IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 5, April 2024

A Smart Soil Monitoring System with Precise Crop Recommendations

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Abstract: *Traditional methods of soil health prediction and plant selection in agriculture often involve time-consuming processes such as soil sampling, laboratory analysis, and subsequent decision-making based on the results. This paper proposes an integrated system aimed at overcoming these limitations by leveraging modern technology. The proposed system integrates various components including NPK sensors, DHT11 sensors for monitoring temperature and humidity, an ATMega328P microcontroller for data processing, and an IoT platform (Blynk app) for remote monitoring. Additionally, a voice playback feature enhances user interaction and accessibility. This comprehensive system enables real-time monitoring of soil nutrients and environmental conditions, empowering farmers with timely insights for informed decision-making. The convenience of remote access through the IoT platform and the inclusion of voice playback functionality make this system user-friendly and efficient, thereby facilitating optimized agricultural practices and promoting sustainability in farming.*

Keywords: Power Supply Unit, ATMega328P Microcontroller, Voice Playback, NPK Sensor,DHT11 Sensor

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