

Problem Statement

Gasoline emissions escaping from gas station have significant impact on the environment, this project contributes to Vision 2030 by reducing emissions and conserving resources by recycling the captured fumes.



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Fuel Recovery System in Gas Stations

Project Impact

- Mitigation of Fire Emergencies.
- Reduce Released Hydrocarbons in the Atmosphere.
- Utilize and Recycle Gasoline to The Gas Station.

Constraints

Flammable



Government Approval



Space limitation



Specifications

Potential savings up to 57K SAR



High Efficiency
80-85%



Low-Pressure
55-70 Kpa

Conclusion

This project addresses significant operational and environmental issues by creating a system that captures, condenses, and recycles gasoline vapors. The system improves sustainability, decreases fuel losses, and minimizes emissions. Particularly with the rubber cover, this novel method outperformed conventional suction systems in terms of efficiency.

Testing and Validation

3%
Liquid Gasoline Recovered

80%
System Efficiency

55
Kpa
Low Pressure System

Future Work

- Add Controllers to Operate the System with Precision.
- Add Pressure Relief Valves to Operate a Safer System.
- Add a Cooling System Rather than Condensing the Vapors with Ice.