IrriDate

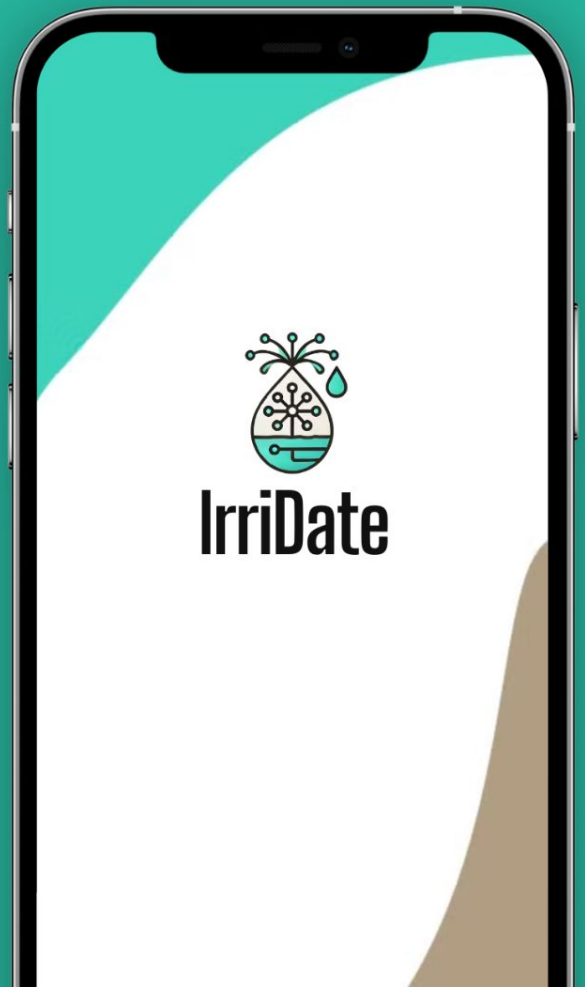
Enhancing Agricultural Efficiency and Sustainability

The Problem

- **Challenges Faced by Palm Farmers:**
  - Inefficient irrigation leading to water waste or under-watering.
  - Difficulty in early detection of palm tree diseases.
  - Lack of a unified platform for farmers to share knowledge and experiences.

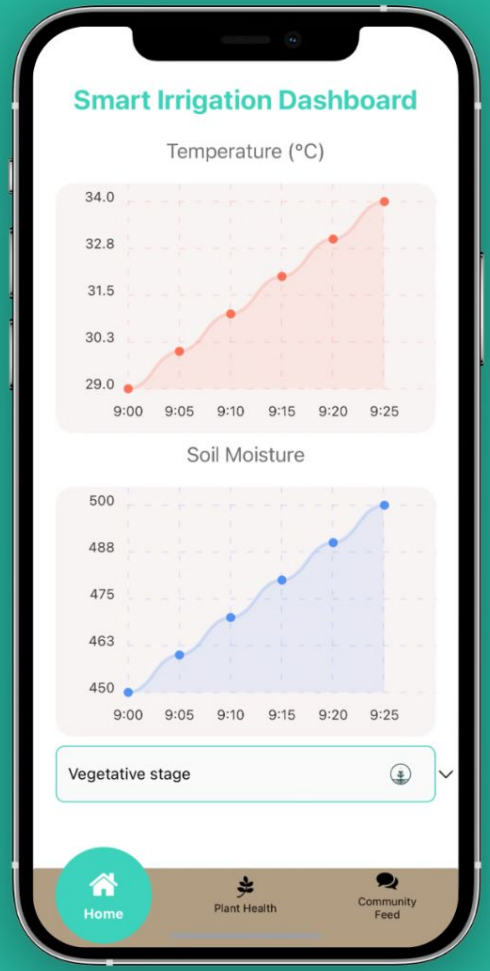
Our Approach

- **Introducing irriDate:**
  - A comprehensive mobile application integrating AI and IoT.
  - Provides smart irrigation solutions and disease detection.
  - Offers a community platform for farmers.



Features – Smart Irrigation

- **User Authentication and Remote Sensor Connection:**
  - Secure sign-up and login process.
  - Guided steps to connect the app with the sensor hardware.
  - Enables remote access to sensor data and notifications without proximity to the sensor.
- **Real-Time Monitoring Dashboard:**
  - Accessible after successful connection.
  - Displays temperature and soil moisture graphs.
  - AI model analyzes sensor data to determine irrigation needs.
  - Sends notifications to the user's phone when action is needed.

