

## **A WIFI based Smart Wireless Sensor Network for Monitoring an Agricultural Environment**

The project aims at designing a WIFI based smart wireless sensor network for monitoring an Agricultural Environment. The devices can be switched ON/OFF using Wi-Fi in android phone and also the live temperature, humidity, water level and motor status are displayed on the screen of android phone.

Automation is the most frequently spelled term in the field of electronics. The hunger for automation brought many revolutions in the existing technologies. These had greater importance than any other technologies due to its user-friendly nature. These can be used as a replacement of the existing switches in agricultural which produces sparks and also results in fire accidents in few situations. In this considering the advantages of Wi-Fi an advanced automation system was developed to control the appliances in the agricultural environment.

Wi-Fi (Short for **W**ireless **F**idelity) is a wireless technology that uses radio frequency to transmit data through the air. Wi-Fi has initial speeds of 1mbps to 2mbps. Wi-Fi transmits data in the frequency band of 2.4 GHz. It implements the concept of frequency division multiplexing technology. Range of Wi-Fi technology is 40-300 feet.

This project is mainly used to monitoring the temperature, humidity, water level, motor status and 3-phase status. By using the temperature sensor we can monitor the temperature, by using the humidity sensor we can monitor the humidity throughout the total agriculture. Depending on the humidity and temperature modules, motor will be switched ON/OFF accordingly. During the motor irrigation 3-phases(R, Y, and B) will be in ON status.

The controlling device for the automation in the project is a Microcontroller. The data sent from Android phone over Wi-Fi will be received by Wi-Fi module connected to

Microcontroller. Microcontroller reads the data and decides the switching action of electrical devices connected to it through Relay switches. Also, the live temperature, humidity, water level, motor status and 3-phase status from the system is continuously sent to android phone and can be monitored on android phone screen The Microcontroller is programmed used embedded 'C' language.

### **Features:**

1. Wi-Fi based user-friendly interfacing.
2. Live temperature, humidity, water level motor status and 3-phase status display on Android smart phone.
3. Usage of android phone's Wi-Fi
4. Low power consumption.
5. Controls high and low voltage devices.
6. Long life.

### **This project provides exposure to the following technologies:**

1. Wi-Fi.
2. Interfacing of Wi-Fi module to microcontroller.
3. Embedded C programming.
4. Conversion of AC supply to DC supply.
5. Design of PCB.
6. LCD interfacing.

### **The major building blocks of this project are:**

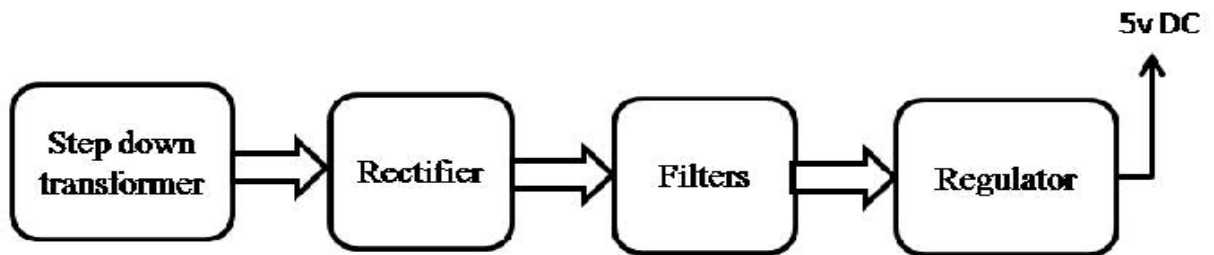
1. Regulated Power Supply.
2. Microcontroller.
3. Crystal Oscillator.
4. Relay.

5. WiFi module
6. LCD display.

**Software's used:**

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

**Regulated Power Supply:**



Block diagram:

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