

## 1 INTRODUCTION

"IntelliGROW" as a project is an endeavor to enhance plant well-being by meticulously monitoring and maintaining essential factors such as soil-moisture content, nutrient equilibrium, and proper drainage. The focus of the project lies in creating a working prototype, showcasing the extraordinary potential of IntelliGROW.

## 4 OBJECTIVES



### Smart Irrigation Control

### Nutrient Precision



### Efficient Drainage

## 2 NEED ANALYSIS

In the face of a growing population and resource limitations, modern agriculture demands more efficient and sustainable practices. "IntelliGROW" addresses these challenges by monitoring and controlling soil conditions, providing farmers with data-driven insights on optimal watering and nutrient application.



## 3 METHODOLOGY

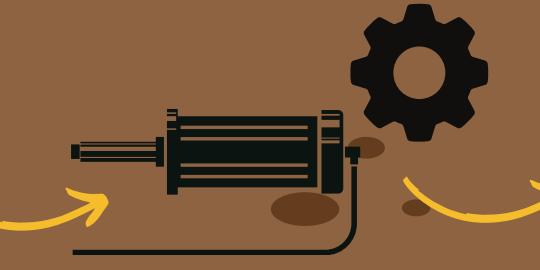


Sensors

Data Transmission



Data Analysis

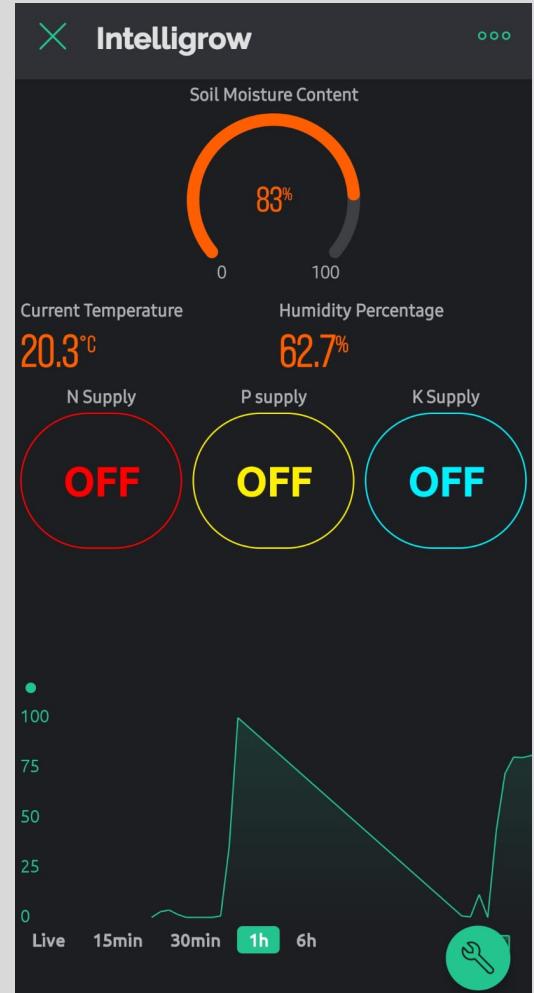


Trigger Actuators



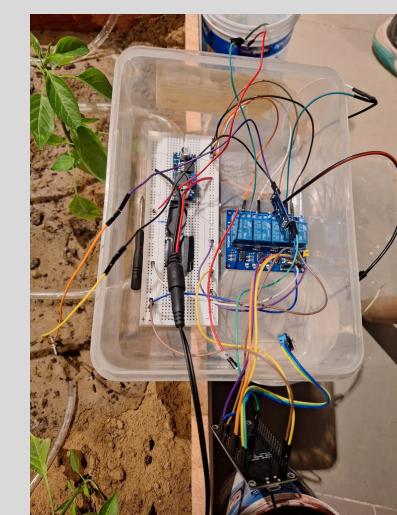
Dashboard

## 5 IMPLEMENTATION & SYSTEM DESIGN



## 6 SYSTEM COMPONENTS

- Soil-moisture sensor
- ESP8266 module
- 4-Channel relay module
- DHT11- Temp. & Humidity sensor
- LM2596 buck Convertor
- Pump & ADC



## 7 FUTURE PROSPECTS

- Product Refinement
- Dashboard Enhancement
- Cost Reduction
- Community Engagement & Field Implementation

## 8 CONCLUSION

Integrating sensor technology and intelligent control systems in "IntelliGROW" constitutes a transformative approach to plant cultivation. The project aims to promote healthier, more productive, and ecologically sustainable agricultural and horticultural practices, revolutionizing the art of nurturing plants.

## 9 REFERENCES

Reference links for the project

