FINAL YEAR PROJECT REPORT

Energy Efficient Conference Hall

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Energy Efficient Conference Hall

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Abstract

The Project Energy Efficient Conference Hall mainly emphasizes on efficient use of energy resources by using different automation functions. In this controller based design, different types of sensors are used to make the hall automatic and intelligent.

The arrival of a first person is detected at the door of the hall and main light is turned on automatically. Individual lights are controlled with respect to number of persons and their positions. Moreover AC or heater is turned on or off if temperature exceeds or decreases from specific limits. The project also involves a display outside, for continuously updating the number of people present inside the room, to avoid congestion. IR sensors are used for detection of objects to make the project more cost effective.

Dedication

"We dedicate our project efforts to our parents who hold our hands on each occasion of life & support us to complete such projects".

Acknowledgements

O Lord! Let not our hearts deviate from the truth after you have guided us and bestowed upon us, mercy from your grace, verily you are the Giver of bounties without measure. Up and above, everything, all gratitude to **ALMIGHTY ALLAH**, the Compassionate and the Merciful, Who enabled us to elucidate a drop from the existing ocean of knowledge! Countless salutation be upon the HOLY **PROPHET MUHAMMAD (SAWW),** the beacon of knowledge, who has guided his "Ummah" to seek knowledge from cradle to grave.

It is quite delectable and to become to avail of this most propitious opportunity to articulate with utmost gratification, our profound and intense sense of indebtedness to our ever affectionate supervisor, **Dr. Sajjad Shami**. His proficient counseling, valuable suggestions, boundless forbearance, indefatigable help with any thing, any where, any time, consummate advice and thought-provoking instructions in piloting this research venture and to reach its present effective culmination. Special thanks for him would always be due.

We do not have words at command in acknowledging that all credit goes to our affectionate **Parents**, our brothers and sisters for their amicable attitude and love, immense orison, mellifluous affections, inspiration, well wishing and keen interest which hearten us to achieve success in every sphere of life. Their prayers are the roots of our success.

Friends are the comrades of the battle, the battle to generate knowledge, sift myths and facts and to remove ambiguity. They co-shared our struggle and our work. We express our appreciative feelings for all our friends for their excellent encouragement. We think they deserve to be saluted.

At the end it would be our pleasure to state a **Special Thanks** to:

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And we thank to all our respectable teachers, for their valuable guidance and for providing performance data.

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ADC	Analog to Digital Converter
Automatic	Voltage Regulation
BOR	Brown-out Reset
CISC	Complex Instruction Set Computer
CMOS	Complementary Metal-Oxide Semiconductor (transistor type)
DMM	Digital Multimeter
EEPROM	Electronically Erasable Programmable Read Only Memory
H-bridge	"half" *Bridge*
IC	integrated Circuit
IR	Infra Red
IR-RX	Infra Red Receiver
IR-TX	Infra Red Transmitter
LCD	Liquid Crystal Display
LED	Light Emitting Diode
OPAMP	Operational Amplifier
SCL	Serial Clock Line
SDA	Serial Data Line
SF	Scale Factor
SONAR	Sound Navigation & Ranging
ST	Schmitt Trigger input
UV	Ultra Violet
VREF	Voltage reference
WDT	Watchdog Timer
RISC	Reduced Instruction Set Computer

Chapter I Introduction

Introduction

Efficient energy use is the goal of efforts to reduce the amount of energy required to provide different services. With or without government incentives, energy conservation is, without doubt, our best and most immediate hope in solving our energy problem. More over saving energy is one of the easiest ways for you to cut costs. Even making small changes to the way we use energy can mean big savings.

Improvements in energy efficiency are most often achieved by adopting a more efficient technology. There are various motivations to improve energy efficiency. Reducing energy use reduces energy costs and may result in a financial cost saving to consumers if the energy savings offset any additional costs of implementing an energy efficient technology.

Energy automation systems reduce electrical energy consumption and improve power quality in commercial and industrial facilities by enhancing the efficiency of electrical systems with better automatic performance. These systems work passively, requiring no routine maintenance, and they function in virtually any facility that consumes electricity and can reduce a facility's electrical energy consumption by 30-80% or more.

Moreover in today's world, there is a continuous need for automatic appliances with the increase in standard of living; there is a sense of urgency for developing circuits that would ease the complexity of life.

It is very useful economically, to optimize energy efficiency in buildings, which means for us

- Only use energy when it is really required
- Only use the amount of energy actually required
- Apply the energy that is used with the highest possible efficiency

The summary of the system is shown in the flow diagram below.

