**IDEATION PHASE**

**Literature Survey**

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| Team ID | PNT2022TMID30897 |
| Project Name | Gas leakage monitoring and alerting system |

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**ABSTRACT:**

Home fires have been taking place frequently and the threat to human lives and properties is growing in recent years. Liquid petroleum gas (LPG) is highly inflammable and can burn even at some distance from the source of leakage. Most fire accidents are caused because of a poor-quality rubber tube or the regulator is not turned off when not in use. Therefore, developing the gas leakage alert system is very essential. Hence, this paper presents a gas leakage alert system to detect the gas leakage and to alarm the people onboard. Keywords: Liquid petrol

**INTRODUCTION:**

LPG is extremely combustible. Because of this combustible nature, its leakage could cause harm to life and property. Generally, these gases are stored in cylinders. In Industries LP G is filled only up to 85% in cylinders above which will be vapours. This is due to the expansion property of the LPG. For every 1*◦* rise in temperature, the pressure of LPG inside the cylinder will increase by 15 kg*/*cm3. This makes LPG a very hazardous and extremely inflammable gas. Apart from storing transmission is risky.

There are more than 40 peoples are lost their lives due to the leakage of gas and also fire accident made by them. To overcame this problem, we are going to build a project ‘Gas Leakage Monitoring And Alerting System’. After analyzing many research papers, their pros and cons we have made this literature work.

**DESIGN METHODOLOGY:**

The LPG leakage detection and alert system presented in this section is a simple as shown in Figure 1, yet reliable. It is battery operated and hence portable. It is designed in such a way that it can also be operated with ac power supply. To support the latter case, it has a bridge rectifier with a capacitor filter. This is followed by a regulator designed with IC7805 which provides +5V regulated power supply

To detect the LPG, MQ-6 gas sensor is employed. This sensor can be operated at +5V. The sensitivity of this sensor is very high and it has quick response time. It candetect the LPG concentration in the range of 200-10000ppm. The gas sensing layer of this sensor is made of Tin Dioxide (SnO2) and gold (Au) electrodes. The output of the gas sensor is given to LM358 dual operational amplifier where it is compared with the threshold value for gas density which is set using preset potentiometers and amplified. If the sensed voltage is greater than the preset threshold voltage, the operational amplifier output fires the driver circuit for LED and Buzzer. As a result, the LED will glow and the buzzer starts to produce alarm sound.

**Conclusions:**

The advantage of this simple gas leak detector is its simplicity and its ability to warn about the leakage of the LPG gas [11]. This system uses GSM technique to send alert massage to respective person if no one is there in the house and then gas leaks occurs, GSM module is there to send immediate messages to the respective person regarding the gas leak [13]. The main advantage of this system is that it off the regulator knob of the cylinder automatically when

gas leakage detected