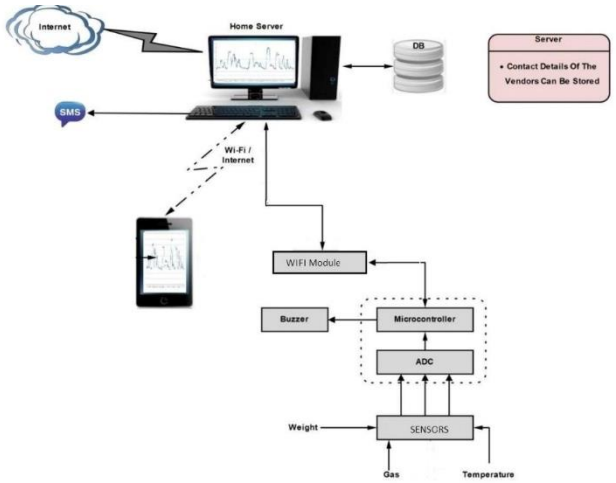
Project Design Phase-II
Technology Stack (Architecture & Stack)

Technical Architecture:

The Explanation of Gas Leakage Monitoring based on IOT includes the architectural diagram as below and the information as per the table1 & table 2

Example: How a gas leakage detection system helps, its scope of growth, benefits, and main technologies used.



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud/Big Data Analytics)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models
6. Android application

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	ESP with WIFI Module	This detects the flow and depletion of gas by using the MQ-2, GP2D129 sensor	Radio Waves
3.	ARM7 Processor	The system detects the load cell sensor for measuring the gas present in the cylinder.	32-bit RISC ARM processor cores
4.	AT89s52 8bit MCU	This system uses two sensors - gas and temperature - to keep the gas levels in check and monitor the temperature in an area accurately	Atmel's high-density non volatile memory
5.	Database	Data Type, Configurations etc.	MySQL, etc.
6.	Cloud Database	Database Service on Cloud	Machine learning, DBaas, etc,.
7.	File Storage	File storage requirements	Storage Service or Local Filesystem
8.	Wireless Sensor Network	Suitable for detecting gas leakage in the wider area.	location awareness, data fusion, etc.
9.	Global Position System	Determine the location of something on Earth	trilateration
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Collection of hardware and software elements needed to enable cloud computing	Local, Cloud Foundry, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open source is source code that is made freely available for possible modification and redistribution. Products include permission to use	e.g. Django is to Python and Spring Boot is to Java

S.No	Characteristics	Description	Technology
		the source code, design documents, or content of the product.	
2.	Security Implementations	Monitors and filters incoming and outgoing network traffic based on an organization's previously established security policies.	e.g. Encryptions, TCP/IP Connection etc.
3.	Scalable Architecture	Supports higher workloads without any fundamental changes to it.	apps, platforms, or programs that can grow and adapt with ease.
4.	Availability	Detection of combustible, flammable and poisonous gases and for loss of oxygen, and also to detected a gas leak or other pollutants. It makes the area where the leak occurs a warning sound and instructs operators to leave the area.	enterprise's IT infrastructure
5.	Performance	The sensors are widely used to detect essence of propane, iso-butane, **LPG** and even smoke.	Bandwidth, Latency(Delay), Throughput, Jitter, Bandwidth- Delay Product.