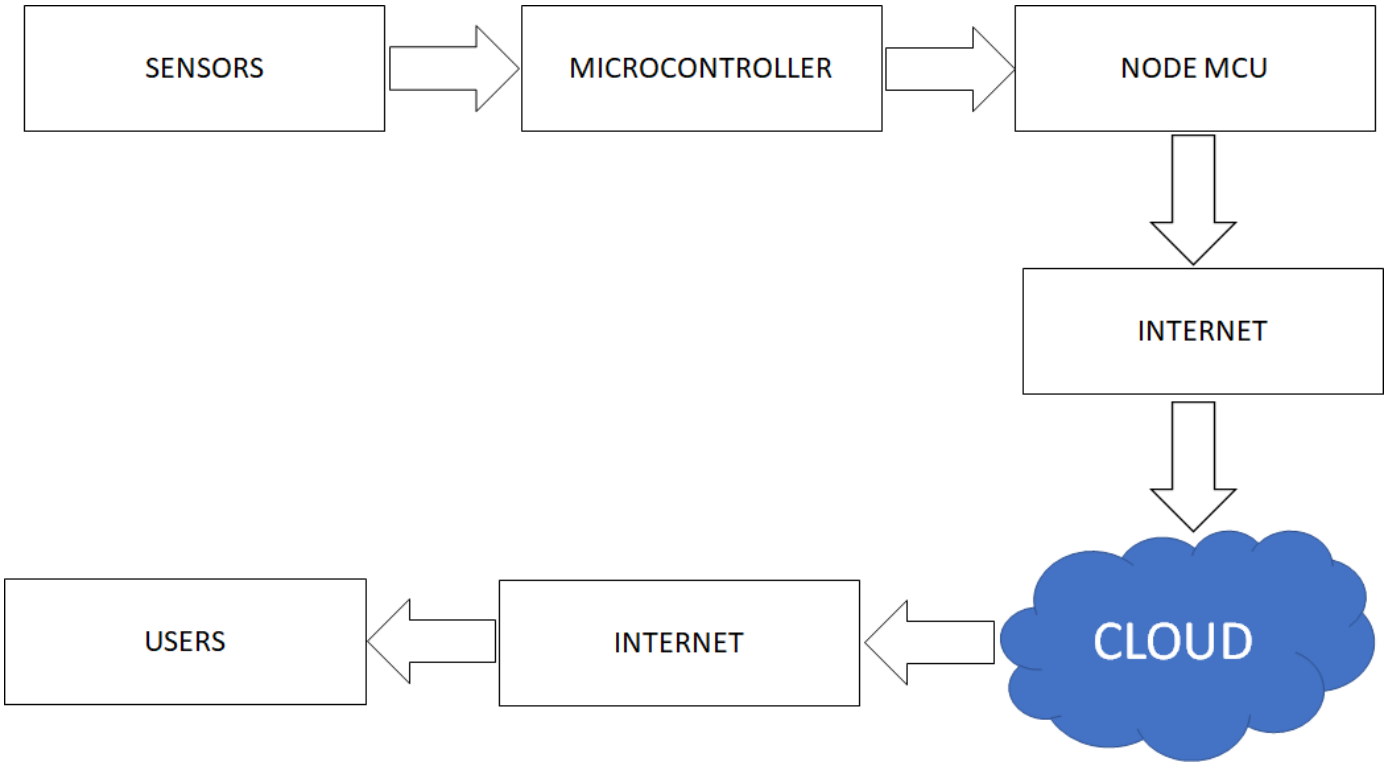
Project Design Phase-I
Solution Architecture

Date	02 OCTOBER 2022
Team ID	PNT2022TMID35909
Project Name	Gas Leakage Monitoring & Alerting System For Industries
Maximum Marks	2 Marks

SOLUTION ARCHITECTURE:



EXPLANATION:

➢**SENSORS:**

1.Gas Sensor: The gas sensor is a module used on the micro-controller to detect gas in the air. There are several types of gas and gas sensors that can be identified by the module also vary. To detect household gases, gas sensors are used to detect Methane, Butane, LPG and cigarette Smoke.

2.Fire Sensor: A fire sensor is a sensor that can detect the presence of a fire and convert it to an analogue quantity of its representation. This flame sensor

is different from the heat sensor, where the heat sensor uses temperature parameters while the fire sensor measures the flame.

➢ **NodeMCU:** NodeMCU is an open-source IoT platform. It consists of the hardware, in the form of ESP8266 System on Chip from ESP8366 made by Espressif System, and the firmware, which is Lua scripting programming language. The NodeMCU is analogous to the Arduino micro-controller combined with the ESP8266 module.

- NodeMCU has the capability to access WiFi.
- It has a small size but contains complete features as a micro-controller, which makes NodeMCU very suitable for developing IoT (Internet of Things) devices.

➢ **Arduino:** Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online.

WORFLOW:

- The sensor transmits a voltage signal which is proportional to the gas level and is sent to the microcontroller.
- This signal is sent by the microcontroller to the external peripherals.
- When the gas content in the air exceeds the normal limit or any flame is detected the device sends a notification to the user based on the type of the detected value.
- Simultaneously this change in output is transmitted through wi-fi network to the cloud in which the application is formulated that sends a notification to the mobile phone/laptop through the internet.
- This output is monitored in our computers/mobiles where the stored values is sent for analysis and storage in the database through the cloud.