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## ***Electronics Projects***

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### **Soil Moisture Content Based Automatic Motor Starter For Irrigation Purpose**

IRRIGATION is an essential practice in many agricultural cropping systems in semiarid and arid areas, and efficient water applications and management are major concerns. Self-propelled center pivot and linear-move irrigation systems generally apply water quite uniformly; however, substantial variations in soil properties and water availability exist across most fields. In these cases, the ability to apply site-specific irrigation management to match spatially and temporally variable conditions can increase application efficiencies, reduce environmental impacts, and even improve yields. The development of a distributed in-field sensor-based site-specific irrigation system offers the potential to increase yield and quality while saving water, but the seamless integration of sensor fusion, irrigation control, data interface, software design, and communication can be challenging.

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### Working of project

In this project we have sensors to monitor the temperature and humidity and it also control the rate of water flow in the fields using the sensor data. This project comprises of a microcontroller unit to accomplish the task. It also sends this information to a remote place using a wireless RF Link. The block diagram is given below.



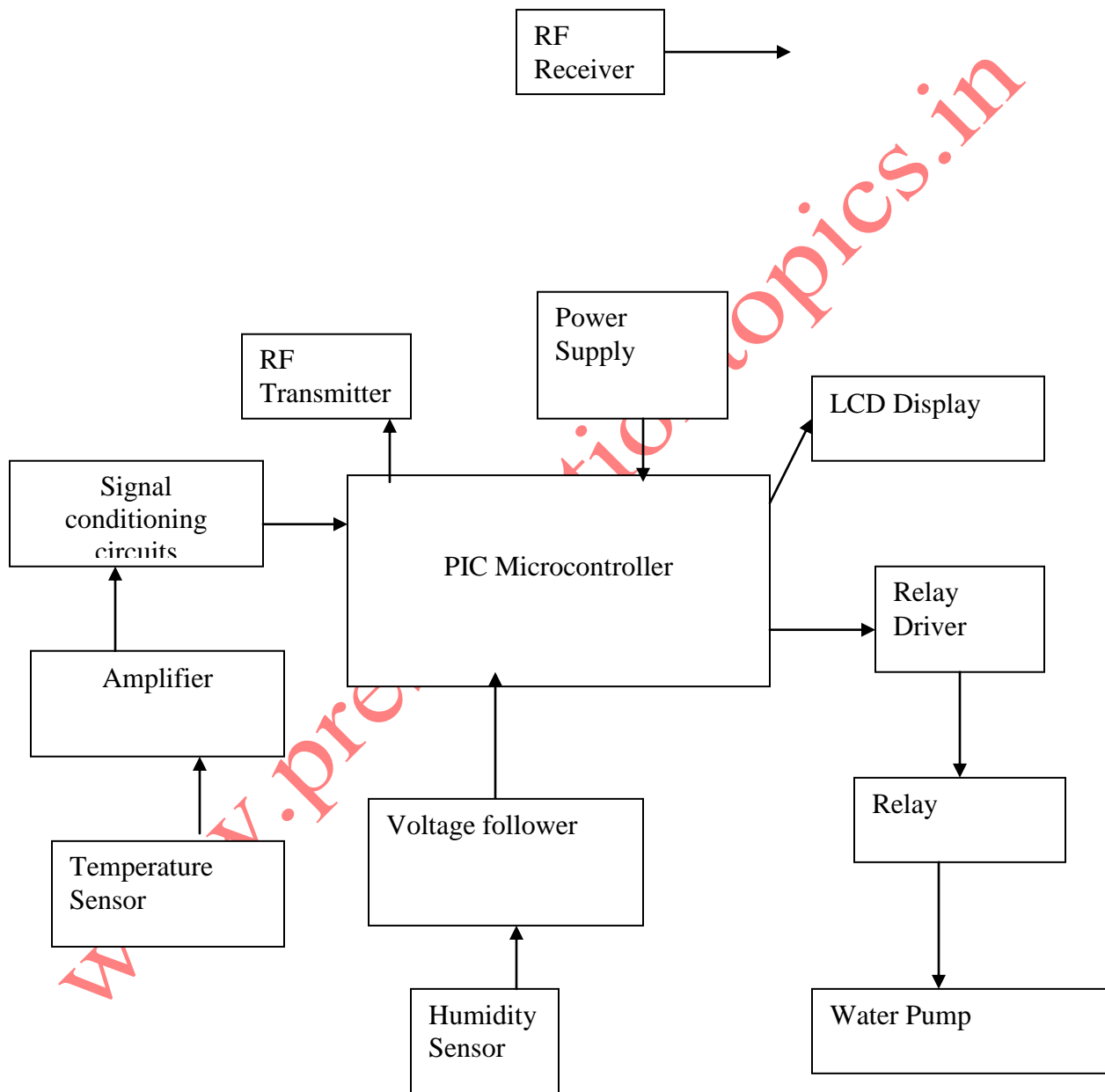
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### Block Diagram



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### **Temperature Sensor:**

Thermocouple – J type – 0 – 400Degc. The millivolt output generated by the thermocouple is fed to the amplifier circuit and then to the ADC of the PIC Microcontroller. The Controller then converts it into digital data and transfers to PC.

### **Humidity Sensor:**

Produces Voltage variation depending on the Humidity. This is fed to the to the ADC of the PIC Microcontroller. The Controller then converts it into digital data and transfers to PC.

Type : Capacitance

Operating Range: 0 – 100% RH

### **Water flow controller:**

A DC Motor Pump is used to demonstrate the flow control.