

## **Safety implementation of three phase irrigation motor using soil moisture sensor and temperature sensor**

The purpose of this project is to monitor and control the water flow to an irrigation system using microcontroller with help of sensors. This can be achieved by the use of soil moisture sensor, which senses the water content in the soil. This sensor output is given to a Microcontroller based control system.

This project also consists of temperature sensor, soil moisture sensor for remote monitoring and control of water supply to irrigation system. The temperature is read by the ADC (Analog to Digital Converter) module of the microcontroller Unit. This ADC data is processed and converted into the actual temperature reading by the microcontroller. The temperature checks the temperature of motor. If it is above threshold it automatically switches OFF the motor

Whenever the soil moisture content goes below some predefined level, and then this information is sent to Microcontroller based control system which switches ON or OFF the 3- phase irrigation motor. This system uses two relays which are controlled by the starter. One relay is used to ON the 3.phase irrigation motor starter and another relay is used to OFF the 3-phase irrigation motor.

### **The features of the project are:**

1. Automatic Soil moisture sensing system.
2. Water pumps control.
3. Water pump status enquiry.
4. Low water level alert.

**The project provides the following learning's;**

1. Interfacing soil moisture sensor to microcontroller.
2. Conversion of AC supply to DC supply.
3. Temperature sensor.
4. High voltage motor interfacing to low voltage microcontroller.
5. Relay usage and interfacing.

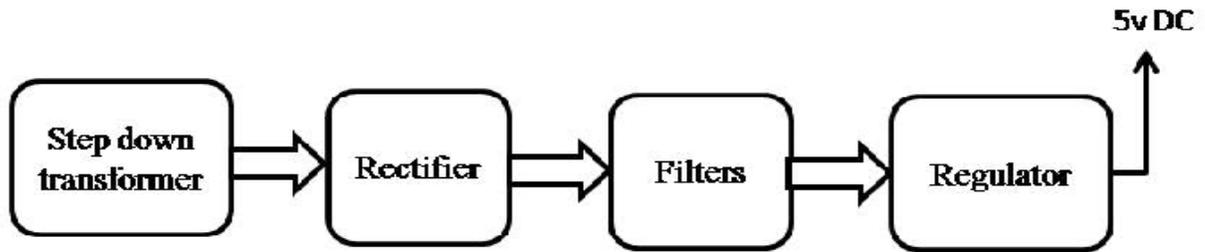
**The major building blocks of this project are:**

1. Regulated Power Supply.
2. Microcontroller.
3. Soil moisture sensor.
4. Electromagnetic relays.
5. Relay driver.
6. Crystal oscillator.
7. Temperature sensor.
8. LED Indicators.

**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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