TED University

2 ZERO HUNGER

AgroAutomated, Smart Soil Recommendation and Irrigation System

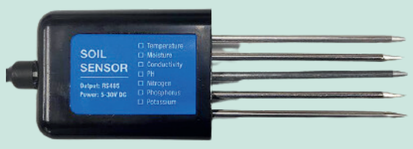
Ahmet Can Öztürk, Kaan Budak, Korhan Deniz Akın / Supervisor: Emin Kuğu

Abstract, our main task was...

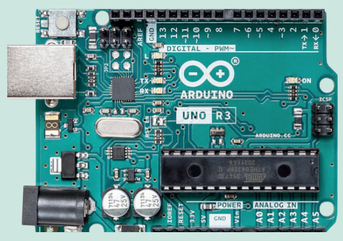
- To satisfy **United Nation's Zero Hunger goal** which is about creating a world free of hunger by 2030.
- To provide a good-looking application, an effective soil sensor and intelligent recommendations for the users and farmers.

Methods

- The **"NPKPHCTH"** sensor was used to retrieve soil data.



- **Arduino UNO** was used because of its large number of ports.



- **NodeMCU WiFi** module was used to establish Websocket connection with the backend server.

- **Apache Tomcat** was used as a web server. Java Websocket implementation was deployed to the server.

Apache Tomcat Java

- **Artificial intelligence** was used for crop recommendations.

scikit learn WEKA

- **Google Cloud** was used to deploy Java Tomcat Websocket server.

Google Cloud

- **Firebase** was used to provide communication between the application, backend and hardware components; Firebase Realtime Database, Firebase Firestore and Firebase Storage was actively used.

Firebase

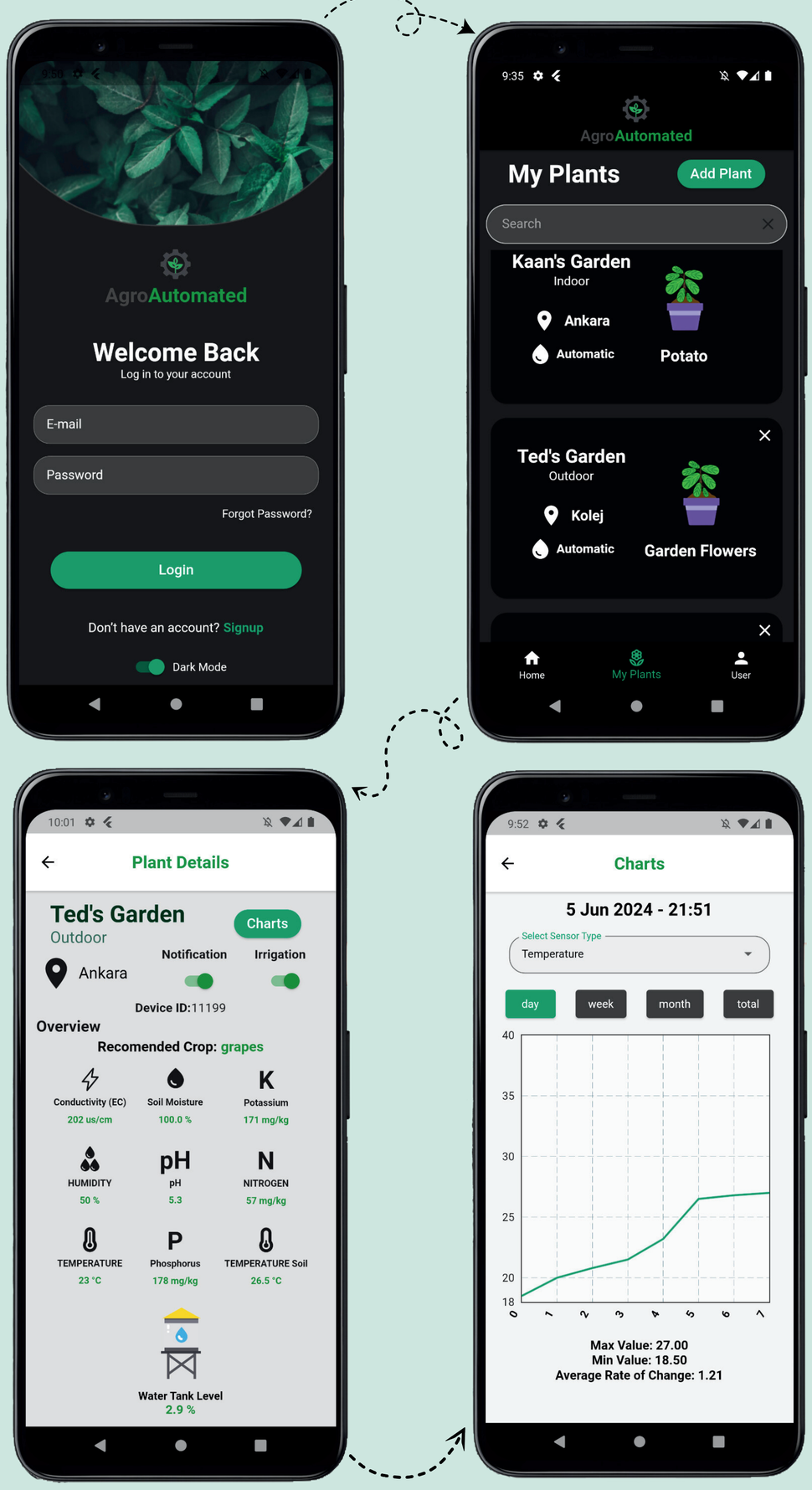
- **Flutter** application was designed to control the irrigation and monitor soil conditions in real time.

Flutter

All of the Features

- **Realtime** soil data monitoring provided by industrial level sensor.
- **Automatic** or manual irrigation of the soil by using application seamlessly.
- Soil specific plant **recommendation** by **AI**.
- Notification system through application.
- An eye-catching and smooth application.

Application Interfaces



Acknowledgements

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Website & References