Case Study: Leeton Council

Providing clean, uninterrupted water supply with the help of IoT

Leeton Council

Who are they?

In the early 1900s, as home to the Murrumbidgee Irrigation Area, Leeton was built to improve food production in Australia. With an abundant supply of water for irrigation, Leeton Shire, along with the rest of the Riverina region, became one of Australia's most agriculturally diverse areas and home to businesses in the food processing and value-added industries[1]. Today, Leeton and the Western Riverina play an important role in feeding Australians and people around the world. Each Murrumbidgee Irrigation Area farmer is estimated to feed 600 people per year, including 450 people through food exports, and contributes to 38% of NSW's vegetable production[2].

As the local population grew, the council needed to provide a reliable uninterrupted supply of clean water to the people and businesses in the region. The Leeton water treatment plant was built in the 1930's, upgraded in the 1960's, and again in 1993. The plant consists of three water supply systems with reticulated services to treat the raw water from Murrumbigee Irrigation's water supply network.

The plant requires round-the-clock monitoring to prevent breakdowns, which must be resolved as quickly as possible. Any failures or lapses could have a major impact on the homes and businesses that rely on access to clean, uninterrupted water supply every day.

Striving to be a smarter shire

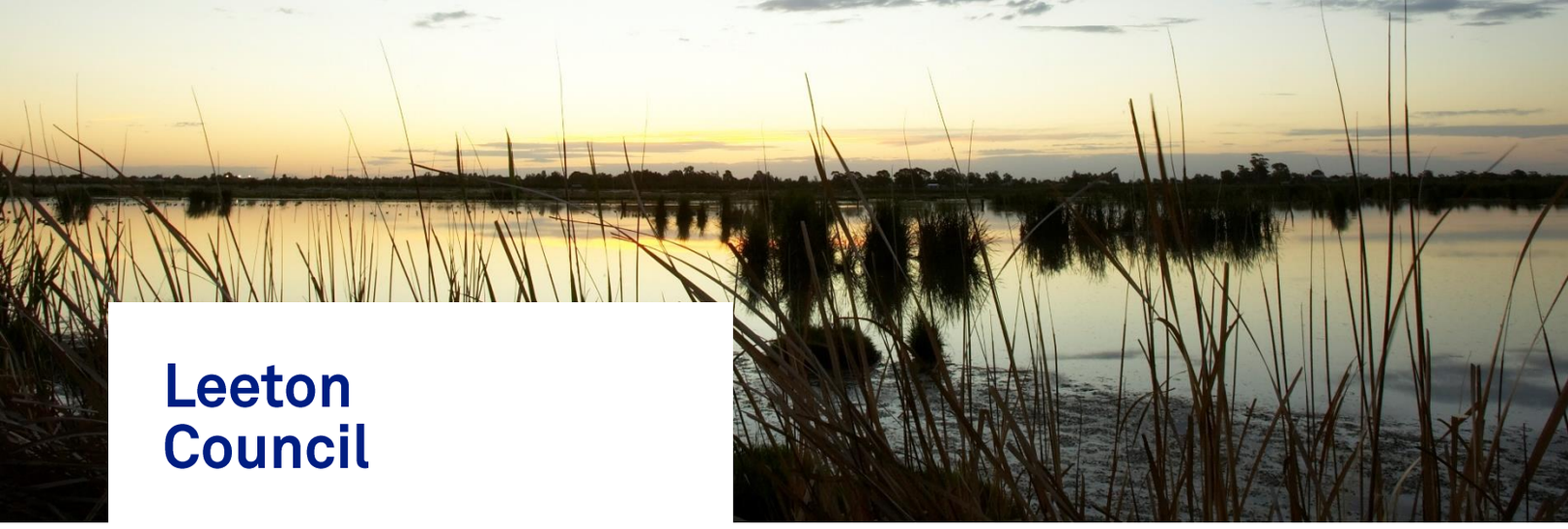
The Leeton water treatment plant undertakes a range of water management systems, including flocculation, sedimentation, filtration, fluoridation and chlorination. Maintaining each individual system requires constant monitoring to optimise efficiency and prevent costly breakdowns.

Since the plant became operational, the council has performed periodic maintenance and upgrades to ensure the plant functions at its best, adding to the council's operational costs. Leeton Shire is committed to becoming a smarter shire by looking for better ways to manage plant maintenance and automate their existing infrastructure.

