

2023 10th Southern African Water Loss Summit
Supported by
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Water Loss Specialist Group

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DBSA Midrand

New Technology or is there an elephant in the room

Presented by
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Participating and supporting organisations:

WPP 25 RAND WATER DBSA WATER RESEARCH COMMISSION

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So.....What is technology

- Application of knowledge to the practical aims
- Changing and manipulating the way we think
- Includes the use of materials, tools and techniques to make life easier, more pleasant, increase productivity and to ensure that the problem that was impossible becomes possible.
- Technology began to influence human endeavor as soon as people began using tools.
- Technology advancement is part of a dream that any ideas should never be dismissed – somewhere there is the solution

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So What is New?

Where has the industry gone?

Has the industry needed to move forward
technology wise?

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So what has been done in the water industry

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Acoustics in General

- Correlators, Noise Loggers, Ground Microphones
 - Ver 1 – new technology and approach so a great breakthrough
 - Ver 2 – change to radio transmission from cable
 - Ver 3 – Change to processor upgrade to faster
 - Ver 4 – faster still
 - Ver 5 – even faster
 - Ver 6 – lets change to digital that's new
 - Ver 7 – what else can we dochange colour?
 - Ver 8 – any ideasOk lets make it smaller

Reality they have come a long way but is there anywhere else to
take them so we shouldn't really complain

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Correlation 1972 – moving forward.....

Patents

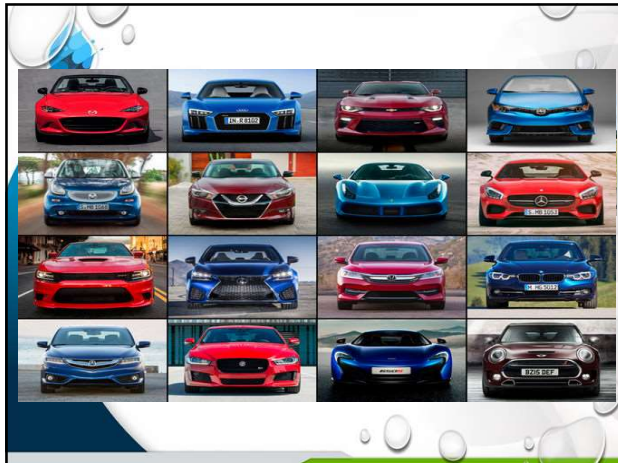
**Acoustic leak
location and
detection system**
US 3838593 A

ABSTRACT

A system for locating and detecting acoustic noise sources such as liquid or gas leaks in the presence of conflicting ambient (i.e., background) noise by implementing one point correlation. In a preferred embodiment the device employed comprises a pair of spaced sensors mounted on a movable

Publication number	US3838593 A
Publication type	Grant
Publication date	Oct 1, 1974
Filing date	Nov 6, 1972
Priority date	Nov 6, 1972
Also published as	CA1049034A, CA1049034A1, DE2323230A1, DE2323230A1, DE2323230A1
Inventors	Cheng, J. J.
Original Assignee	Locke Research & Engineering Co.
Export Citation	Bibliography, Abstract, Full Text, Patent Classifications (12), References (25), Classification (25)
External Links	USPTO, USPTO Assignment, Equipment

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Drones and Thermal Imaging

 **Detecting 'Invisible' Water Leaks with Infrared Drones**

The research found that high- and low-resolution infrared cameras could detect from a height the change in sand temperature which occurs when leaking water evaporates underground.

If utilised, such technology could be used to help reduce the vast quantities of water which can be lost in large-scale underground water pipe systems, particularly in arid countries where water is transported over large distances.

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Use drones at local level with traditional ALC approach

Look what we've found, using the thermal imaging sensor on our drones 4K imaging unit, we can locate leaks from the air, no water present on the surface so causing untold damage underneath. A flight time of 4 mins to produce a report.

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Apps for PC and Phones

Leak Detection

Identify water leaks early and act quickly where you're needed most. Save costs, perform better.

