

## **TEMPERATURE LEVEL MONITORING AND AUTOMATIC CONTROL IN BOILER**

### **ABSTRACT:**

A system which was proposed used temperature sensor, pressure sensor, infrared sensor and wireless communication network to monitor the productive process of boiler. Each wireless sensor module was spreaded each relevant position which needed to monitor in the productive process of boiler. The monitored data was sent to the master control box to analyze. The productive process was monitored by the master control box. This system was used and the better effect was achieved. The safety factor of produce was promoted.

### **EXISTING METHOD:**

Boiler unit thermal standard calculation method.

### **DEMERIT:**

If it happens to over-temperature tube explosion, a lot of the working fluid and fuel would be lost and the economy of power unit would be affected. Because the ultra-supercritical power units confront with high steam pressure, it could easily lead community effect and injured the heating surface in a large scale seriously, thus it would affect the security of the unit.

### **PROPOSED METHOD:**

Application of Wireless Sensor Network in the Monitoring System of Boiler. A side of the boiler water tank connects the upper level sensor wireless module and lower level and temperature sensor wireless module with a pipe. The lowest position of the water level is monitored by lower level and temperature sensor wireless module and the highest position of

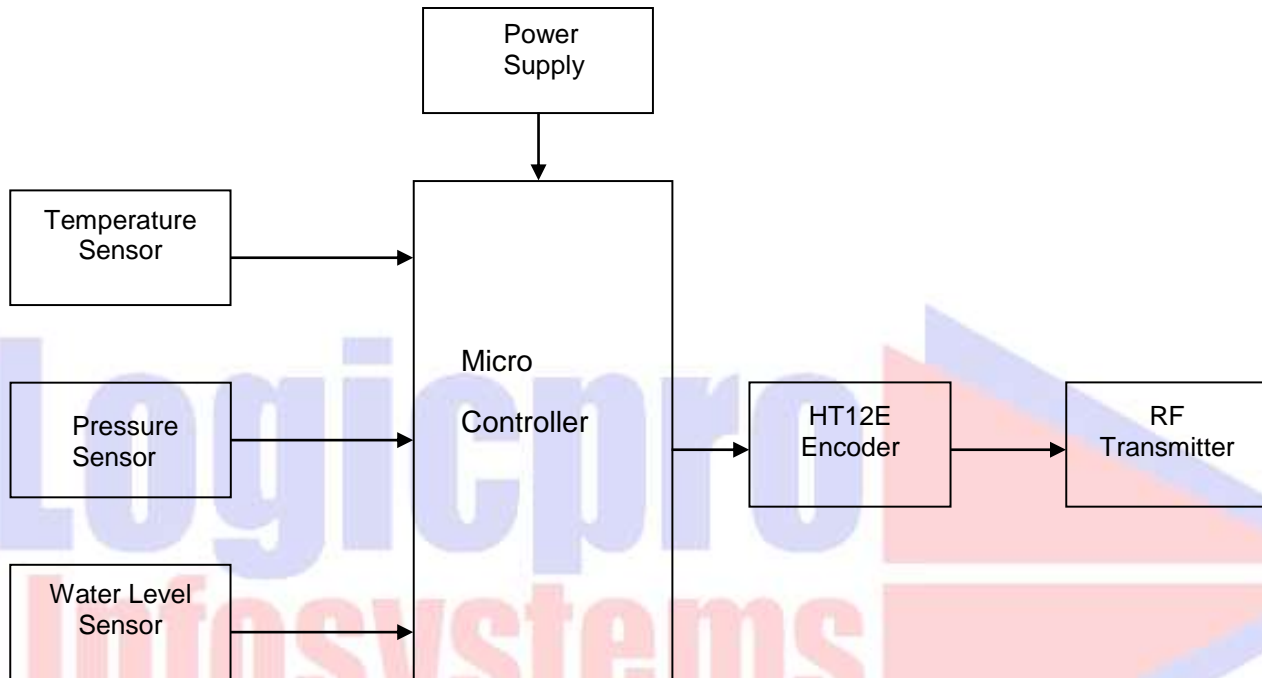
the water level is measured by upper level sensor wireless module. When the boiler working, lower level sensor detects the level of water is too low, then wireless module sends the signal to the main control box. The box sends out a wireless signal to the wireless module of exhaust solenoid and inlet valve controller to open the exhaust valve and the inlet valve. The water in a tank pours into the boiler water tank. As the level rises, the water reaches the upper level sensor's position. The main control box sends a wireless signal to close the exhaust valve and the inlet valve when it receives the upper level sensor's signal. Similarly we are used the sensors to detect and monitor the level of pressure and temperature in boiler.

#### **MERIT:**

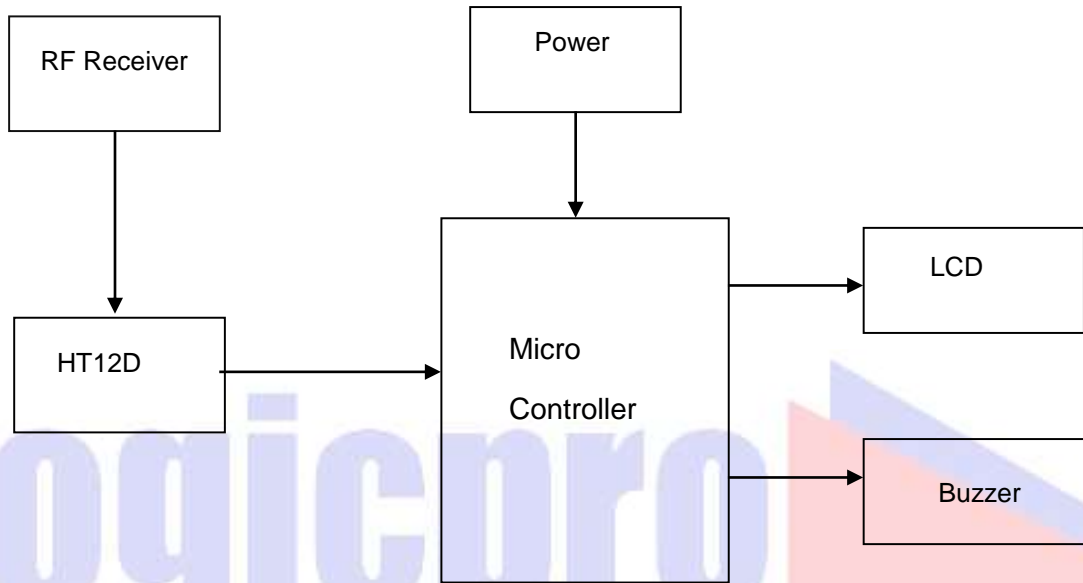
The system monitors the working state of the boiler by a wireless sensor network. This system gets good results from actual application, reduces accidents effectively, and prevents the existence of security risks largely.

**BLOCK DIAGRAM:**

**TRANSMITTER SIDE:**



**RECEIVER SIDE:**



## **HARDWARE REQUIREMENTS:**

- Temperature sensor
- Water level sensor
- Pressure sensor
- Micro controller
- Power supply
- RF transmitter
- RF receiver
- Decoder
- LCD
- Buzzer

## **SOFTWARE REQUIREMENTS**

- MCU COMPIERS
- PROTEUS SOFTWARE

**MICROCONTROLLER may ATMEGA,8051,PIC OR Arduino**