

Water Sewage Pump Remote Monitoring

Country: UK

Industry: Utilities

Solution: IFM motor load sensor, Advantech Gateway and Microsoft Azure IoT Edge and Azure IoT Cloud

Tech Data Services: Architecture and business support services from the IoT team

Business Case

The end customer needed to reduce sewage discharges – “Outfalls”, understand if loads on pumping stations could predict blockages in the network and better maintain pumping stations through predictive techniques. Thanks to that, the end customer could improve reliability and reduce the pollution. Also, reduce fines associated to discharges, enhance their reputation and consequently less clean-up costs.

The project aims to:

- Reduce sewage discharges (“Outfalls”)
- Understand if loads on pumping stations could predict blockages in the network
- Better maintain pumping stations through predictive techniques

The Challenge

- Sensors already exist on most of the pump stations just an extra pump motor load was the only addition required
- 2,500 pumping stations (highly diverse estate)
- SCADA network is tried, tested and trusted so must not be compromised
- But, basic alarm reporting only hence detailed near real time data not possible
- Many sites only have BT leased line for communication and these will soon be unsupported, so alternative comms are also being tested

Solution Overview:

- Created pilot for seven pumping stations must not disturb the SCADA system
- Uses an Advantech edge gateway with mobile data running Microsoft Azure IoT Edge and its connect to the Azure cloud service.

- All in one pre-assembled cabinet to be supplied pre-wired for a quick installation
- Cabinet and system to be installed & commissioned in under one day

Project Outcome:

- Improve prediction of loads on pumping stations and the rest of the network.
- Using Artificial Intelligence and weather predictions
- Predict storm surges
- Pumping stations in the area could pump their reservoirs (known as “Wet Wells”) dry to maximise capacity
- Hence reducing “Outfalls”
- Reduced fines, enhanced reputation, less clean-up costs

Solution Components:

- Intel® Atom™ Processor E3845 1.91 GHz Quad Core
- Or
- Intel® Celeron™ Processor J1900 2.0 GHz Quad Core
- With
- Integrated Intel SoC Chipset
- Built-in 4GB DDR3L 1600MHz
- Graphics Engine Intel® HD Graphics
- Ethernet Intel® i210-IT GbE, 802.1Qav, 802.1AS, 802.3az

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