INTELLIGENT POWER SAVING SYSTEM
Feasibility Study Document

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1 Introduction

The aim of the project, Intelligent power saving system, 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.

2 Current situation

Automatic power saving systems make use of motion sensors. Main disadvantage of these systems is any type of motion will be detected and the system will be switched ON. It is not strict that the motion is caused by a person. This slows down the system performance.

3 Proposed System

The aim of the project, Intelligent power saving system, is to save the energy. Consider a particular table in the library, which is connected with our experimental kit .When a person entering into that place the PIR sensor absorbs the black body radiation emitted by that person and activates it. The LCD display will displays the PIR ON.

After some time delay the light will glows for some time by using the Dimmer circuit and with the help of LDR sensor it checks the room lightening , and it takes the condition when the light is sufficient the lamp will be in OFF state and when light is insufficient the lamp will be in ON state.

With the help of Thermostat sensor the room temperature is measured and the speed of the Fan varies according to the temperature of Thermostat. The LCD display will displays the room "temperature in degree centigrade".

4 Scope of the project

Intelligent Energy Saving System can be used in places like where lighting is very important like libraries and living rooms. These places will be well illuminated with many lamps. When people are not present at the place the lighting can be made OFF and when they are present, the lighting made ON. By using this system we can also adjust the speed of Fan according to the room temperature.

5 Technical feasibility

We have analyzed the technical feasibility of the project based on the following factors.

5.1 Hardware Feasibility

The minimum hardware requirements for implementing the intelligent power saving system are given below.

- Printed Circuit Board

- Micro controller:- PIC 16F72

- 5V, 12V DC Power supply

- IR sensor:-Passive Infrared Sensor

- LDR:-Light Dependent Resistor

- Thermostat

- LCD:-Optrax, 2 line by 16 characters

- Zero Crossing Detector

5.2   Software Feasibility

GNU C compiler

6   Financial feasibility

6.1   Development Cost

Cost of devices needed to implement the Intelligent power saving system is tabulated below.

ITEM	COST
PIR SENSOR	400
LDR	20
LCD	200
PIC 16F72 MICROCONTROLLER	75
THERMOSTAT	500
PRINTED CIRCUIT BOARD	1000

6.2   Installation Cost

The only installation cost required is the cost for wires to connect between the devices.

6.3   Operational Cost

No additional operational cost is required after the installation except the cost required for the DC power supplies.

6.4   Maintenance Cost

Battery should be replaced regularly. No other particular maintenance cost is required.

6.5   Operational feasibility

Intelligent power saving system is easily usable and no external power is needed for its working. The operational power is supplied by the internal DC supply.

7   Conclusion

By analyzing all the above feasibility factors we have realized the scope and challenges of this project. The team realizes the amount of work that would required for setting up a intelligent power saving system.