Intelligent Energy Saving System

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ABSTRACT

Intelligent Energy Saving System can be used in places like where lighting is very important. The libraries will be well illuminated with many lamps. When people are not present at a reading place the lighting can be made OFF and when they are present, the lighting made ON. All these can be done through by Dimming circuit and PIR sensor.

If a person entering to the monitored area, the PIR sensors activates and sense the person, gives to the micro controller. The Infrared energy emitted from the living body is focused by a Fresnel lens segment. Then only the PIR sensor activates. After sensing the person, LDR checks the light intensity of the monitored area, whether it is bright or dark. Depending on the LDR output, the lamp may be ON / OFF by using Dimmer circuit.

By using this system we can adjust the speed of Fan according to the room temperature measured by Thermostat, which is connected to the micro controller. To display the room temperature of PIR mode operation we are using LCD display

INTRODUCTION

Intelligent Energy Saving System, the aim of the project is to save the energy. In this project we are using various sensors, controlling and display.

However, in this project work the basic signal processing of various parameters which are temperature, LDR, Smoke sensor. For measuring various parameters values, various sensors are used and the output of these sensors are converted to control the parameters. The control circuit is designed using micro-controller. The outputs of all the three parameters are fed to micro-controller. The output of the micro-controller is used to drive the LCD display, so that the value of each parameter can be displayed. In addition to the LCD display micro-controller outputs are also used to driver a relay independently. This relay energizes and de-energizes automatically according to the condition of the parameter.

LITERATURE SURVEY

Richu Sam Alex, R Narciss Starbell suggested that it is very essential to automate the system so that we can conserve energy as well as to maximize the Efficiency of the system.

1. P.Vijayakumar, Slitta Maria Joseph suggested that if the channel is seems to be idle the secondary user can occupy the channel but whenever the primary user returns to their frequency channel they have to either switch to the other idle channel or they can wait still on the same channel till it free.
2. Rajesh V. Sakhare, B. T. Deshmukh suggested that to overcome the problem of power distribution this paper provides an overview of wireless sensor network by managing the equal power distribution by using zigbee network sensor.
3. Nishanth L1,Nirmalakumari K2,Ramesh S M3 suggested that the system utilizes ZigBee technology to implement wireless mesh network of street lamps.
4. Chinnam Sujana suggested that to realize the proposed room architecture, we proposed and designed the Zigbee communication. Zigbee is a low-cost, low-power, wireless mesh networking.
5. M.AARTHI, M.ANIL KUMAR suggested that with advancement of technology the ease with which we are getting accesses to electrical products is increasing and with that the power consumption is also increasing

METHODOLOGY

Transmitter:

Above fig. shows the block diagram of intelligent energy saving system transmitter. Consider a particular table in the library, which is connected with our experimental kit .When a person entering into that place then PIR sensor absorbs the black body radiation emitted by that person and activates it. The LCD display will displays the "PIR ON".

Then LDR checks the light intensity, if the light intensity is low below the threshold level then light will be on otherwise light will be off. If the temperature is above the threshold level then fan will be on. Otherwise fan will be off. Here zigbee transmitter is used for wireless communication.

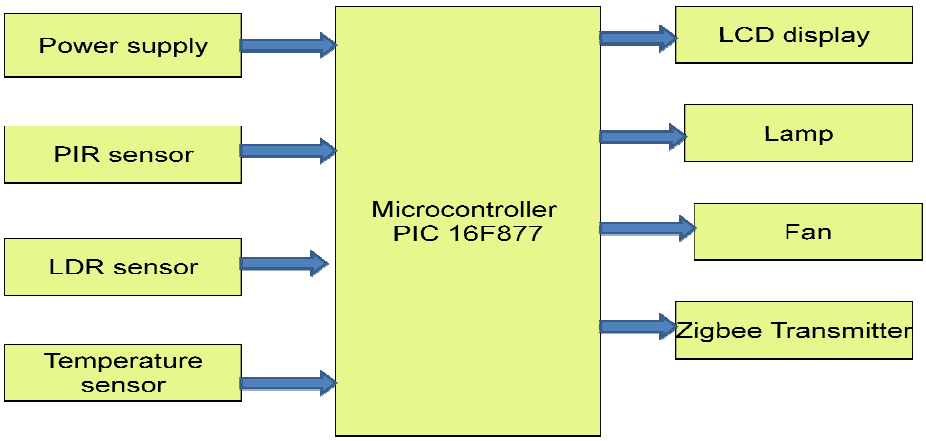


Figure 1: Block diagram of Transmitter

Receiver:

Above fig. shows block diagram of intelligent energy saving system receiver. In the receiver block diagram signals send by zigbee transmitter are received by zigbee receiver and result will be displayed on to the LCD display.

