-70 % Less fungicide
Pineapple Mealybug Control	35-40% Pesticide reduction
Labor reduction (Expected)	50-70% based on automation
Carbon emissions	30-35% reduction
Fertilizer and Pesticide (Cost Savings)-10 acre	RM19,500 (USD 4115)

THANK YOU

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Contact

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