

AgriInnoConnect Pro System Using Iot and Firebase Console

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Abstract : AgriInnoConnect Pro is an advanced agricultural automation system designed to enhance irrigation efficiency and overall farm management through IoT technology. Using MIT App Inventor, Telegram, Arduino IDE, and Firebase Console, it provides a user-friendly interface for farmers. Key hardware includes soil moisture sensors, DHT11 sensors, a 12V motor, a solenoid valve, a stepdown transformer, Smart Fencing, and AC switches. The system operates in automatic and manual modes. In automatic mode, the ESP32 microcontroller monitors soil moisture and autonomously controls irrigation to optimize water usage. In manual mode, users can control the irrigation motor via a mobile app. Telegram bots enable remote operation of the solenoid valve and electric fencing, enhancing farm security. Additionally, the system upgrades conventional devices to smart ones using AC switches, broadening automation capabilities. AgriInnoConnect Pro aims to improve farm productivity and resource management, addressing the critical need for sustainable water conservation and providing a comprehensive solution for modern farm management. The integration of smart technologies in AgriInnoConnect Pro ensures precision farming practices, promoting efficient resource allocation and sustainable agricultural development.

Keywords : agricultural automation, IoT, soil moisture sensor, ESP32, MIT app inventor, telegram bot, smart farming, remote control, firebase console

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