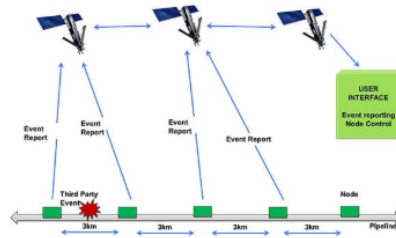


University Of Manchester Case Study

The University Of Manchester is a leading research university focused on achieving real world impact beyond academia. It is at the forefront of tackling disease, poverty and sustainable energy solutions, and pioneers

Key Fact

In Nigeria, oil theft from pipelines accounts for the loss of 20% of Nigerian oil, amounting to \$150 million per day and causing significant environmental damage.



Testimonials

The prevention of oil theft will in turn prevent environmental damage from spilt oil.

Understand

In Nigeria, oil theft from pipelines accounts for the loss of 20% of Nigerian oil, amounting to \$150 million per day and causing significant environmental damage.

The challenge was to develop a system that could provide instant theft warnings. A system such as this would be of enormous value to the oil industry. The solution would also become a strong deterrent to future theft with the threat of a quick detection and response.

The project was a collaboration between TBG Solutions and The University of Manchester funded by the Technology Strategy Board.



Engineer

The system needed to be:

Reliable: able to distinguish between vibration events that are not attacks.

Covert: hard to detect with no visible signs of the installation that would attract attention and reveal the location of the system; preventing tampering or removal.

Wireless: providing independence so that the system is not reliant on a single link, which can be costly and unsecure.

Robust: requiring no servicing for many years while the system is operational.

The wireless (via satellite link) sensor nodes were positioned at 3km intervals along the pipeline. Expandability in design allow the system to be deployed across many hundreds of kilometres. Algorithms were developed that used vibration data to accurately pinpoint theft locations.

Deliver

The finished design was successfully demonstrated across a 1km test loop in Scotland.

The successful implementation of this project would provide Nigeria with a strong method of preventing valuable oil theft and greatly reduce the environmental impact from spilt oil.

