Design Doc Template

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# Introduction

## Summary

The accidents occurred because of LPG leakage and the deaths caused due to explosions are increasing day by day. Inspite of taking the preventive measure to some extent the number of deaths due to explosions are not controlled .

Our idea to control the detonations caused by the LPG leakage is possible by adding the preventive measures to the detecting device which can alert the user with a notification and also turns off the the main supply when the leaked gas is detected .

## Background

Use of LPG fuel has become obvious in every sector i.e, in household’s kitchens, canteens, restaurants, hotels, industries or factories which use or depend on LPG. Fire accidents are very uncertain and they can occur at any instant. As places which uses LPG are under risk of fire accidents, an ultimate safe devices are needed.

The existing LPG leakage detectors available in the market just indicate that there is some leakage of LPG may be with am alarm or LED. Indicating that there is LPG leakage wont save us from fire accidents. To ensure ultimate safety, smart devices are needed which can sense the leaked gas and avoid fire accidents too.

## Definitions, Acronyms, and Abbreviations

LPG – Liquified Petroleum GaS

Definition of terms that will help readers understand the documents, or acronyms common in your project area

# Design Overview

## Requirements

This project specifically requires Wi-Fi connection and DC supply.

Customers who ever is installing our project need a DC Battery source for exciting the Smart LPG leakage detector and Wi-Fi router.

This project needs **Clicksend** access for alerting the user that there is a gas leakage.

### Documentation

If the project requires any wiki pages, code comments, presentations, etc. that information should be included her

1. <https://github.com/srinathyadav/LPG_leakage_detector>
2. <https://drive.google.com/open?id=1ykGVJ4DcSLZF13TqB-6AIno7g_vTjNtd>

## Minimum Viable Product

The smart LPG leakage detector detects the gas leaking from the cylinder, shut downs the whole main power supply of the unit, triggers an SMS to user ( i.e. whoever installs this product) and Fire station department alerting them.

## Stretch goals

A business model to enhance profitability.

A field test of model and behaviour of customers over it.

Optimizing the costs and efficiency of model.

## Future work

This project can be expanded by providing and user interface so that users can themselves enter their own address and contact details for alerting them.

A commercial site where users can enter their details.

This project can be extended by making it work wirelessly by using another NodeMCU module.

# Architectural Diagrams

https://drive.google.com/open?id=1F3ZyFU1yQ2H8pHS8XgHALTzlkKNlFEFA

# System Diagrams

https://drive.google.com/open?id=1\_8bX7dIav9K24\_xbxAqrcQrHjlg2hali

# Application Programming Interface

Arduino IDE application is used as programming interface

# Project Overview

## Risks

* Failure of components
* failure of Wi-Fi connection.

## Milestones

Testing of product.

Accessing it with real application.

## Project Phases

Phase 1 :

Completion of product.

Phase 2 :

Survey about product.

Phase 3 :

Testing of product

Phase 4 :

Optimizing and building commercial model.

## Cost

As cost of product depends on components used in device,

It include : NodeMcu , Relay, Gas sensor, DC supply. So, final product costs around Rs. 1500/-

# Frequently Asked Question

* Do you the think the leakage of LPG is major problem ?
* Do you prefer to buy an LPG detector?
* In which places do you think our product can be commercialized ?