Forest Fire Monitoring and Detection System Based On WSN

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Abstract

The significance of forest fire monitoring was determined by the significance of forest resource and the poisonous of forest fire. In the plan, according to the restriction of traditional forest monitoring project, a new wireless network implementation scheme oriented to forest fire monitoring was presented based on GPRS communication technology and RF technology. The related hardware scheme and software program flows were given.

Introduction

This paper approach towards the forest fire monitoring and detection system using WSN Forest are considered as savior of earths ecological balance to be one of the most essential resource. As we know, the forest is considered as one of the most important and indispensable resources and forest fires represent a constant threat to ecological system, infrastructure and environmental aspect of community. This gives rise to the urgent need to detect forest fire as fast as possible. A forest fire is an uncontrolled fire in area of combustible vegetation that occurs in the countryside or forest area. During summer, when there no rain for months, the forest becomes littered with dry senescent leaves and twinges, which could burst into flames ignited by slightest spark. The Himalayan forest, particularly, Garhwal Himalayas have been burning regularly .

Block diagram
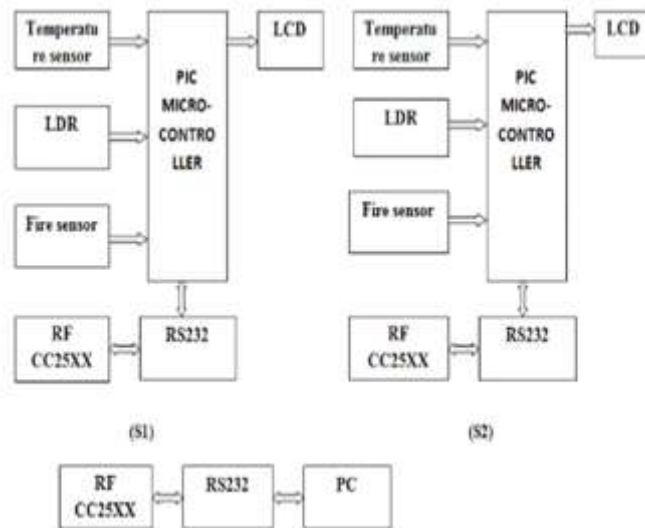
PIC microcontroller

It is made up by microchip technology derived from the PIC1650 originally developed by general instrument's microelectronics division.

Temperature sensor

It is an electronic component module whose purpose is to detect events or changes in environment & send information to other.

LDR

LDR is made up of high resistance semiconductor. If light falling on device is of high enough frequency.

RF CC25XX

It is a radio frequency is a small eletronic device used to transmit or receive radio signals between two devices.

RS 232

RS 232 serial port was once a standard feature of personal computer used for connections to modem, printer, data storage.

LCD

It is a flat panel display or other electronically modulated optical devices that uses light modulating properties of liquid crystal.
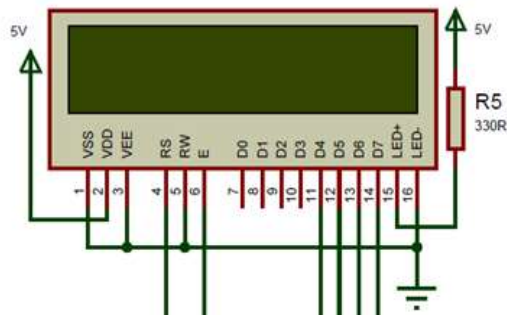
Fire sensor

It is designed to detect and respond to presence of a frame or fire allowing flame detection.

Advantages

- Very effective method to detect the forest fire

- High precision

Conclusion

In our project used request response protocol. When master send the request to the slave, this message display on the LCD screen. The slave immediately gives response to master, this message also display on LCD screen. This communication is performed by using Wireless Sensor Network. The RS232 and RFCC25xx are used for transmitting and receiving the data bidirectional. The LDR is the light dependent resistor. When intensity is increases resistance is decreases, this is display on the LCD. Temperature sensor measure the amount of heat energy or even coldness that is display on LCD. Fire sensor is designed to detect and respond to presence of a frame or fire allowing flame detection, this message also display on LCD.

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