

## Controlling of AC Lamp Dimmer through Mobile phone

The project aims in designing a system which is capable of controlling the AC lamp dimming operation through Mobile phone using DTMF technology. As the world gets more and more technologically advanced, we find new technology coming in deeper and deeper into our personal lives even at home. Home automation is becoming more and more popular around the world and is becoming a common practice.

The process of home automation works by making everything in the house automatically controlled using technology to control and do the jobs that we would normally do manually. It is much easier to install home automation in a house while it is still being built, since you have the ability to put things inside the walls to save space. Though, people who have houses already built can still have home automation done in a less intrusive ways.

The controlling device of the whole system is a Microcontroller. DTMF decoder and Triac to which AC lamp is connected are interfaced to the Microcontroller. The user need to call the mobile phone present in the system which will be in auto answer mode. When the call got lifted, the user need to press the predefined intensity keys assigned to control the lamp dimming operation of AC lamp. This system also has an LCD display which shows the intensity level of the lamp. The Microcontroller used in the project is programmed using Embedded C language.

A Triac and optically isolated diac based circuit controls the intensity of the high voltage 230volts lamp. This system also employs a zero crossing detector for smooth operation of lamp intensity. This project consists of a Microcontroller that takes input from mobile phone and processes the request. Then it processes the data and takes necessary action and updates the status on LCD. The optical isolation system safeguards the microcontroller-based system from high voltages.

User can simply set the desired intensity with a mobile phone from anywhere in the world. This system also provides security authentication to access this system. User has to enter the password to get access this system.

**Features:**

1. Aims at energy conservation.
2. Provides user friendly graphical interface.
3. Provides fast access using mobile phone.
4. Device enable with zero crossing detector.

**The project provides learning's on the following advancements:**

1. Characteristics of DTMF technology.
2. Conversion of AC supply to DC supply.
3. Interfacing DTMF decoder to Microcontroller.
4. Lamp dimmer circuitry.
5. Embedded C programming.
6. PCB designing.

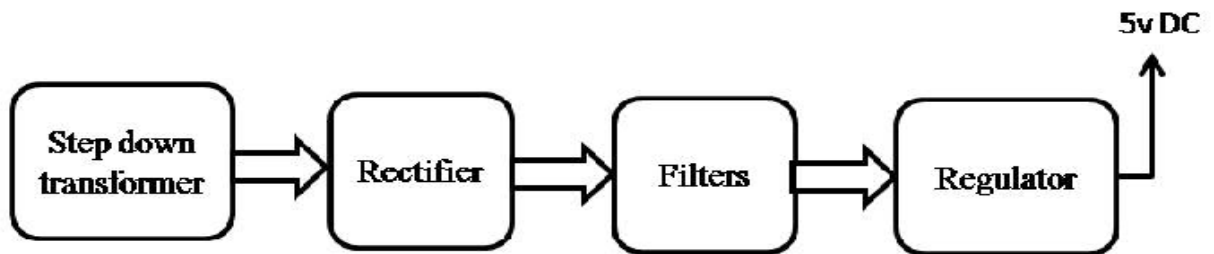
**The major building blocks of this project are:**

1. Regulated Power Supply.
2. Microcontroller.
3. TRIAC.
4. LCD display with driver.
5. DIAC with optical isolation.
6. AC lamp.
7. DTMF decoder.
8. Crystal oscillators.
9. LED Indicators.

**Software's used:**

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

**Regulated Power Supply:**



**Block diagram:**

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