**FUNCTIONAL REQUIREMENTS AND DATAFLOW DIAGRAM**

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| **Date** | 15 October 2022 |
| **Team ID** | PNT2022TMID51469 |
| **Project name** | Gas Leakage Monitoring &Alerting System For Industries |

**Functional requirements:**

**Arduino:**Arduino is a single-board microcontroller that is widely used to create various types of digital devices, block diagram

shown in Figure. You can control and interact with various electronics components such as sensors, actuators and much more. It

has its own fixed RAM and stores data quickly memory and EEPROM. It uses languages such as C, C ++, and Java.

**Gas Sensor:**Gas Sensor (MQ5) module is useful for gas leakage detection (in home and industry). It is suitable for detecting

H2, LPG, CH4, CO, Alcohol. Due to its high sensitivity and fast response time, measurements can be taken as soon as possible.

The sensitivity of the sensor can be adjusted by using the potentiometer.

**Buzzer:**Buzzer or Beeper is an audio signing tool, which can be mechanical, electromechanical, or piezoelectric. Buzzer and

beepers is widely used in include alarm devices, timers, and user input verification such as mouse clicks or keys

**GSM Module:**GSM module is a hardware device that uses telephony technology to provide a data connection in a remote network. From a mobile phone network view, they look exactly like a normal cell phone, including the need for a self-identifying SIM network. GSM modems typically provide a TTL-level serial interface to their Host. They are often used as part of an embedded system

**Relay Module:** The Relay module is an electrical switch used by an electromagnet. The electromagnet is opened by a low power signal that differs from a small controller. When activated, the electromagnet pulls on or off the electrical circuit

**NodeMC :**NodeMCU is an inexpensive open source platform. Originally included firmware running on ESP8266 Wi-Fi SoC from Express if Systems, as well as Hardware based module ESP-12.Later, support for ESP32 32-bit MCU was added.

Data Flow Diagram:

End User

GSM &

Nodecmu

Relay

Buzzer

Microcontroller

LCD Display

If LPG gas limit

Mq2 sensor

No

Yes

Technology architecture:

sensor and other device User side

MQ2

Electrical device

Alert the user

Arduino Microcontroller

Relay

GSM&

Module

Buzzer

Microcontroller