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## The Design of Building Fire Monitoring System Based on ZigBee-WiFi Networks

### Abstract:

With the rapid development of wireless communication technology, people's life has undergone great changes. In recent years, the comfort and safety of the building environment have become a universal concern. However, building fire is the greatest threat to building safety. In consideration of the current issues on building security, the design applies the important part, the wireless sensor network technology to building fire safety monitoring system and establishes the wireless sensor network by using ZigBee technology and ZigBee-WiFi gateway which transforms ZigBee network into WiFi network, In addition, taking advantage of the ZigBee wireless sensor network locates a fire place so that the fire information is uploaded to the handheld terminal and the building security personnel work out the retreat and rescue plan in time. This paper provides a new solution for building fire monitoring system.

### Existing system:

Modern building fire safety system mainly focuses on wireless sensor networks fire alarm. However, the monitoring center can't take effective evacuation and guidance in time. When the fire occurs, it is particularly important for people in danger to escape quickly

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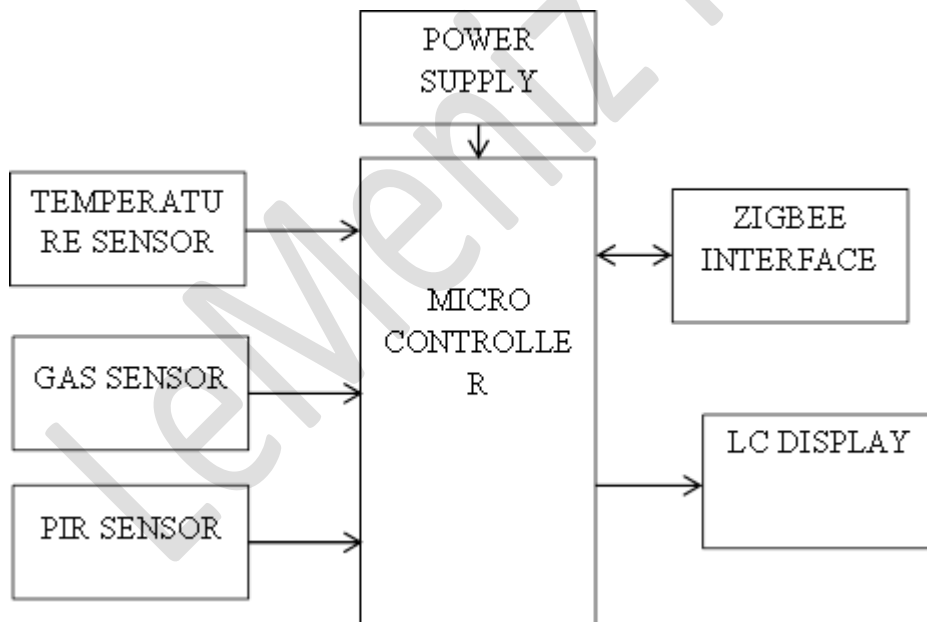
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### Disadvantage:

- It achieves wireless technology with limited options of connecting to particular devices only.
- It does not connect with the centralized monitor station to prepare for quick evacuation.

### Block Diagram:





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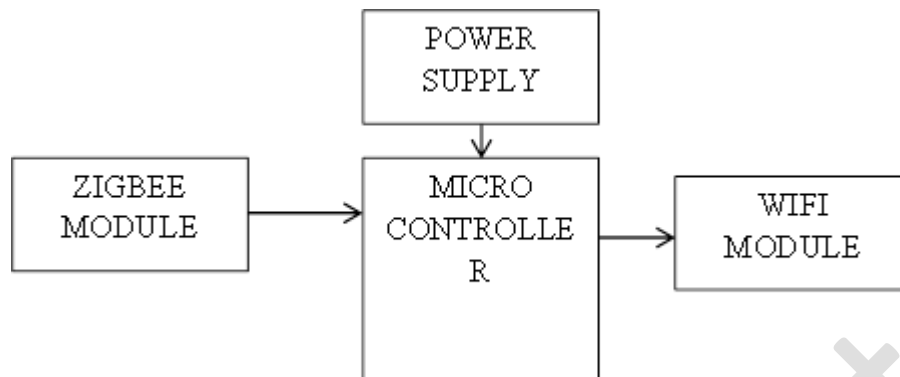
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### Proposed system:

The proposed system consists of micro controller which interfaced with sensors and ZigBee module. The sensor values are converted and verified for any abnormal values. If found the values are sent to the ZigBee-WiFi module through ZigBee. In the ZigBee-WiFi module the controller gets the sensors value and transfers it to the WiFi module to the wireless gateway in order to reach the monitoring centre.

### Advantages:

- These methods are effective to detect fire within a fraction of a second.
- This development will certainly help to utilize the data collected in various networks or applications in a smart system and provide a safer environment to live.

### Conclusion:





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This paper focuses on the issue on building fire monitoring, combined with thought of wireless sensor network technology, and comes up with a ZigBee-based wireless sensor network to collect the information from the entire building, and making use of ZigBee nodes to locate the fire stations. Taking full advantages of WiFi and ZigBee, this design builds a ZigBee-WiFi network. The purpose is to design a real-time building fire monitoring system which is more facilitative to contact with the personal handy terminal and has wider covering range.

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