

OPTIMUM ENERGY MANAGEMENT SYSTEM

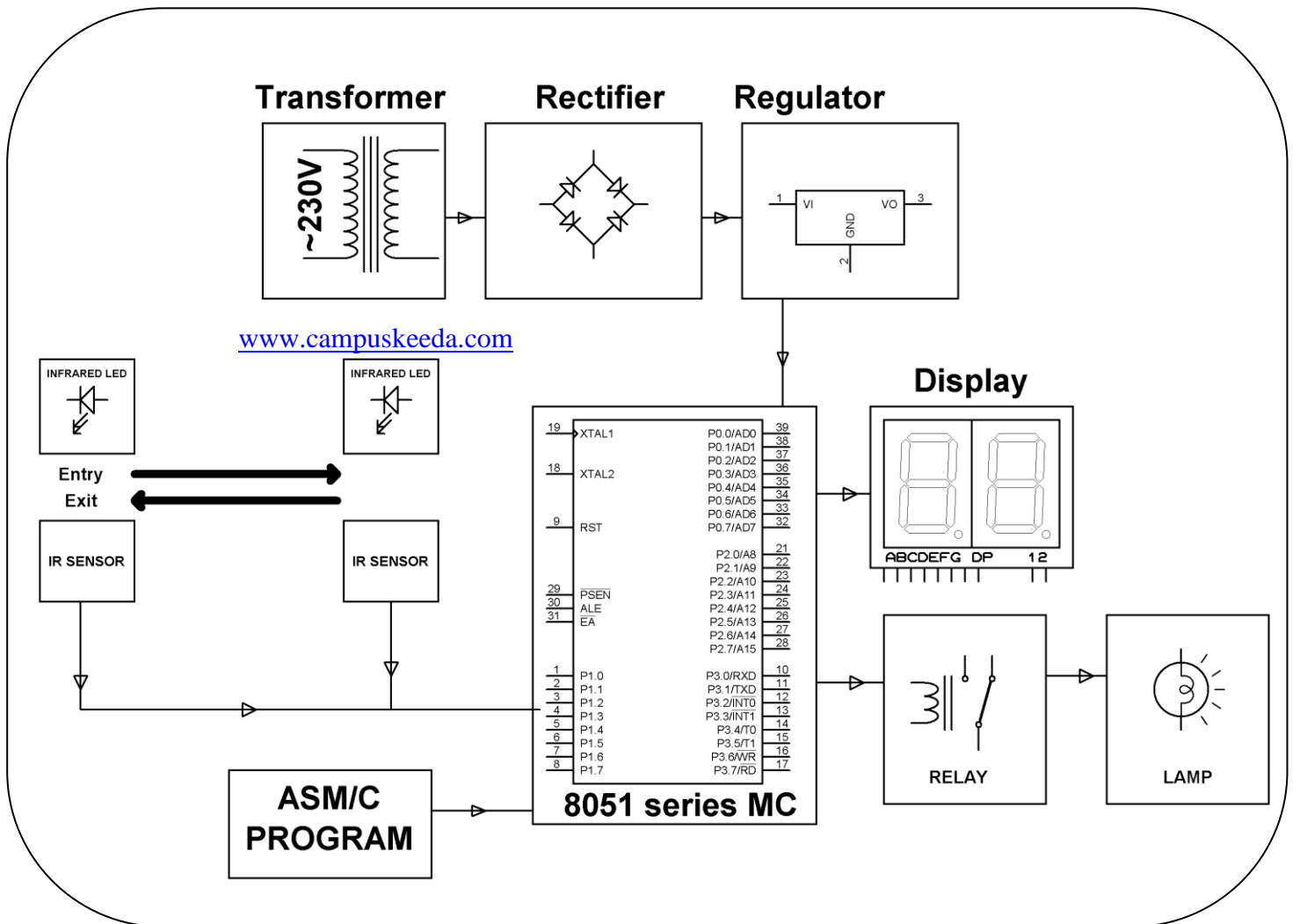
ABSTRACT

The project is designed to monitor the number of persons entering as well as exiting a room. Electrical loads are switched ON as the first person enters and switches OFF when the last person leaves. IR sensors used in combination with microcontroller to monitor all the operations. This helps in saving lot of energy.

There are two pair sensors, each kept at certain distance from the other. One pair of sensor consists of a transmitter and a receiver, kept exactly opposite to each other. The transmitting part emits modulated IR light which is received at the receiver end and fed to a microcontroller of 8051 family. When a person enters the room then microcontroller senses it (with the help of IR sensors) and increments the count and displays it on 7 segment displays and also switches ON the load. In the same way when a person exits the room, the count gets decremented. When the last person exits from the room, the lamp is switched OFF. The load operation is handled by a relay interfaced to the microcontroller.

Further the project can be enhanced by using timer arrangement in the project so that if the load switching doesn't take place for some reason as desired, then timer would complete the task after prefixed time.

BLOCK DIAGRAM



HARDWARE REQUIREMENTS:

8051 series Microcontroller, 7- Segment Displays, Diodes, Voltage Regulator, Capacitors, Resistors, Transistor, LED, Push Button, IR LED's, IR Receivers, 555 Timers, Relay, Lamp.

SOFTWARE REQUIREMENTS:

Keil compiler

Languages: Embedded C or Assembly