

## Result on Irrigation Motor Control by Mobile Phone

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### Abstract:

The rise of technological innovation has done just that can take full advantage of crop production.

The need for a more sophisticated irrigation system is important for crop maximization and an effective way to achieve this is by using internet of things to control and monitor the status of towns. Smart irrigation is a very German part of precision agriculture as it helps farmers avoid water waste and improve crop quality growth in their areas by reducing evaporation, land flow and progress on other old methods of use among others. This study aims to use smart irrigation system to control water distributed for cultivation.

This project reviewed the Irrigation motor control by mobile phone irrigation control device would be useful for Indian and world farmers to control the irrigator works by mobile. We can on and off the motor by using mobile phone any place in the world after connecting this device to irrigation motor starter. Also we can know the status of three phase power by mobile phone. To save farmers time this device will be helpful. Generally, farmers spend their time on irrigation of motor stator switching on and off at any time, because of this device they can save their valuable time. because with the help of this device, this type of task they can perform by cell phone. In agriculture use of mobile phone will be new experiment. The extra water in the soil means best conductivity and will result in a lower resistance because the resistance is inversely proportional to the soil moisture. The moisture level can be determined by using this sensor. If moisture level is increase then motor will turn off, if soil is dry then motor will turn on automatically.

**Keywords**—Agriculture, Internet Driver, Microcomputer, Smart Irrigation, IoT- Internet of things, MCU Microcontroller Unit.

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**I. INTRODUCTION**

This Agriculture has an important role in the economy national growth. Currently, farmers found difficult in the agricultural sector and the task of irrigating the meadows is getting harder making it difficult for farmers due to lack of stability in their work and negligence as often they installed the motor and then forgot to turn it off leading to water wastage.

Smart irrigation provides conventional farming i.e. by smart irrigation crop gets appropriate level moisture level.

Smart irrigation consist of soil sensors, microcontroller and remote communication by farmers (users) to the system. IoT -based irrigation (smart irrigation) methods enable water allocation to crop land is easier, faster and more proficient in eliminating manual requirements labor, wasting time making decisions and adequate data extraction

**II. LITERATURE SURVEY**

.For this we gone through the research paper “Smart irrigation system” by the author G.R. Kumar T.V. Gopal.

Which helped get detailed information about smart irrigation system .

“IoT based smart irrigation system” by C.N. lakshiprasad, R. Ashish and M.J. Syed which gives detailed information IoT system

**III. PROPOSED SYSTEM DEVELOPMENT**

**A. Sensor Module:**

The YL-38 Soil Moisture Sensor is a moisture meter that is usually used to analyze soil moisture. Then, it is ideal to build an automatic irrigation system or to monitor soil moisture of plants. The sensor is set up of two parts:the electronic board (with right), and the probe with two pads, which senses water content (left). The sensor has

abuilt-in power meter to adjust sensitivity to digital output (DO), power LED and digital output LED



Fig.1 Soil Moisture Sensor

**B. Micro-computing Chip Module:**

Node MCU is the micro computing chip employed in this research. It is an Open Source electronic prototyping platform based on flexible easy to use hardware and software. and turn it into an output – Activate/ Deactivate motor.

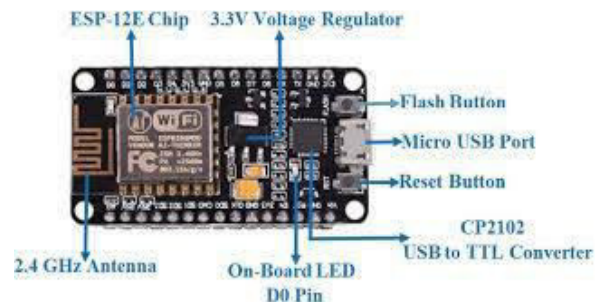


Fig.2 Node MCU

**C. Water Pump Module:**

The water pump is the part of the system that delivers water to the soil. The motor drive is used to provide power to

the water pump as well as interfacing the pump to the Node MCU.

**D. Internet Driver Module:**

ESP8266 internet driver is used in the project.ESP8266 has Wi-Fi network and offers bridge from existing micro controller to the Wi-Fi. It has micro USB port to connect to laptop/pc and flash it without and flash it without any problem, as like Arduino.

#### IV. PRINCIPLE OF OPERATION

The soil moisture sensor detects the moisture level of the soil and sends the to A-D converter which converts the analogue signal into digital signal and forwards it to microcontroller (Node MCU). If the moisture level is less than microcontroller gives command to the relay which starts the motor and as the moisture level increases and comes to the required moisture level then again Node MCU gives command to turn off the motor. This project also gives an option to control the motor manually i.e., it can be operated with mobile phone . Wi-Fi module receives the command and gives the signal to microcontroller.

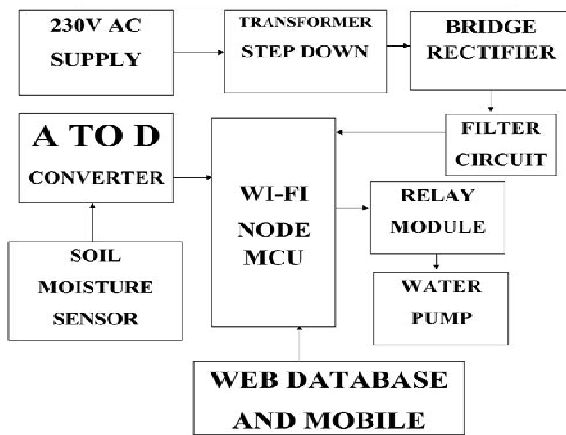


Fig.3. Block diagram of proposed system

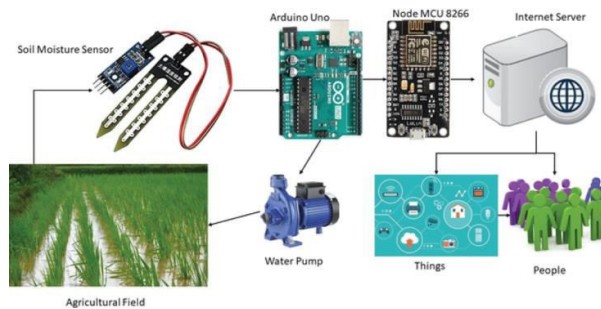


Fig.4 Proposed system Architecture

#### V. FUTURE SCOPE

We can improve our project by adding a web scope that can predict the weather and irrigation Plants / crops accordingly. A water meter can be installed for evaluation .The amount of water used for irrigation, thus calculating the cost

#### VI. RESULT AND DISCUSSION

The system was tested on a garden plant. The plant's water requirement is 700-900 mm. In node MCU coding, the moisture level were set to 70%-100% moisture required i.e., the system starts when moisture level in not sufficient as required. In addition this proves to be cost effective and accomplished in conserving water and reducing the wastage of water.

#### VII. CONCLUSIONS

The main purpose of this study is to develop an ingenious irrigation system with activity to detect soil moisture, apply soil water if the humidity is below a specified standard and communicate with the user system via smartphone.

In future Implementation of the projects is combination of hardware and software including: microcontroller, soil sensor, water pump and motor driver. The ingenious irrigation system is meant to meet need a farmer with a small nursery and can also be further expanded to be useful for large - expanded agricultural plantation farmer.



Fig. 5 Overview of the system

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