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# **IOT Based Smarter Irrigation System Using Raspberry PI in Agriculture**

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**ABSTRACT:**

Water is a very essential for our human life. It is a precious gift from God. But, today we are facing many water scarcity problems in our country. So, we are planned to describe a new idea to create a smarter irrigation technique by using IOT technology. But, the entire world human population will be increasing rapidly i.e. approximately 20 billion in the year of 2050.

However this smarter irrigation technique will be helpful to our farmers to cultivate more crops and also it reduces the water scarcity. By using this technology with IOT, we designed a new system to make challenges in this agricultural production. We are updated this technology in agriculture to produce large amount of crop production and also it maintains the crops quantity and quality. This project will be helpful to our farmers to increase the large amounts of crop production. In this wireless technology we can make a very bright future in our agriculture industry. This technology can reduce the farmer's time because they are spending much time in irrigation process. This innovative irrigation technology is very helpful to our farmers to lead.

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**INTRODUCTION:**

"Agriculture is the back bone of India" with these quote we developed technology with IOT can makes a smarter electronic world to discover new things to makes a bright future of India. This adaptive technology is used in different fields like agriculture, medicine etc. This technology can be very helpful in number of projects in various types of areas for our future generations. Main theme of this successfully in short period of time. This technology uses different types of sensors and Raspberry pi with IOT technology. paper is to make an automated irrigation system by using IOT technology. We are using different types of sensors and also with the help of raspberry pi can build up the projects successfully. In our earlier days we use sprinkler irrigation technique. Nowadays, we are using this smarter irrigation process for our farmers to reducing their working time. Raspberry pi can be connected with different type of sensors like temperature sensor, soil moisture sensors, wi-fi modules and relay modules. Python based programming raspberry pi can be connected the all sensors to detect the results with the help of android app. These techniques will help to grow our traditional crops like cotton, sugarcane and wheat. We can connect this device to mobiles phones or laptops to send the data with the help of Wi- fi module.

**What is Internet of Things?**

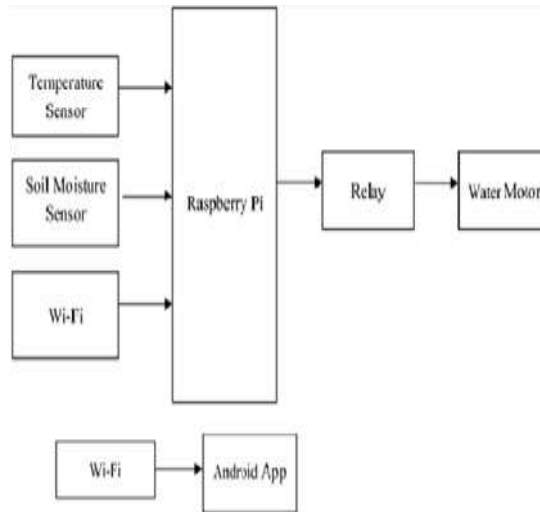


IoT is the network of physical objects developed a new thing with help of electronic software and embedded systems can make a networking connectivity to predicts a bright future of our future generations.

**Why IOT Needs in Agriculture?**

In the developed technology of IOT, can helps to increase the crop production and also it reduced the human working time. It makes new changes in agricultural industry and also it predicts a bright future in agricultural sectors.

**RASPBERRY -PI:**



**METHODOLOGY:**

Raspberry pi can be connected to the temperature sensor, soil moisture, Wi- fi module and relay module. The temperature sensor can detect the land temperature. Soil moisture sensors used to sense the moisture level in the soil. The Wi- fi module is connected to the laptops or



It is a remarkable device link a tiny computer available in lowest package. This s le like a computer which contains CPU, Memory and GPU. It has SOC, RAM, Radio Module, PMIC, USB ports, Pi camera module, HDMI port, DSI, Raspatch touch screen display, GPIO.

**BLOCK DIAGRAM:**



Mobile phone to detect the data. Relay can act as a switch level to the circuit diagram and also it works on the principle of electromagnetic induction. When the current flow is stopped, it can create the

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## BENEFITS OF IOT:



conduction. Finally this method can be completed with the help of WI -FI module to sends an lands quality and crops growing level through the android app.

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## BLYNK SERVER

Blynk is an open source iot platform that is used to connect the mobile device to microcontrollers like Arduino, Node MCU, Rasperry pi module etc. By using the blynk server you can easily build all kind of graphic interference for your projects by simply dragging and dropping the widgets. It is a Netty based java server and its responsible of forward the message between mobile and various controllers. The blynk is a secure and stable network without any losses and it has low latency to transfer the data quickly to the end.

1. Today IOT has an excellent efficiency to increasing our traditional crops growth and also nit leads to grows better level production in agriculture.
2. This technique can be accurately track the field production and also it predicts our crops growth level has been increased higher rate.
3. It can detect the environmental issues and also it avoids the environmental foot print to enter into the lands and then it maintains the crops properly.
4. Water conservation problems can be solved by using this developed technology.
5. This updated technology has a more advantages in these projects to analyzes the proper information about the plants.

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## CHALLENGES OF IOT:

1. In this experimental are depends upon the network signals like LAN, MAN and WAN.
2. Data's can be captured and analyzes to send an information from the particular device.
3. It has a major problems of network issues and privacy .
4. It is very complicated to design .
5. This technology has a several types of issues can created by environments.

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## FUTURE SCOPE AGRICULTURE: OF IOT IN

In our smarter electronic world the future technologies of Iot can makes a high efficiency in agriculture. Precision farming, data analytics and agricultural drones these are the recent application technologies can make a good efficiency in agriculture sectors.

1. Agriculture drones: It is the most familiar updated technologies in agriculture. It will helps to crop monitoring, spraying and field analyzes.



2. Precision farming: It can monitored the livestock monitoring ,vehicle tracking, and field observations.



3. Data analytics: This process can collected the raw data and it can converted into information is called as data analytics.




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## RESULT:

In their above results we had done the project with help of raspberry pi and IOT technology. In this below results we can identify the soil irrigation level and also crop growth level with the help of android app.




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## CONCLUSION:

Agriculture is the most helpful and useful for our human to make a certain employability of our farmers to cultivate more crops by better yielding. Using this adaptive technology with IOT can implement a new project for our farmers to make a smarter irrigation in agriculture. This innovative idea can bring a big step in agriculture.

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