Sri Lanka Institute of Advanced Technological Education

Project Proposal

Gas Leakage Alert & Call System

Advanced Technological Institute – Anuradhapura

Supervisor	: Ms. W.A.S Wickramasingha
Name	: P.L Vithanage
Course	: Higher National Diploma in Information Technology
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Introduction

My project aim is a develop an Iot-based Gas Leak Alert and Call System. This system will leverage Iot technology to detect gas leaks in real time, send instant alerts to users via mobile notifications, and automatically place emergency calls to predefined contacts or authorities. By integrating advanced sensors and wireless communication, this system aims to enhance safety, reduce response times, and prevent potential disasters.

Background

Gas leaks are a significant safety hazard in Sri Lanka, particularly in urban and industrial areas. With the increasing use of liquefied petroleum gas (LPG) in households, restaurants and industries, the risk of gas-related accidents has risen. The adoption of Iot technology in Sri Lanka is growing, with increasing internet penetration and smartphone usage. This presents an opportunity to develop a cost effective, Iot based solution to address gas leak detection and emergency response challenges.

Preliminary Investigation

Incidents of gas leaks often lead to fires, explosions, and health hazards, causing property damage, injuries, and even fatalities. In 2022, a gas leak explosion in a Colombo restaurant injured several people and caused significant property damage. Traditional gas leak detection methods in Sri Lanka are often manual and most gas detectors are standalone devices with limited functionality. They lack Iot integration and remote alert capabilities, lack of real time monitoring and fail to provide immediate alerts, delaying emergency responses.

Aim and Objectives

Aim

The primary aim of this project is to develop an Iot based Gas Leak Alert and Call system that enhances safety by detecting gas leaks in real time, providing instant alerts to users, and automating emergency responses. This system is designed to address the growing safety concerns related to gas leaks.

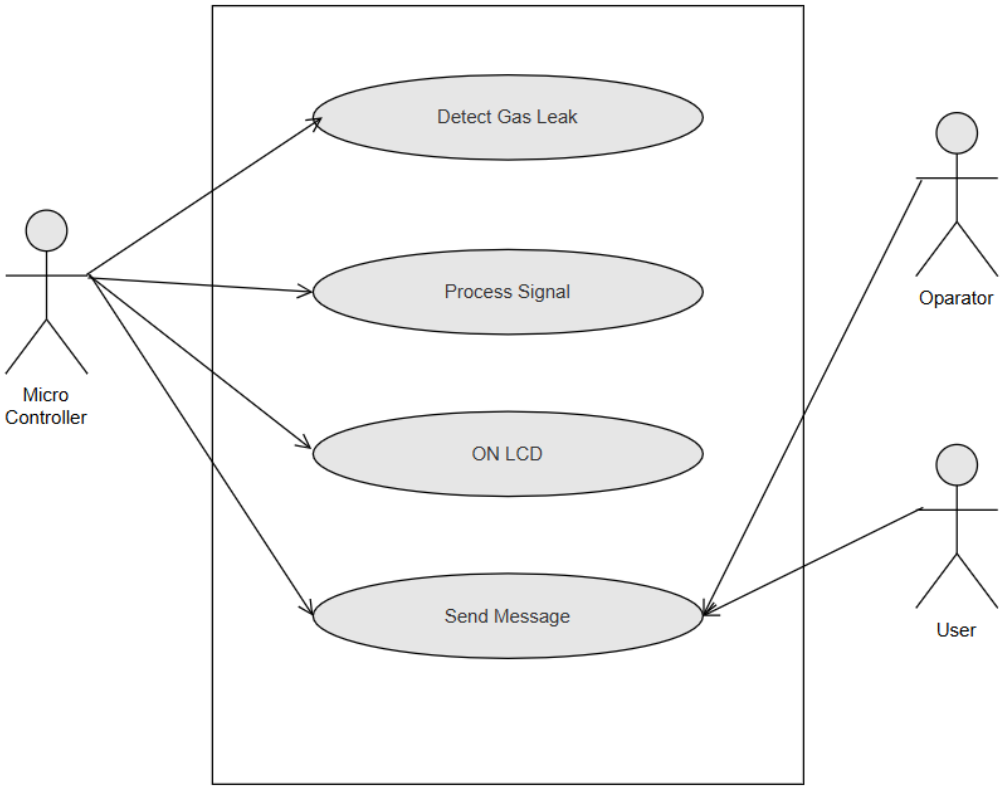
Objectives

- Real time Gas Leak Detection
- Instant Alerts
- Automated Emergency Calls
- Cost Effectiveness

Proposed solution

The Proposed solution is an Iot based Gas Leak Alert and Call System that combines hardware and software components to detect gas leaks, send alerts and trigger emergency responses. The system will be designed to operate in real time, ensuring timely detection and response to gas leaks.

Use Case Diagram



Feasibility study

Technical Feasibility

Hardware Requirements

- Arduino Uno Board
- GSM Sim 800C Module
- GAS Sensor
- Connecting Cable
- 12 V Adapter

Software Requirements

- Arduino IDE
- Programming Language – C Language

Time frame

Task	Week 01	Week 02	Week 03	Week 04	Week 05	Week 06	Week 07	Week 08	Week 09	Week 10	Week 11	Week 12	Week 13
Requirements Analytics													
Design													
Development													
Testing													
Implementation													
Documentation													

References

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[2] "w3schools," [Online]. Available: https://www.w3schools.com/.