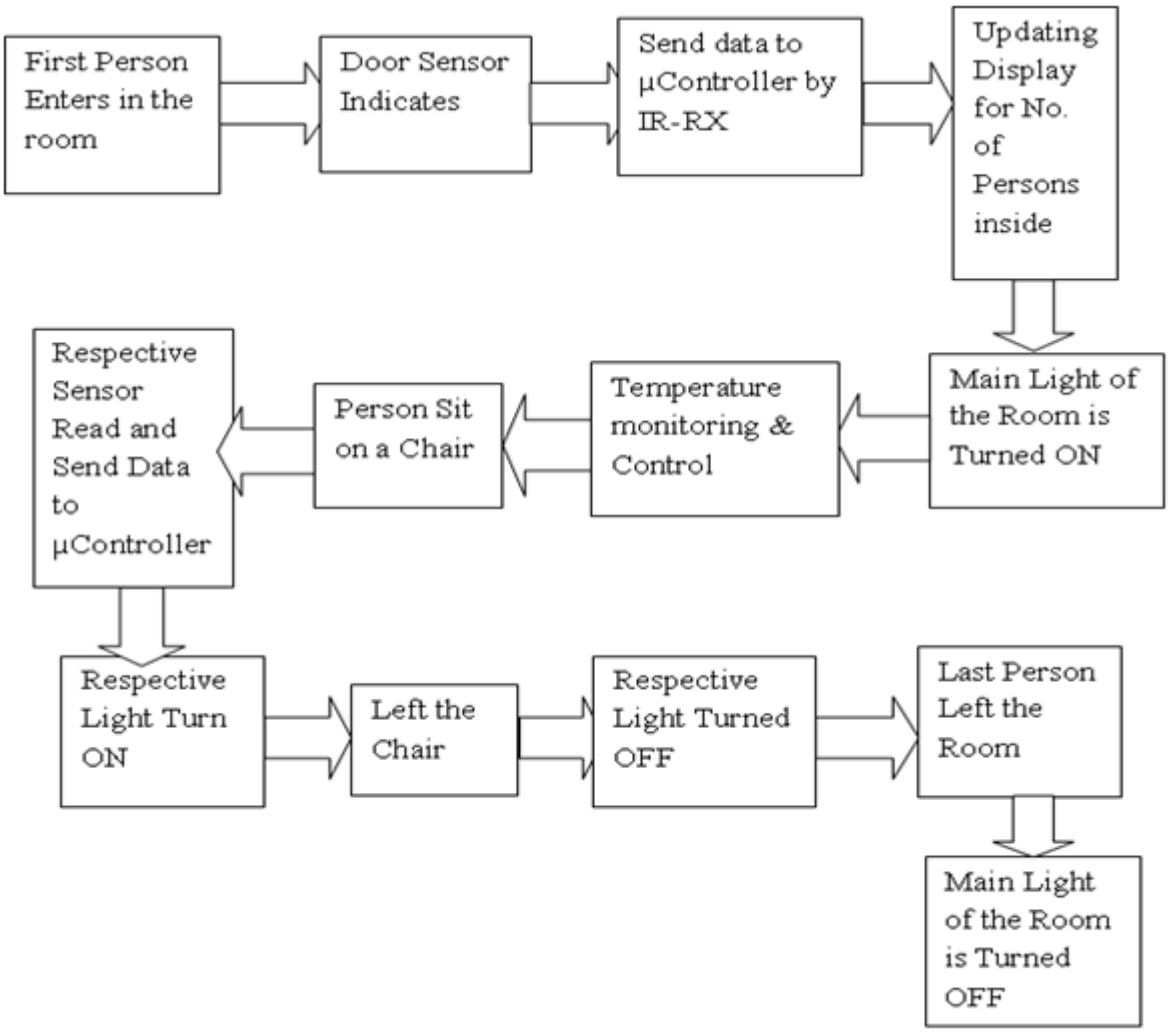

Figure 1-1 – Data Flow Diagram of Energy Efficient Conference Hall

In upcoming chapters, Chapter no. 2 is about System Design & Planning, which is a brief description that how we developed the layout of our project and defined its goals. Moreover it emphasized on plan to proceed and different strategies suggested. Algorithm and flowchart of program is also shown here.

Chapter 3 has two major parts, Implementation Process and System Testing. In first one, we are dealing with Sensing Equipment suggested, Microcontroller Used PIC16f877, Relay and Motor, Power Supply, Display Unit, and final circuit design. Basically complete implementation and working of project is described here. System testing is about different strategies adopted to test the system working.