# YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING, NAGPUR

(An Autonomous Institute Affiliated by Rastrasant Tukdogi Maharaj Institute Nagpur University)

## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

# SMART AGRICULTURE USING LORA-WAN

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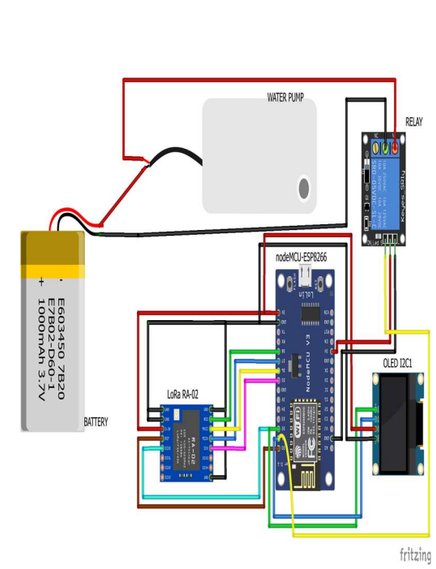
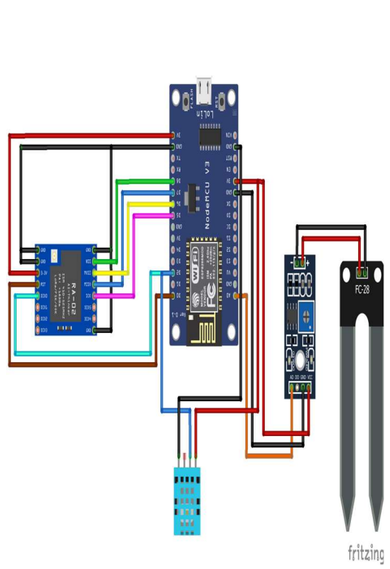
**Session 2023-24**

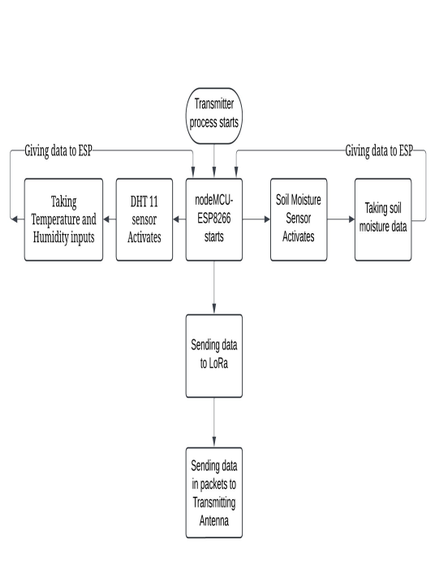
**Abstract:** The smart agriculture using LoRa-WAN project aims to revolutionize traditional farming practices by leveraging IoT technology, specifically LoRaWAN, to monitor and manage crop conditions. The system integrates various sensors, including those for soil moisture, temperature, and humidity, to provide real-time data to farmers. By remotely controlling irrigation systems based on this data, the project aims to optimize water usage and enhance crop yield. The project also includes a web application for monitoring and controlling the system, ensuring ease of use for farmers. Through this project, we aim to demonstrate the potential of IoT technology in agriculture and its ability to improve efficiency and sustainability in farming practices.

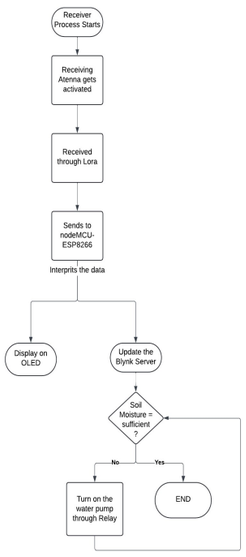
**Introduction**: Welcome to our innovative smart agriculture project! By combining IoT technology with LoRaWAN, we're transforming traditional farming practices. Our system enables farmers to remotely monitor and control crucial parameters such as soil moisture, temperature, and humidity, leading to increased efficiency and higher yields.

**Simulated Designs:**

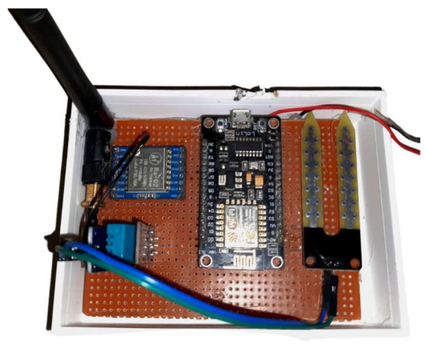


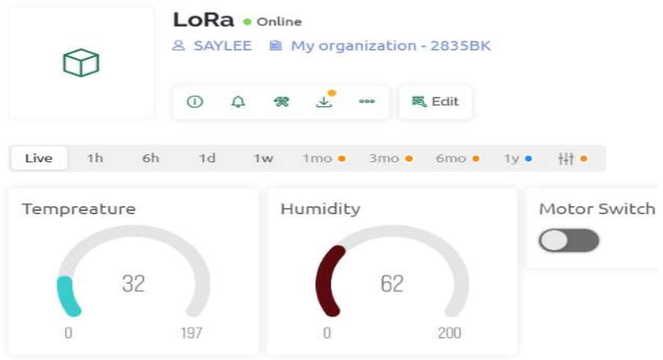




**Simulated Results:**






**Conclusion and Future Scope:**

In conclusion, our smart agriculture project demonstrates the potential of IoT technology to revolutionize farming practices. By enabling real-time monitoring and control, we have shown significant improvements in efficiency and yield.

Looking ahead, future enhancements could include integrating machine learning algorithms to predict optimal irrigation schedules based on weather forecasts and soil conditions. Additionally, expanding the system to support more crops and incorporating data analytics for further insights could further enhance its impact on agricultural productivity.

**Results:** In this project we finally achieved the outcome as our agenda was to make a device which is IOT based helps in the agriculture field to the breadwinner of the world our beloved farmers.

We have used the LoRa Technology and help the farmer to monitor and control his agriculture field from one point that is the farmhouse.

We have faced many challenges while executing the project and finally we have successfully finished the project remaining our agenda as it