

# IoT Based Farm Monitoring

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**Abstract---**The system “IOT Based Farm Monitoring” includes technique called drip irrigation. In drip irrigation technique water is provided to the roots of the plant. Irrigation status is updated to the server using personal computer and mobile. JAVA platform is used here to get information from arduino and to update the server. In this system various sensors are used like temperature sensor, humidity sensor, PH sensor, also LCD is used to display temperature, moisture and PH level. This system helps the farmers by updating data like best crops to cultivate for the particular climatic and soil condition, fertilizers required for the crops etc. This system saves time and water, also farmer can access this system from anywhere. This system overcomes all drawback previous system. Application of this system is industrial farming, green house, drip chemigation.

**Keywords—** Smart irrigation system, Sensors, Android, IoT.

## I. INTRODUCTION

India has one of the greatest economy in the world. India's economy is totally based on agriculture. More than 70% of people depend on agriculture, though in such circumstances farmers tends to do farming in traditional way but in such kind of farming there is lot of wastage of water, manpower as well as time. It also degrades the quality of plants.

The quality and fertility of plants are affected by the temperature, humidity and light. To improve all these things we need to monitor the plant under any environmental condition for better productivity. IoT based farm monitoring system consists of hardware as well as software. This system uses drip irrigation technique in which water can be supplied drip by drip to the plant. Drip irrigation can be controlled by Twitter or Facebook account or by developing application for it. This system not only controls the water supplied to it but also keeps the data of temperature, humidity and light on the server, so that user can analyse this data and accordingly user will decide which product to fertilise.

## II. LITERATURE SURVEY

India being the land flourished with abundant of flora and fauna. But these resources needs to be used wisely. From many years farmer tends to do farming in traditional way. But in traditional farming there is lot of wastage of water, manpower required for it is more. In this approach time required to harvest a crop is 15-16 hours, because of which farmer is not able to earn good money. Since India's population is growing wisely. From many years farmers tends to do farming in traditional way. But in traditional farming there is lot of wastage day by day, therefore there is increase in food demand.

To overcome all these things GSM based drip irrigation system came into picture. This system is semi-automated and purpose of it is to supply water to the roots of plants. This system senses moisture of the soil, if it is less than the set values then message is send to the user through GSM and after that according to user's command system responds and vice versa. But drawback of this system is that it is not able to store data and also users have to check if message is there or not.

Nowadays the usage of internet increases day by day hence the connecting of various devices to the internet to access the internet whenever we want increases, hence Internet of things comes into the picture. 'IoT based farm monitoring system overcomes all the drawback of 'GSM based drip irrigation'. This system senses moisture level of soil, temperature, etc. And according send message to users on Facebook or twitter account or on application and after that user's command system responds. This system is totally wireless and user can operate it wherever there is WI-FI or internet connection. Also this system stores the data of humidity, temperature, etc. on server, so that user can analyse these data to determine which crop or plant to cultivate. Because of this productivity will increases, farmer will able to earn good money.