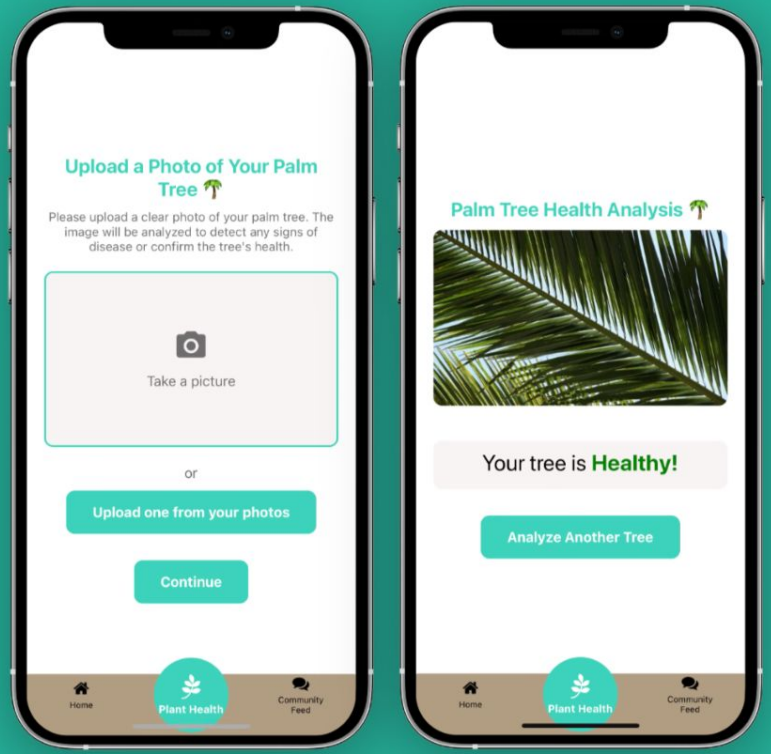


Features – Smart Irrigation

Video demonstration

Features – Palm Disease Analyzer

- **AI-Powered Disease Detection:**
  - Users can capture or upload palm tree images.
  - Classifies images into 10 categories: 8 diseases, healthy, or no plant detected.
  - Offers links to learn more about the disease and treatment options.



Main screen

Upload a Photo of Your Palm Tree 🌴

Please upload a clear photo of your palm tree. The image will be analyzed to detect any signs of disease or confirm the tree's health.

Take a picture

or

Upload one from your photos

Continue

Home | Plant Health | Community Feed

Healthy palm screen

Palm Tree Health Analysis 🌴

Your tree is **Healthy!**

Analyze Another Tree

Home | Plant Health | Community Feed

A palm with a disease screen

Palm Tree Health Analysis 🌴

Your tree has **Parlatoria Blanchardi**

Learn more about **Parlatoria Blanchardi** and how you can treat it:
https://www.saillog.co/PalmDateScale.html

Analyze Another Tree

Home | Plant Health | Community Feed

No plants detected screen

Palm Tree Health Analysis 🌴

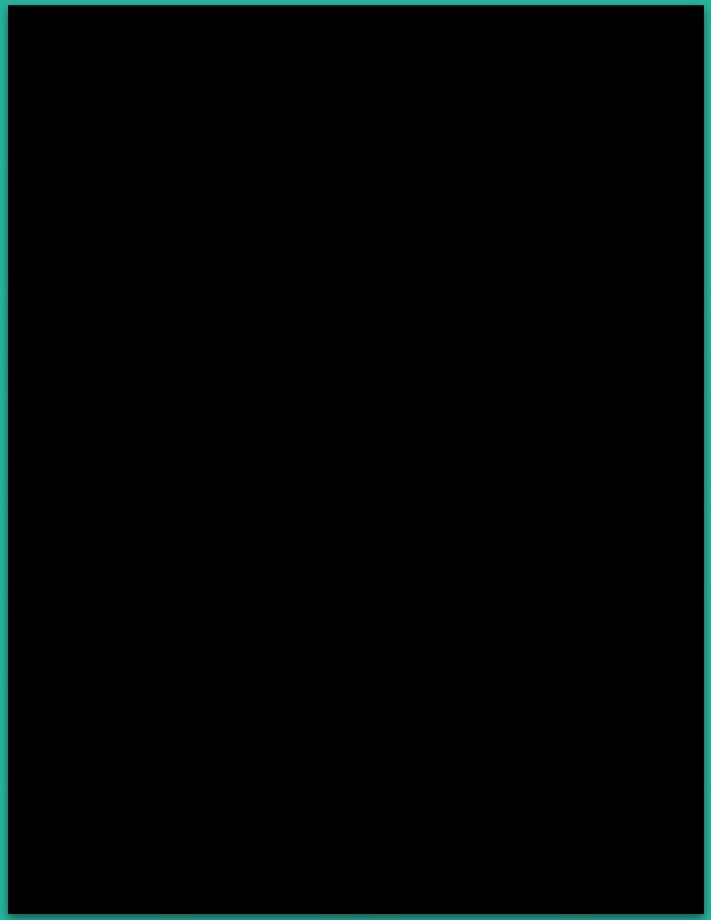
No Plants detected
Make sure you take a clear picture of the tree.

