

SMART IRRIGATION SYSTEM BY USING ARDUINO

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Abstract: Food scarcity and water scarcity occurs due to the increase in population. So, to avoid this problem we have to promote the agriculture sector. But water wastage is more in this sector in the form of water logging while watering the agricultural fields through irrigation. Therefore, an automatic plant irrigation system has to be designed for the proper water supply in the fields. This smart irrigation system deals with an automatic plant irrigation system which automatically senses the moisture content of the soil and decide whether irrigation is needed or not and how much water is needed for soil. It is programmed to sense the moisture content if the soil over a period of time. When the moisture content is less than the limit which is predefined, it will start supplying the desired amount of water till it reaches the limit. So, when the soil is dry the pump will automatically water the fields and when the soil is wet the pump will automatically switch off, there by eradicate the need of manpower and conserve the time.

Keywords: Arduino, WIFI-module, water-level sensor, IOT (Internet of Things).

1. INTRODUCTION

As we know water wastage is more in agricultural sector in the form of water logging while watering the agricultural fields through irrigation. Therefore, a Smart Irrigation System has to be designed for the proper water supply in the fields. This smart irrigation system deals with an automatic plant irrigation system which automatically senses the moisture content of the soil and decide whether irrigation is needed or not and how much water is needed for soil. It is programmed to sense the moisture content if the soil over a period of time. When the moisture content is less than the limit which is predefined, it will start supplying the desired amount of water till it reaches the limit. So, when the soil is dry the pump will automatically water the fields and when the soil is wet the pump will automatically switch off, there by eradicate the need of manpower and conserve the time Water level of tank is also monitored and alert will be sent to Android app. IOT server interface is used in this project to link hardware to android app.

2. PROPOSED SYSTEM

In these system Irrigation is done automatically .Sensor will sense the moisture in the soil .According to the moisture in the soil the system will decide whether to supply water or not .In these system it will automatically sense the water level in the tank and send the notification to the farmer or the user .If the moisture level is found to be low ,then the moisture sensor sends the signal to the Arduino board which triggers the Water Pump to turn ON and supply the water to respective plant, pesticides.

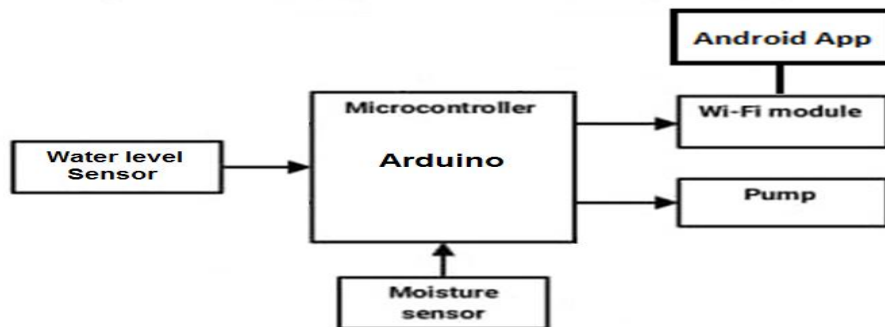


Fig.1 System design

- **Water level sensor:** It is used check water level in the tank if water in the tank is finish then message through android app is sent to the user.
- **Arduino:** It is like a brain of the system it controls the system. Arduino on the pump when the moisture in the soil is less.
- **Moisture level sensor:** It checks the moisture in the soil.
- **WIFI module:** It gives access to WI-FI network.

3. CONCLUSION

- The smart agriculture system proves to be a useful system as it automates and regulates the watering without any manual intervention.
- The moisture sensors measure the water level (water content) in the soil.
- The system features are it is easy to use, better automatic water technique, no human intervention is required.

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