III. BLOCK DIAGRAM AND DESCRIPTION

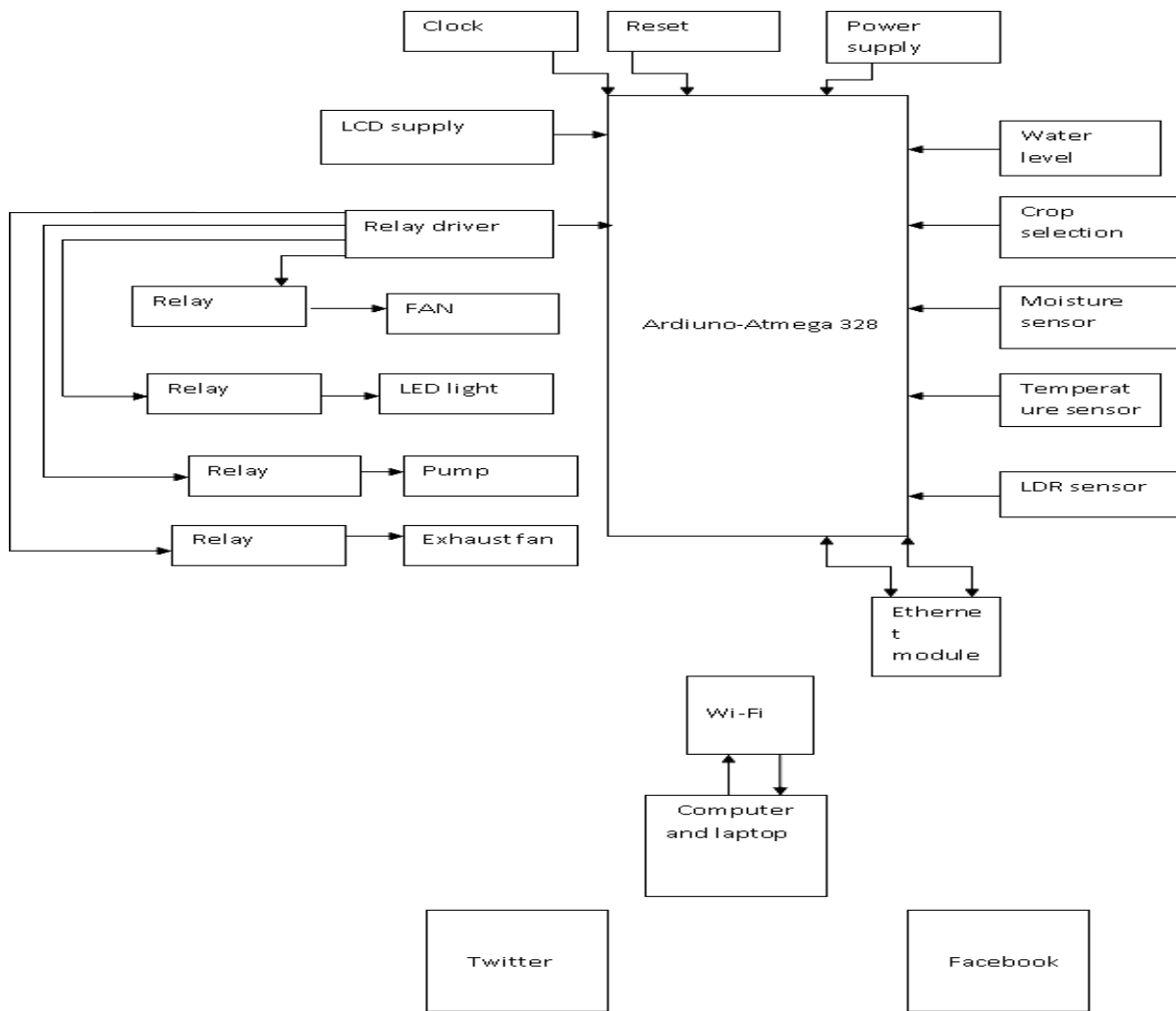


Fig.1 block diagram of IoT based Farm Monitoring

An ‘IoT Based Farm Monitoring’ system is proposed in order to facilitate efficient irrigation where wastage of water takes place and needs more no. of manpower. This system is fully automated i.e. it is based on remote monitoring as well as controlling. An android application or twitter or Facebook accounts are used to monitor and control this system. Moisture sensors, temperature sensor, LDR are used for the detection of the corresponding set values (or threshold values). Proposed system uses arduino-atmega328 for controlling purpose and relay is used here as a switch to ON or OFF the LED light, exhaust fan, pump, etc. This system also consists of LCD display which is used to display various values of different different sensors. All the sensors used here are the real time sensors.

In this system moisture sensor senses the moisture of the soil, if it is less than the predicted value, then it will send the message to the twitter or Facebook via serial communication. Ethernet module is used here for serial communication. Is the user responds to that message, then motor will automatically turn ON and water is provided to the roots of the

plant drip by drip until the moisture level reaches to its pre-decided value. Similarly all the sensors work in this manner.

This system not only senses various parameters and sends message to the users but also stores the data on the database i.e. on server. User can analyze this data whenever needed. This stored data helps user to decide which crop to cultivate further. Because of such kind of facility user or farmer will be able to earn good money and may be next generation will see agriculture as good career option to earn money. Also migration of people from village to city may stop.

CONCLUSION

The proposed system removes all the drawbacks of the previous system like the use of manpower and effectiveness in robust condition. This approach is very beneficial to increase crop production and to reduce wastage of water.

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