



PRODUCTIZATION OF HI-TECH NURSERY USING ATMEGA328P MICROCONTROLLER

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Abstract: PRODUCTIZATION OF HI-TECH NURSERY USING ATMEGA328P MICROCONTROLLER is based on embedded system. This project is focused on beneficial for farmers. We should not consider that agriculture is only about the physical work. Using today's modern technologies, The project is designed using the latest technologies like IoT, Embedded System, By this project we can provide proper sunlight, temperature and Humidity to the plants and also it will updates the information about the status of sensors in the form of SMS.

I. INTRODUCTION

In this project we have made this project for the benefit for the Farmers, we can control the intensity of the sunlight by sunlight which is falling on the plants by using the shade net. We have used Temperature sensor for controlling the temperature inside the nursery by turning ON and OFF the Exhaust Fan, We have used Soil moisture sensor for sensing the moisture and providing the water by Automatically pumping the water, The Status of the sensor will be updated to the users mobile phone.

II. METHODOLOGY

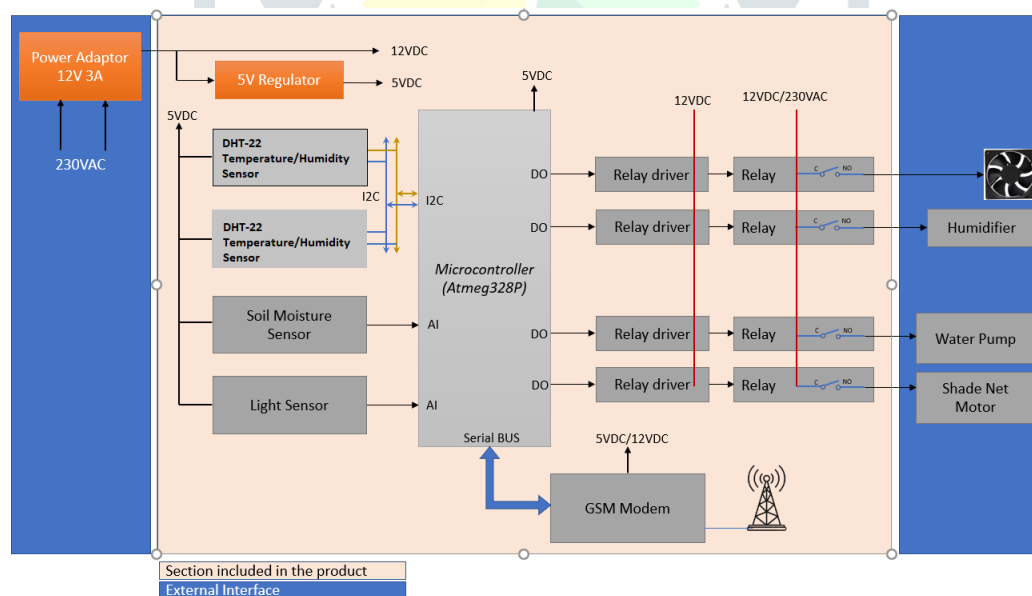


Fig 1: Block Diagram

DHT-22: It's the Sensor which will Senses both Temperature and Humidity.

Temperature sensor: The sensor which we have used here is DHT-22 which will detect the Nursery Temperature. Then the sensed value is passed to Microcontroller, the sensed Temp value is compared with the Predefined set value. In this there are two cases:

- 1.If the Sensed value < Set value
- 2.If the Sensed value > Set value

If the sensed value is Greater than the set value then automatically the Fan will Turn ON. If the sensed value is lesser than the set value then automatically the FAN will turn OFF. So, by turning on the fan it will reduces the increased temp in the Nursery

Humidity sensor: Here we have used DHT-22 sensor which will detect Humidity present inside the surrounding atmosphere. Then the sensed value is passed to Microcontroller, the sensed moisture value is compared with the Predefined set value. In this there are two cases:

- 1.If the Sensed value < Set value
- 2.If the Sensed value > Set value

If the sensed value is Greater than the set value then automatically the Humidifier will Turn ON. If the sensed value is lesser than the set value then automatically the Humidifier will turn OFF. So, by turning on the Humidifier it will adds the moisture Ness in the atmosphere.

