**IoT Based Automatic Fire Detecting and Notification System**

**Abstract**

The **IoT-based Automatic Fire Detection and Notification System** is an advanced fire safety solution that utilizes IoT technology to detect fire hazards and notify relevant stakeholders promptly. The system is centered around the **ESP8266 microcontroller**, which integrates various sensors and communication modules to provide real-time monitoring and notifications. The system employs a **flame sensor** to detect open flames and a **gas sensor** to monitor the presence of smoke or combustible gases, ensuring comprehensive detection of potential fire hazards. When a fire risk is identified, the system immediately processes the data and activates a series of automated responses. A **GPS module** is used to determine the precise location of the incident, while a **GSM module** sends real-time notifications via SMS or calls to preconfigured contacts, including property managers and emergency services. These messages include crucial details such as the nature of the detected hazard and its exact location, enabling swift and accurate responses.

Additionally, the system leverages a **relay module** to control external safety mechanisms. For example, it can automatically activate water sprinklers to contain a fire or shut down electrical circuits to prevent further risks. The real-time data from sensors is uploaded to an IoT platform or mobile application, enabling users to remotely monitor and manage the environment from any location. This system is designed to be versatile and scalable, making it suitable for various applications, including residential, commercial, and industrial settings. By integrating real-time detection, automated responses, and remote monitoring capabilities, this system provides an efficient and reliable fire safety solution. It reduces response time during emergencies, minimizes damage, and enhances safety while being adaptable to diverse use cases. This project demonstrates the transformative potential of IoT technology in creating smarter and safer environments.