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Regulation of Water Supply in Agricultural Field Using Internet Of Things (IOT)

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ABSTRACT:
Indian population is around 1.2billion so there is large need of food and development hence we tend to use some modern irrigation system to increase production .This project is based on large scale remote intelligent irrigation system and along with large scale of production in order to avoid the major losses in this field. Using this method of irrigation there is labour saving and water saving.

Keywords: Raspbian OS, Python, Humidity sensor, Raspberry Pi, Temperature sensor, Water level sensor.

I. INTRODUCTION

Protected Agricultureis a modern production methodaiming for high yield and quality. It provides a suitable growth environment through engineering perfect,free fro techniques under artificial facilities protection conditions. The ultimate goal of Protected achieving automatic efficient production. It is a combined product of biology, environment, engineering and IT. The key to Protected Agriculture is the construction of the Agriculture is making agricultural production perfect free, from natural environmental factors and facility habitat's control and monitoring system.Agriculture is the mainstay of India economy.Agriculture and agriculture allied sectors contribute nearly 22% of Gross Domestic Product (GDP) of India,while about 65-75% of the population depends on agriculture for livelihood.The scenario of Indian Agriculture has changed drastically after the green revolution(1960).Due to decrease of manpower in agriculture field,we haveplanned a project which requires a human but not manpower.This device is directly linked to the user MOBILE phoneusing IOT concept.IOT is a scenario in which people are provided with unique identifiers and the ability to transfer data over a network

without requiring human-to-human or human-to-computer interaction.

Existing System:

Existing system is the manual operation.

Proposed System:

The proposed system is the firstly,control from remote places and then it can maintain the humidity level. Finally it maintains the temperature levels.

Advantages:

- Power consumption
- Need not manual operation
- Low cost
- It is applied in agriculture applications and remote control industries.

II. BLOCK DIAGRAMOF PROPOSESD METHOD

This is the crop growing section and LAN with internet in using the concept we are expected. The motor is connected in the driver circuit. In the power supply connects with RASPBERRY PI in ADC. The ADC is basically used in the sensors. The three type of sensors is temperature sensor, water level sensor and humidity sensor.

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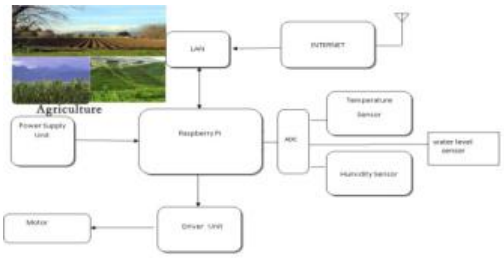


III. COMPONENTS USED

a) HARDWARE

- Raspberry Pi
- LAN with internet
- Control unit
- Humidity sensor
- Temperature sensor
- Water level sensor

b) SOFTWARE

- Raspberry pi OS
- Python programming

RASPBERRY PI

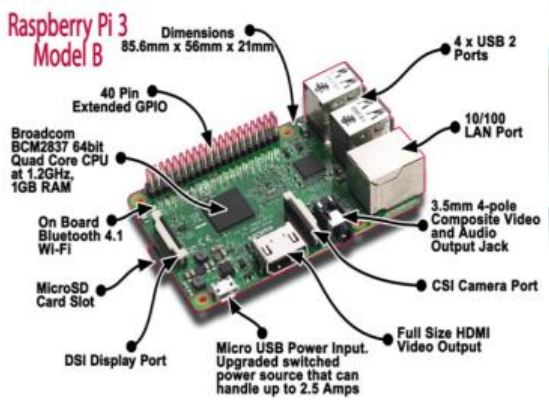


Figure.3Raspberry Pi 3 Model B

- SD card containing Linux Operating system

• USB keyboard

• TV or monitor

• Power supply

• Video cable to suit the TV or monitor used recommended optional extras

• USB mouse

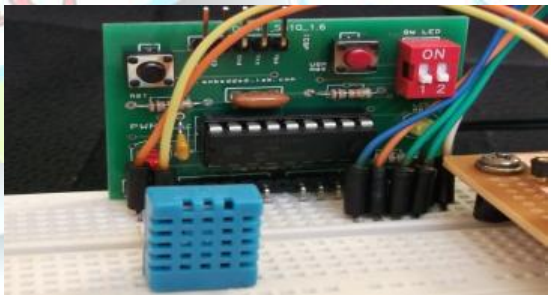
• Internet connection, Model A or B: USB WiFi adaptor

• Internet connection, Model B only: LAN (Ethernet) cable

• Powered USB hub

HUMIDITY SENSOR

Measurement and control of temperature and relative humidity finds applications in numerous areas. These days devices are available which have both temperature and humidity sensors with signal conditioning, ADC, calibration and communication interface all built inside them. The use of such smart sensors greatly simplify the design and reduces the overall cost. We discussed in past about Humidity and temperature measurements These sensors are capable of measuring both temperature and relative humidity and provide fully calibrated digital outputs. While SHT1x/SHT7x are very accurate sensors, they are still expensive for hobbyists use.



TEMPERATURE SENSOR

Temperature is the most often-measured environmental quantity. This might be expected since most physical, electronic, chemical, mechanical, and biological systems are affected by temperature. Certain chemical reactions, biological processes, and even electronic circuits perform best within limited temperature ranges

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WATER LEVEL SENSOR

Flow measurement is the quantification of bulk fluid movement. Flow can be measured in a variety of ways. Positive-displacement flow meters accumulate a fixed volume of fluid and then count the number of times the volume is filled to measure flow. Other flow measurement methods rely on forces produced by the flowing stream as it overcomes a known constriction, to indirectly calculate flow.Flow may be measured by measuring the velocity of fluid over a known area.

RASBIAN OS

Raspbian is a free operating system based on Debian optimized for the Raspberry Pi hardware. An operating system is the set of basic programs and utilities that make your Raspberry Pi run. However, Raspbian provides more than a pure OS: it comes with over 35,000 packages, pre-compiled software bundled in a nice format for easy inst, Raspbian is not affiliated with the Raspberry Pi Foundation. Raspbian was created by a small, dedicated team of developers that are fans of the Raspberry Pi hardware, the educational goals of the Raspberry Pi Foundation and, of course, the DebianProject.allation on your Raspberry Pi.

PYTHON

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

IV. HARDWARE IMPLEMENTATION

The hardware of the proposed work consists of a raspberry pi board interfaced with a sensors. Wi Fi dongle is connected to the system for internet connection which is taken to Pi through LAN cable. A sensors is connected to one of the USB port of raspberry pi. A 5V supply is given to Raspberry pi from the system through a power cable.

V. CONCLUSION

We are working to use the concept of the Internet of things to its extent and improve the functioning of the device. By using this peripheral device,the farm fields will be monitored continuously through sensors and necessary measures will be taken without human power.Thus agriculture production percentage will increase without any loss of grain by water.

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