Introduction

The project **"Design and Development of an Automated Home Control System Using Mobile Phone"** focuses on creating a smart home solution that allows users to remotely monitor and control home appliances through a mobile device. By integrating automation technologies with mobile communication, the system aims to improve energy efficiency, and provide users with real-time control over lighting, security, and other household devices.

Title of the project:

An Automated Home Control System Using Mobile Phone.

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Problem Statement

Traditional home appliance control systems depend on manual switches or short-range remote controllers such as infrared and laser technologies. These systems suffer from limited range, line-of-sight requirements, safety risks, and unreliable performance. Because they cannot operate over long distances, they do not support true home automation when the user is far from home. With advancements in mobile communication, there is a growing need for a long-range, safe, and reliable home control system. Such a system should allow users to manage household appliances from any location using mobile phone signals (DTMF tones), improving convenience, reducing electrical hazards, and enabling remote switching even when appliances are accidentally left on.

Objectives of the Project

1. To design a mobile-phone-based automated home control system.
2. To enable remote switching of home appliances using Dual Tone Multi-Frequency (DTMF) signals.
3. To use a PIC16F84A microcontroller to interpret phone commands and activate relays.
4. To ensure long-distance, radiation-free communication for appliance control.

Research Gap

Previous home automation systems using infrared, laser, or short-range wireless controls were limited by distance, line-of-sight restrictions, safety concerns, and reduced functionality. Existing remote control technologies cannot operate home appliances over long distances or via mobile networks. Therefore, there is a clear research need for a long-range, mobile-phone-

based automation system that is safe, reliable, affordable, and capable of real remote operation across wide distances.