Soil Moisture Sensor: Here we have used Soil moisture Detection Probes which will detect the Moisture Ness present inside the soil. Then the sensed value is passed to Microcontroller, the sensed moisture value is compared with the Predefined set value. In this there are two cases:

- 1.If the Sensed value < Set value
- 2.If the Sensed value > Set value

If the sensed value is Greater than the set value then automatically the Water Pump will Turn ON. If the sensed value is lesser than the set value then automatically the Water Pump will turn OFF. So, by turning on the Water Pump it will creates the moisture in the soil

LDR Sensor: The sensor which we have used here is Photoresistor which will detect the Nursery Light intensity. Then the sensed value is passed to Microcontroller, the sensed value is compared with the Predefined set value. In this there are two cases:

- 1.If the Sensed value < Set value
- 2.If the Sensed value > Set value

If the sensed value is Greater than the set value then automatically the shade net will Turn OFF. If the sensed value is lesser than the set value then automatically the shade will turn ON. So, by Opening the shade Net, it will allow the Minimum amount of light intensity for the plants. By Closing the shade Net, it will avoid the High light intensity form absorbing by the plants.

GSM: Global System for Mobile Communication is one of the digital mobile networks, It is widely used by Mobile Phones. In our Project we have used GSM for Sending the SMS to the User Mobile phone About the about the Sensors status inside the Nursery.

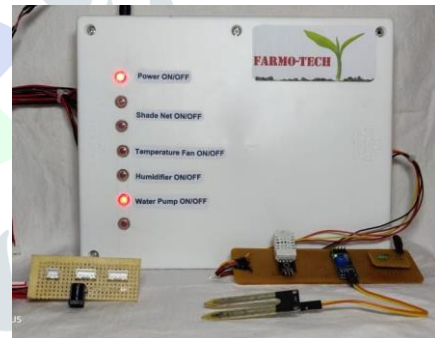
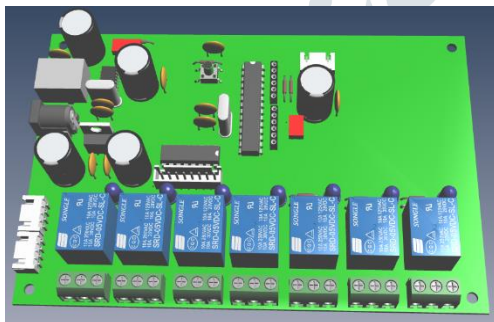


Fig 2: Board View

III. LIST OF COMPONENTS

- AT Mega 328P microcontroller
- MOSFET drivers
- Soil moisture Sensor
- GSM Module
- DHT-22 (Temperature and Humidity, Pressure sensor)
- Photo Resistor
- Water Pump, Humidifier, Fan, Shade net
- Some connecting Wire

IV. ADVANTAGES

- This will reduce the farmer Work load
- This will Helps to grow Healthy crops
- It will Gives maximum Profit to the Farmer
- This project is a work independent
- Farmer can able to Handle the whole nursery without any Support

V. RESULTS AND DISCUSSION

| Sensors Condition | Status of motor | Status of Fan | Status of water pump | Status of Humidifier |
|---------------------------|--|---------------|-------------------------|------------------------|
| Temperature > set value | ----- | ON | ----- | ----- |
| Temperature < set value | ----- | OFF | ----- | ----- |
| Light intensity>set value | Turn on the motor[open the shade net] | ----- | ----- | ----- |
| Light intensity<set value | Turn on the motor[close the shade net] | ----- | ----- | ----- |
| Soil Moisture<set value | ----- | ----- | Turn on the water pump | ----- |
| Soil Moisture > set value | ----- | ----- | Turn off the water pump | ----- |
| Humidity>set value | ----- | ----- | ----- | Turn on the humidifier |
| Humidity < set value | ----- | ----- | ----- | Turn on the humidifier |

VI. CONCLUSION

By seeing this project, we would like to say that we not only adopt to the modern technology and get all the benefits, we have to introduce farmer to new technologies by making these types of innovative models. In this pandemic as we can see there are lack of workers to work, so the farmer only can't handle the whole nursery, if so, it's very difficult. So, by implementing this type of model in the large scale will surely help them.

VII. REFERENCES

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