

Smart Agriculture Monitoring and Controlling System using IoT

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ABSTRACT

Farming is backbone of economy and it is the fundamental method for occupation. The large population of world depends on farming for living day to day life. Around 70% of Indian population depends on cultivation and moreover many of the crop cultivation are contributed from here. Most of the cultivation cannot be productive only by physical activities so have to be handled by innovative technologies. Therefore, IoT is used in innovation to address the critical part of farming. The past method of incorporating keen water supply system with smart idea. In this method, IoT ideas are utilized to address certain essentials which deals with critical parts of cultivating. This undertaking is a follow up to a past method whose highlight features incorporates a keen water system with excellent control and insightful basic leadership in terms of exact continuous field information which regulates pumps in the farm.

The paper aims at the water pump which is controlled by using IoT. The Node MCU controller is Wi-Fi controller and can be operated to ON and OFF the condition of pump via internet. The status of the pump can be monitored from IP camera. The Node MCU controller is connected to internet and also to the IP camera. The Node MCU can be controlled from internet control panel and live footage from IP camera can be monitored on registered mobile phone.

KEYWORDS : Internet-of-Things (IoTs), smart agriculture, automation, farm lands, Arduino, ESP8266 (Wi-Fi Module).

1. INTRODUCTION

Farms nowadays are becoming even more automated and self-controlled because of the comfort they provide. A farm automation system let us be in charge and provide us with resources that would let customers to access water pump. In recent times wireless technologies such as cloud networks, Wi-Fi have been in use almost every day everywhere due to innovations. The devices we are using these days are becoming smaller and smarter. The new reality in the technology— is known as the Internet of Things that is IOT — it is all about collecting and managing the huge amount of data that we can get from a rising network and also share it with all other inter related things. It is futuristic technology that is present in smart meters from our utility companies, in the security systems and in the environment control systems in our homes, and also in our car for self-monitoring.