LEETON SHIRE COUNCIL

[1]http://www.leeton.nsw.gov.au/about-leeton/industry-inverstment.aspxhttps://rdariverina.org.au/s/LSCBAP-A4-2-fin-web.pdf

[2]http://www.leeton.nsw.gov.au/about-leeton/industry-inverstment.aspx



Leeton Council

Moving to an intelligent predictive maintenance model

After a series of discussions and considerations with their subject matter experts, the council turned to technology to help automate equipment monitoring and maintenance via the Internet of Things (IoT).

> *"We were looking for better ways of dealing with aging infrastructure, poor productivity, and increasing operational costs and landed on seeking an equipment monitoring solution. Our task was to find a partner who was well established, technologically effective, and affordable,"* said Gerard Simms, IT Manager at Leeton Council.

Telstra recommended trialling MOVUS FitMachine®, a predictive maintenance solution that utilises sensors, communications, and artificial intelligence into one platform providing digital oversight across a wide range of fixed rotating assets such as heating, ventilation, air conditioning, cooling towers, pumps, fans, blowers, compressors and motors.

> *Telstra's solution brought together the elements we needed to easily adopt a preventative maintenance solution,"* said Gerard.

First, an industrial sensor is magnetically attached and installed to equipment in minutes, generally without interfering with machine runtime.

Data collected is sent to the FitMachine Machine Cloud Dashboard - a central application for viewing and analysing machine health, degradation, utilisation, and energy. This provides the council with near real-time insights assisting them to transition from reactive/preventative maintenance practice into preventative/condition-based maintenance.

Finally, the AI engine analyses sensor data at five-minute intervals to identify the early warning signs of failure. By ingesting thousands of data points every hour, trends can be identified and managed promptly by the council. The solution also includes a mobile application (iOS/Android) used to register the FitMachine Sensor to the MOVUS MachineCloud platform.

> *"The sensor technology is simple to use and install; it's just like a big magnet that you stick onto your equipment and you're ready to go live and start monitoring in the dashboard,"* said Gerard.

MOVUS FitMachine® can connect via LTE-M on the Telstra IoT Network or WiFi. For Leeton Council connecting via their existing Wi-Fi infrastructure proved the most attractive option. Condition monitoring data of the equipment received over-the-air (OTA) empowered the council to monitor the systems in near real-time. Potential breakdowns are predicted and notified via alerts and notifications to the control centre. This mitigates the risk of a total system shutdown which may cause loss of resources and time.

LEETON SHIRE COUNCIL

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Data-driven decisions made possible with IoT

Telstra's partnership with predictive maintenance provider, MOVUS, is helping Leeton Council to continuously monitor its water treatment plant, empowering the council to make better and quicker maintenance decisions and mitigate against the risk of plant breakdowns and water supply interruptions. An example of how this worked in action for Leeton Council was a 2018 Christmas day call out:

"Our mechanical maintenance team was called out at 10am on Christmas Day due to our main lift pump out of the filtration plant not working. Being a hot day the demand for water was high. The backup pump running was barely keeping up with demand and levels in the water towers were starting to fall. Diagnosis of the problem needed to be fast to eliminate possible causes for the big pump to fail," said Gerard.

"The team arrived to find the main pump out of action and a check of the MOVUS dashboard revealed no mechanical faults with the main pump, which meant the team quickly narrowed the problem down to an electrical fault."

"The team called on the help of our electrician who quickly found the issue to be a faulty contactor and changed it immediately. This saved our mechanical maintenance team hours of time trying to diagnose the problem, but most importantly it helped us to avoid interrupting water supply to homes and businesses on one of the most demanding days of the year," said Gerard.

Implementation of Telstra's MOVUS FitMachine® solution is helping Leeton Council reduce operational costs, increase plant efficiency and better utilise resources.

"The solution is helping us move from a periodic maintenance model, to an as-needed maintenance model, and the data made available to us through the dashboard helps us make better and faster decisions. Telstra's team is available for support and meets our expectations; at times, even exceeding it," said Gerard.

"We plan to use the MOVUS technology and sensors to help determine when to schedule our pumps for periodic maintenance. Our data shows that will help us save approximately $50,000 in maintenance costs per each of our two pumps per every year by servicing them only when required," said Gerard.

"This is the first, and a very important first step in Leeton Council's IoT journey. As we move forward we see Telstra as a reliable, provider for all our future IoT needs."

Contact your Telstra account representative for more details.

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