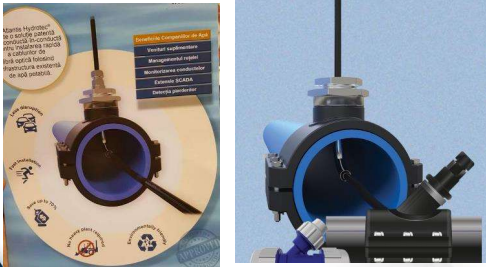
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Camera now 10 years old but still new to the industry

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Cable in water pipe



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Who needs expensive equipment



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Its true

Dogs Barking Mad Over Leaks

March 31, 2017 • 16 Likes • 1 Comment

In a world first WaterGroup proudly releases a brand new way to stop the ever present wastage of water from undetected leaks: Leak Sniffer Dogs. The Sydney based water Savings Company wants to revolutionise the way water leaks are found. By crowd sourcing leak sniffing dogs WaterGroup wants to build up a neighbourhood army of "leaky" dogs to fight the war on water wastage.

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Still never took off



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Cellular network communication



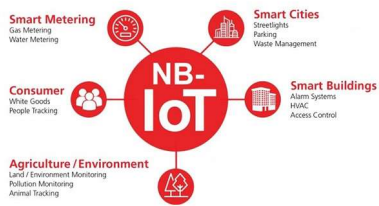
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Noise logger communication pack



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New way of communicating



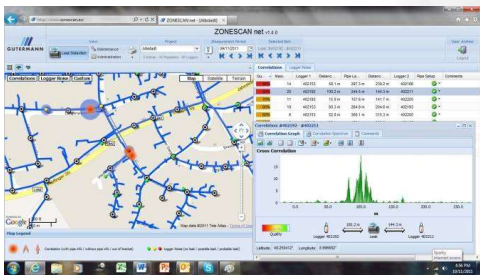
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Many different types of noise loggers



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Results on cloud automatically giving leak locations



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Meter with integral acoustic sensor



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Hydrant cap with acoustic sensor



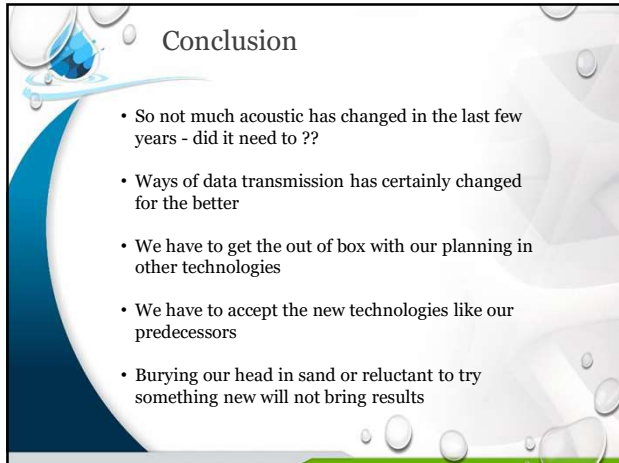
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Multi sensor on service pipes

valve leaks. Sensors can employ acoustic, thermal, electromagnetic, and chemical detection techniques. Each has its own strengths and weaknesses and cost. And not all can precisely pinpoint the location or magnitude of the leak, though the smart technology is getting better all the time.



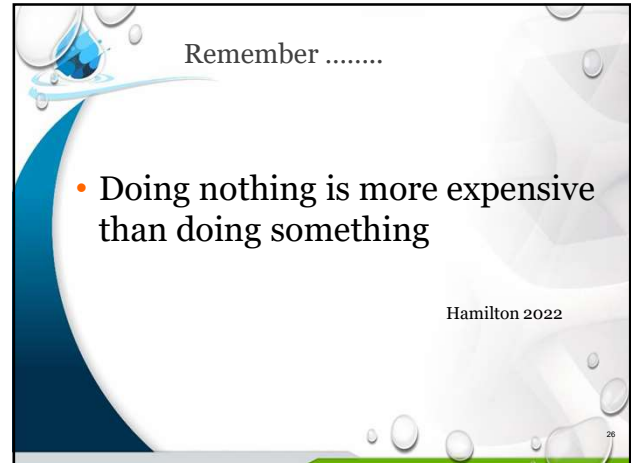
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Conclusion

- So not much acoustic has changed in the last few years - did it need to ??
- Ways of data transmission has certainly changed for the better
- We have to get the out of box with our planning in other technologies
- We have to accept the new technologies like our predecessors
- Burying our head in sand or reluctant to try something new will not bring results

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Remember

- **Doing nothing is more expensive than doing something**

Hamilton 2022

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Thank You

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