Solution Architecture

Gas Leakage Monitoring and Alerting System

Team ID : PNT2022TMID51764
Team Size : 4
Team Leader : EBIN SEBASTIAN
Team Member's : JOB ALEX
BAVIN KUMAR B
SUBHASH S

Problem Statement

Continuous industrial development gives rise to harmful gas release. Often these emission are controlled. However, many operation involve the handling of hazardous gases. Lapses in preventive maintenance lead to faculty pipelines & equipment. Such operational negligence to detect gas leaks is damaging the environment. Consequently breathing even with low conc. Can lead to many disease and increase fatality. Without early gas leakage detection timely corrective action will not be possible.

Solution Statement

The system can be taken as a small attempt in connecting the existing primary gas detection methods to a mobile platform integrated with IoT platforms. The gases are sensed in an area of 1m radius of the rover and the sensor output data's are continuously transferred to the local server. The accuracy of these sensors are not upto the mark thus stray gases are also detected which creates an amount of error in the outputs of the sensors, especially in case of methane. Further the availability and storage of toxic gases like hydrogen sulphide also creates problems for testing the assembled hardware. As the system operates outside the pipeline, the complication of system maintenance and material selection of the system in case of corrosive gases is reduced. Thus the system at this stage can only be used as a primary indicator of leakage inside a plant.

Circuit