2. PROPOSED WORK

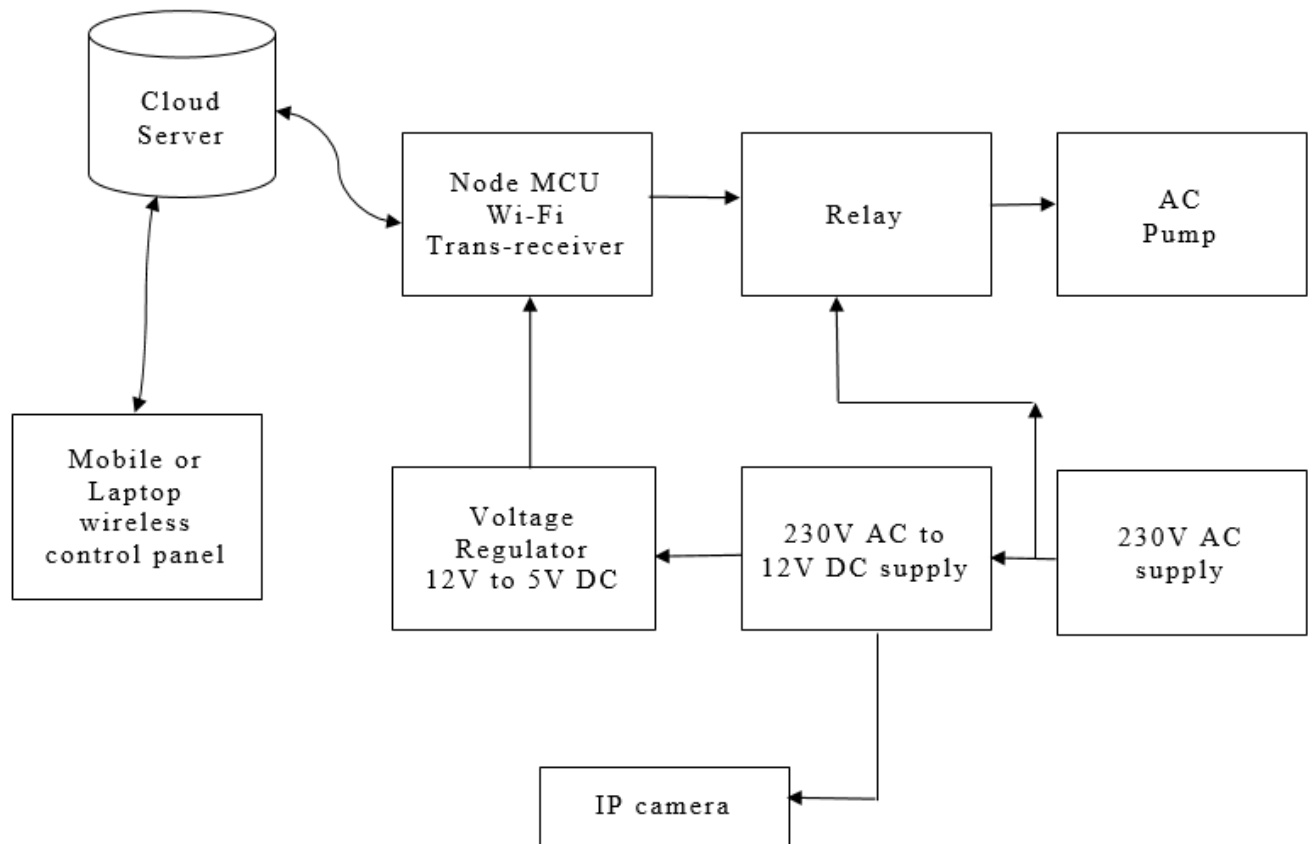


FIG 2.1 BLOCK DIAGRAM

- The project aims to supply water from the pump when we turn the pump on or off from online via internet.
- This will minimize the time to go farm and turn ON/OFF the pump manually.
- We can see the live video from IP camera also to monitor the pump activity.
- We are using Node MCU as a Wi-Fi IOT controller which will be connected with the internet via mobile hotspot or Wi-Fi network.
- The relay is connected to Node MCU which will control the water pump.
- Node MCU will receive data from the IOT server to turn water pump ON/OFF.
- IP camera is use to see the live video footage online.
- Node MCU will detect database whether it is 1 or 0 and according to that the relay will turn ON/OFF as per the value of database.
- When relay is turned ON/OFF, the AC pump connected to the relay will get triggered.

EXPERIMENTAL SETUP

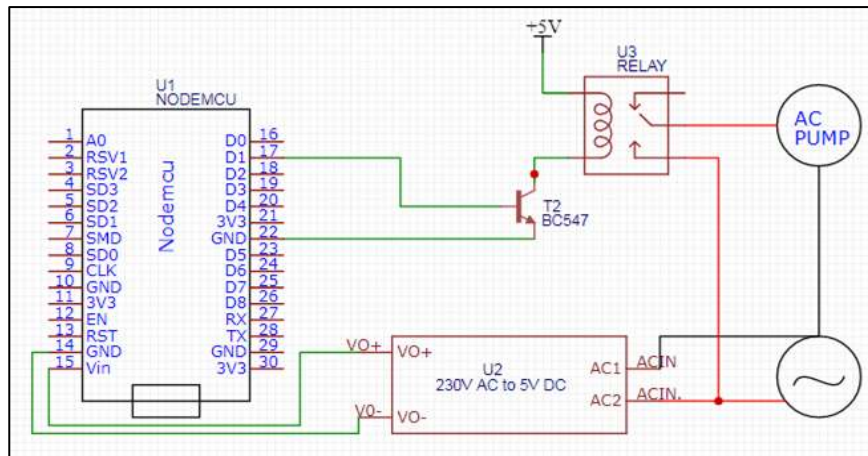


FIG 2.2 PIN DIAGRAM

- Node MCU pin D1 is connected to transistor BC547.
- Relay coil is connected to transistor and 5V DC supply.
- 230V AC supply given to AC to DC converter.
- Pump is connected to AC supply via Relay (NO and Com pin of relay).

PROJECT MODEL



3. RESULT

The cloud server will update the database by 0 and 1. Node MCU will detect the value of database and accordingly relay will ON/OFF. The water pump will be turned ON and OFF

according to the database update by using the cloud server. The device will be controlled via internet connection. The IP camera will monitor the working of water pump.

4. CONCLUSION

IOT based smart agriculture system can prove to be very helpful for farmers. From this survey it is seen that most of the authors proposed the idea using microcontrollers. Most are proposed for only controlling the water pumps. So, this system reduces the time and resources that is required while controlling it manually. Furthermore, it will avoid the water wastage problem and will also provide us with the live footage of the water pump through IP camera. So, we are proposing an idea based on IOT which will minimize the issues regarding agriculture process where continuous internet connectivity is required.

5. REFERENCES

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