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Automatic Irrigation System Based On IOT and Embedded Linux High End Processor

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Abstract

The main of the project is that we need to provide an automatic irrigation system which will have wireless automatic protected irrigation control system it will provide the more safety wireless user interference to make it on/off condition of the agriculture filed motor sue to this wireless interface it will provide the shock circuit avoidance by the former this automation unit will able to monitor the soil level and temp sensor from the irrigation filed and this can be uploaded into the server we can monitor data from the remote server and this is also provides the automatic irrigation motor control system.

1. INTRODUCTION

Irrigation is the key to a successful garden. Long gone are the days of manual watering or relying on a friend to water when you are on vacation or away on business. This presents an automation of farm irrigation system using a wireless sensor network (WSN) and embedded Linux board. The system provides a web interface to the user so that the user can control and monitor the system remotely. Here Raspberry Pi is used as an embedded Linux board which is designed based on the arm 11 microcontroller architecture. Embedded Linux board makes the communication with

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all distributed sensor nodes placed in the farm through ZigBee protocol and itself act as a coordinated node in the wireless sensor network. The goal of coordinator node is to collect the parameters like soil moisture and soil temperature wirelessly. Each sensor node consists of soil moisture and soil temperature sensor and one ZigBee RF antenna device for communication with the coordinator node.

2. EXISTING METHOD

the irrigation automation can be achieved by the electronic switches which will operate manually and water level based agriculture field motor on/off system with are more complex and these notable provide the data display into the remote environment we need to go to the field and we need to go and check to the field.

3. PROPOSED METHOD

In this proposed system WSN is consists of two nodes, coordinator node and Router/End device node. Each node mainly consists of memory, processor and an RF transceiver. The coordinator node is based on Raspberry Pi (Rpi) embedded Linux board and End device is based on microcontroller. The function of the coordinator node in the system is to initiate the communication with distributed End device nodes via the ZigBee wireless communication protocol and continuously collects the soil moisture and soil temperature data and store collected data in the database. The database is created on the raspberry Pi board which is a My SQL database. Coordinate node analyzes the received data and decides the water required for the soil. If the analyzed data shows that water is required, the coordinator node sends commands to water pump controller make Irrigation on. Rpi has an Ethernet interface and it runs a simple data web server. Hence coordinator node allows data collection over ZigBee, and data monitoring and system control from web browser remotely.

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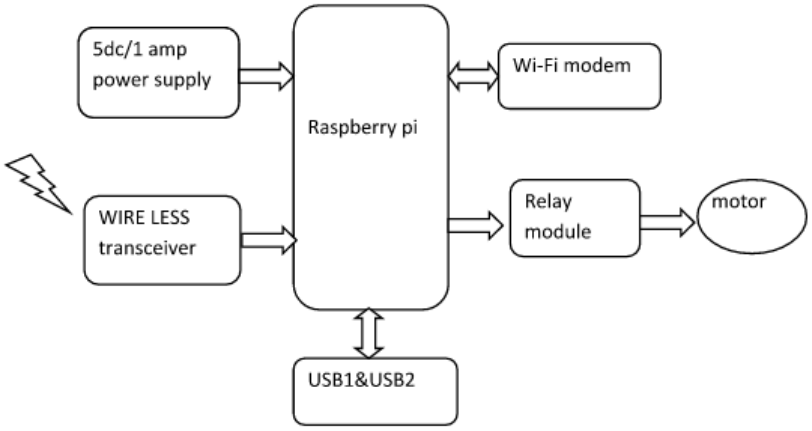
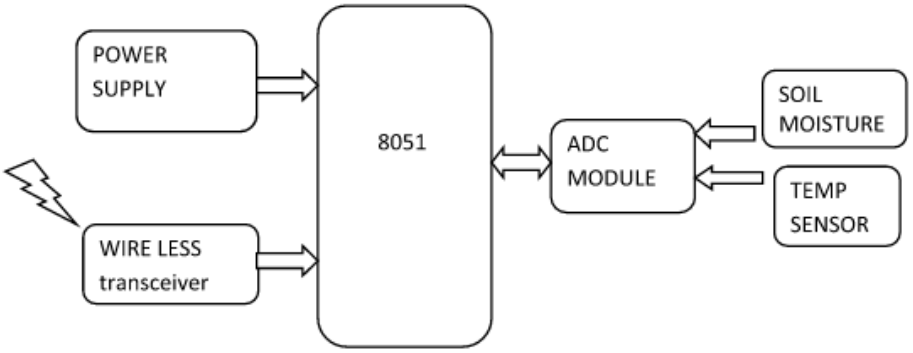
Unit 1: DATA MONITERING SYTEM



UNIT 2: DATA AQUSATION SYSYTEM



Raspberry Pi

The **Raspberry Pi** is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated,[6] selling outside of its target market for uses such as robotics. Peripherals

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(including keyboards, mice and cases) are not included with the Raspberry Pi. Some accessories however have been included in several official and unofficial bundles

According to the Raspberry Pi Foundation, over 5 million Raspberry Pis have been sold before February 2015, making it the best-selling British computer.[7] By the 9th of September 2016 they had sold 10 million.

The software part in this system is contain the running of high end raspberry pi Embedded, Linux board this will provide the IOT interface this raspberry pi will works on the Raspberry Pi OS which is we can burn the the OS in the SD card and upon the power up the OS will give the command line interface the and we can also have extended GUI interface the connected Wi-Fi network with help WLAN is responsible to provide interference with the server

4. CONCLUSION

The Automatic Irrigation System Based On IOT and Embedded Linux High End Processor we have been observed the data monitoring and the automatic water agriculture motor controlling as been observed and we also monitor the data remote server in the browser GUI we can also see the output on the browser supported devices like mobile/pc.

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