

# Pipeline Leak Detection, location and Repair Device



**Abstract:** A compact leak detection method offering ease to search leaks and to repair immediately. Position of leaks well established.

## The Invention

The pipeline leak detection and repair device is an autonomous machine that travels within a fluid pipeline, and that simultaneously detects and repairs small leaks and seeps in the pipeline wall. The leaks are detected using strain gauge based flexible membrane in contact with the whole cross section of the pipeline. The membrane is sucked whenever it finds a leak. The leaks are identified and located using RFID tags.

## Market Need

*The product:* The proposed system can easily navigate inside buried pipes to detect leaks using very sensitive sensory system, to show their locations and to immediately repair those leaks on site. Buried pipes can have RFID tags adhered to internal surface prior to the inspection as most of the pipelines are made of metals where wireless transmission is quasi impossible. Water pipes are targeted representing 30% of leaks.

## Competitive Advantage

*The technology and its USP:* It is a unique system that helps identifying the leak if any from within the pipeline repairs it and sends information about locations with any pipes material. This is a comprehensive system with multiple functions for buried pipes that can navigate in straight water pipeline and capable of negotiating corners. This technology is better than existing PIGs that are too cumbersome, heavy and work only in empty pipes.

## Readiness for Market / Looking for a Development Partner

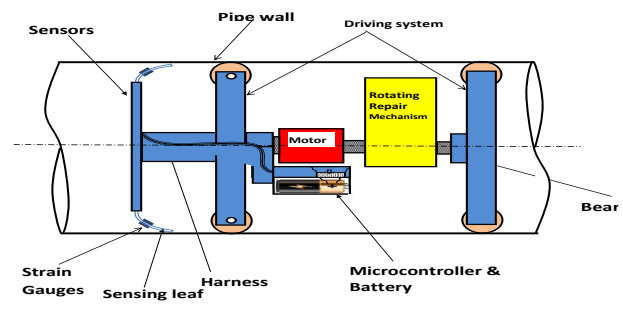
*Technology maturity and market readiness:* The technology has received partial funding to be studied with conceptual analysis and proof of concept of leak detection. It is expected to go for comprehensive proof of concept with prototyping and total validation with the available expert group at KFUPM on design and manufacturing of leak detection systems.

## Intellectual Property

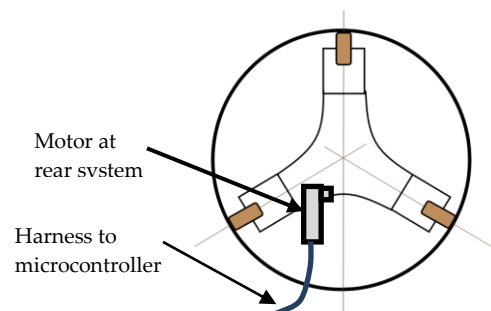
US patents 8925590 and 8217783 cover the invention.

## About KFUPM

King Fahd University of Petroleum & Minerals (KFUPM) is a leading educational organization for science and technology. KFUPM Innovation Center is KFUPM's IP management and technology licensing office tasked with taking innovation from lab to market place.



Leak Detection and Repair System



Systems Cross View

## Contact:

For further information please contact:

Email: [IP-License@kfupm.edu.sa](mailto:IP-License@kfupm.edu.sa)