PROJECT SUMMARY

"Automatic Drainage Water Monitoring & Control System using PLC" aligns with modern automation trends to ensure effective water level management, gas detection, and drainage system control. Literature surveys emphasize the importance of automating drainage systems to prevent overflows, monitor hazardous gases, and ensure operational safety.

Objectives:

1. Real-time Monitoring: Continuously measure water levels, pressure, and gas presence in the drainage system.
2. Automation: Use PLC to automate responses such as activating solenoid valves, exhausters, and alarms during critical conditions.
3. Safety and Efficiency: Ensure a safe and efficient drainage system operation with minimal manual intervention.

1. Idea

The project focuses on creating an automated drainage monitoring system using PLC to ensure proper drainage functionality by detecting abnormalities like blockages, gas leaks, and water levels.

2. Algorithm

1.Sensor Monitoring: Continuously monitor gas levels, pressure, and water level using respective sensors.
2.Data Processing: PLC processes sensor inputs and compares values to pre-set thresholds.
3.Actuation: Trigger buzzer, LED indicators, or motorized components (like solenoid valve or gas exhauster) based on abnormal readings.
4.Control Logic: Activate drainage clearance or alert system automatically based on conditions.

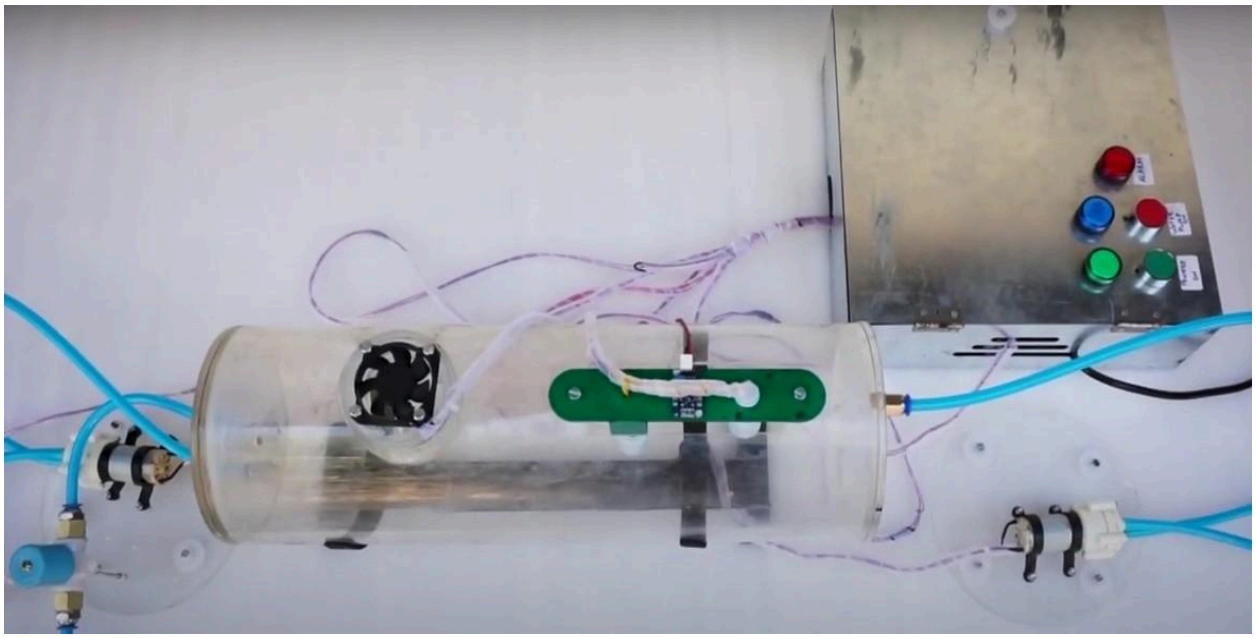
3. Hardware Architecture

Input Components: Sensors (Gas, Pressure, Level), Push Buttons.
Processing Unit: PLC for logic execution.
Output Components: LEDs, Buzzer, DC Motor, Solenoid Valve, Relay, Gas Exhauster.

4. Implementation Strategy Analysis

Theoretical: Apply Boolean logic and ladder diagrams for PLC programming.
Mathematical: Use threshold comparisons (e.g., gas concentration > set limit) and control equations for actuators.
Practical Steps: Assemble sensors and actuators, program PLC, test under various conditions, and fine-tune thresholds.

PROJECT IMAGE :



LADDER LOGIC DIAGRAM :