If a particular person is present at that place where the project is set up then if intensity of light is low below the threshold level then light will be on this result will be displayed on LCD. If the temperature is above threshold level then fan will be on otherwise off this result will be displayed on LCD at the receiver.

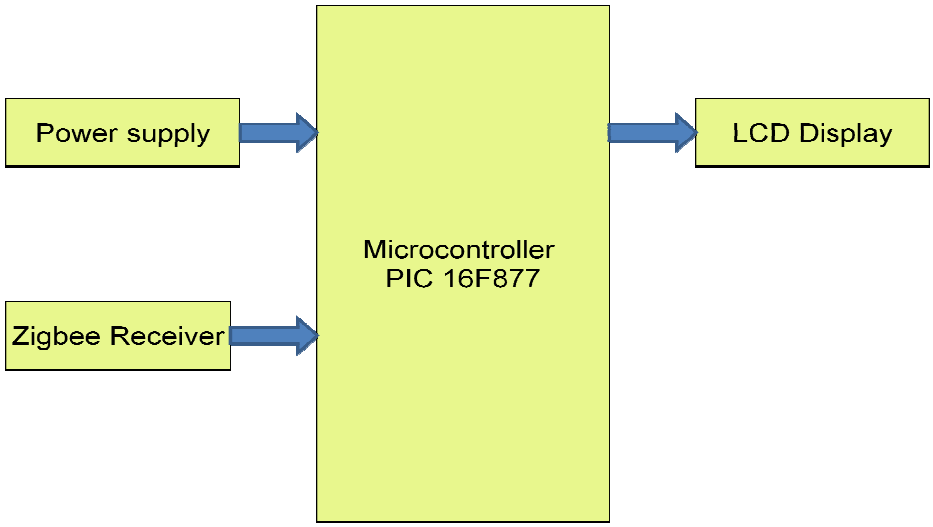


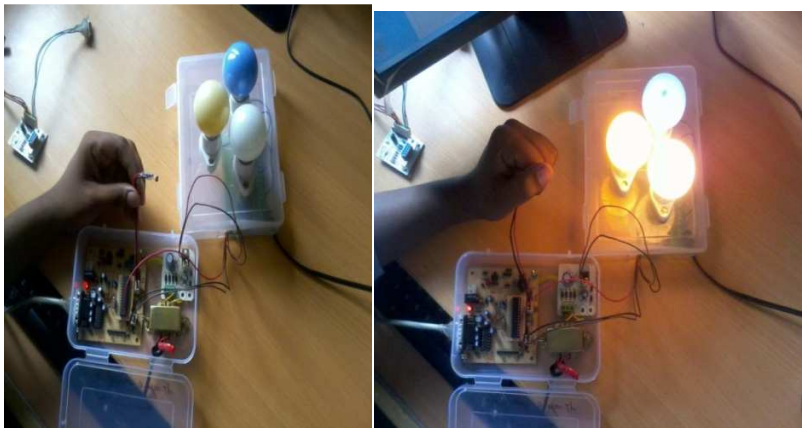
Figure 2: Block diagram of Receiver

Above fig. shows block diagram of intelligent energy saving system receiver. In the receiver block diagram signals send by zigbee transmitter are received by zigbee receiver and result will be displayed on to the LCD display.

If a particular person is present at that place where the project is set up then if intensity of light is low below the threshold level then light will be on this result will be displayed on LCD. If the temperature is above threshold level then fan will be ON otherwise OFF, this result will be displayed on LCD at the receiver.

RESULTS

If a person is present at that place where project is setup then first PIR sensor detects the human. If light intensity is below the threshold level light will be on otherwise off. Also if the temperature is above the threshold level then fan will be on otherwise off. When a person is leaving that place, the PIR sensor will activate again and firstly the Fan will be OFF and after some time delay the lamp also will be OFF. Now the LCD display is in stand by mode state. And the main supply power will be switched OFF.



CONCLUSION

Intelligent Energy Saving System is not limited for any particular application, it can be used any where in a process industries with little modifications in software coding according to the requirements. This concept not only ensures that our work will be usable in the future but also provides the flexibility to adapt and extend, as needs change. In this project work we have studied and implemented a complete working model using a PIC microcontroller. The programming and interfering of PIC microcontroller has been mastered during the implementation. This work includes the study of energy saving system in many applications

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