Analyze Another Tree

Home | Plant Health | Community Feed

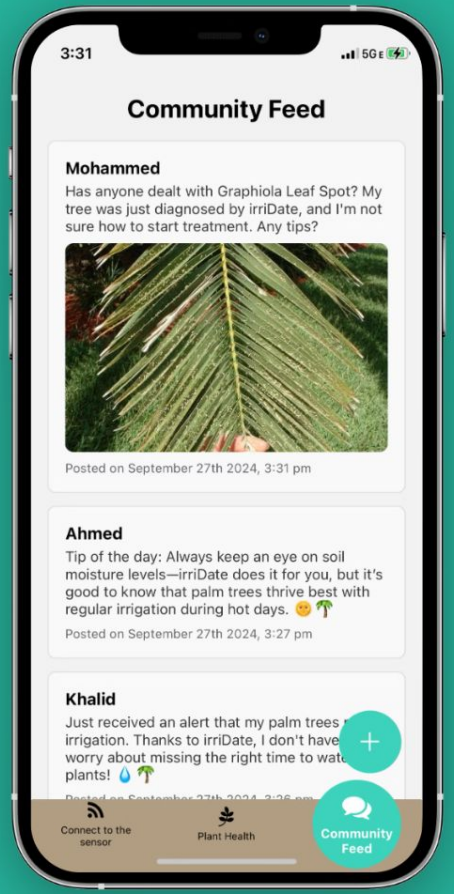
Features – Palm Disease Analyzer

Video demonstration



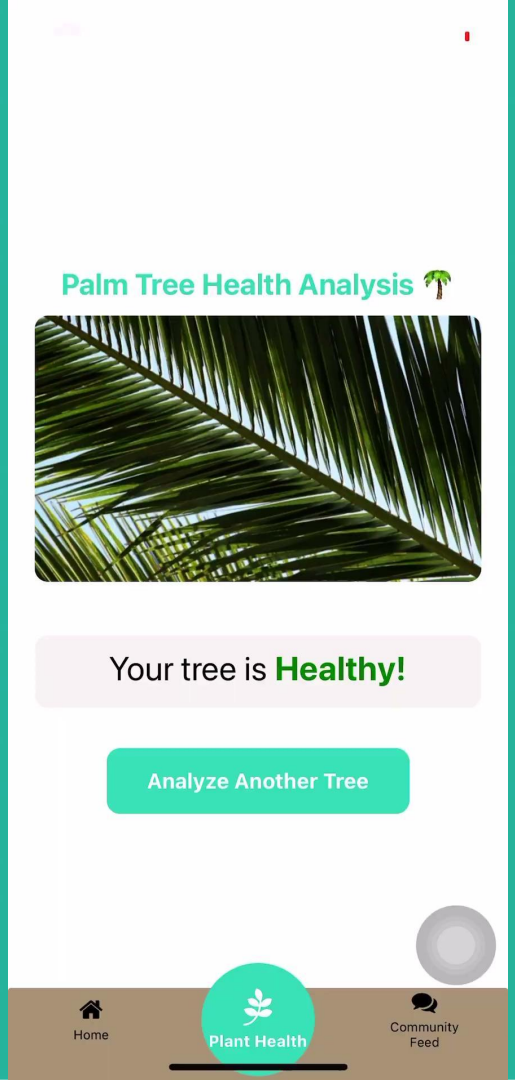
Features – Community

- **Connecting Farmers:**
  - A platform to post and share content.
  - Read and engage with posts from other users.
  - Builds a supportive network for knowledge exchange.



Features – Community

Video demonstration



Technologies Used

- **Development Stack:**
  - Expo React Native: For cross-platform mobile app development.
  - Python & TensorFlow: Building and training AI models.
  - NodeMCU: Hardware component for sensor integration.

Future Enhancements

1. **Data Improvement:**
   - Collecting actual field data to refine the irrigation model.
   - Incorporating additional features like humidity sensors.
2. **Automated Irrigation:**
   - Developing systems for automatic watering without manual intervention.
3. **Advanced Disease Monitoring:**
   - Installing cameras in farms for continuous monitoring.
   - Automated alerts and potential partnerships to provide treatment products.
4. **Language Support:**
   - Adding Arabic language to make the app accessible to a broader audience.
5. **Cloud Hosting:**
   - Hosting AI models on Firebase for better scalability and performance.

Impact on the Agricultural Sector

- **Benefits:**
  - Optimizes water usage and promotes sustainability.
  - Early disease detection reduces crop loss.
  - Empowers farmers with accessible technology.
  - Fosters a collaborative farming community.

Conclusion

- **Why irriDate Matters:**
  - Addresses critical challenges in palm farming.
  - Leverages cutting-edge technology for practical solutions.
  - Has a clear roadmap for future innovation.
  - Aims to transform agriculture for the better.