CONTINUOUS WATER QUALITY MONITORING & ANALYSIS

SUMMARY

Human ingenuity and innovation seem to have no limits. We went to the moon, took the first photo of a black hole, and invented the cupcake. But none of these would be possible if it weren't for a basic resource many of us often take for granted: clean, drinkable water.

When you think about it, it isn't obvious that the water coming out of your kitchen's tap is safe to drink. Our ingenuity has the significant byproduct of pollution, and the difference between quenching your thirst and low-key developing cancer is one a lot of research and quality management is done to keep separate.

How do you know your water is safe to drink?

CHALLENGE

Generally speaking, determining the drinkability of any water source involves testing its chemical composition, such as its pH (acidity), whether it contains toxins such as microplastics, and other variables such as temperature. A qualified scientist takes a sample from a water source every so often, analyzes it, and compares it with the recommended standards of a reputable organization, such as the WHO or the USEPA.

If any variable deviates from the standard, the water is deemed undrinkable. If none of them do, you can go ahead and hydrate to your heart's desire. Easy peasy.

Well, not so fast.

How often is "every so often"? If pH was low yesterday, for example, can we really be sure it's still low today? Is this a risk we can afford to take? Water quality data is too important to be periodically tested. It needs to be monitored continuously.

This means our scientist's task must instead be carried out by machines, which don't experience work-disrupting needs such as "feeling tired" How complicated would it be to implement such an automated system, and just how costly would it be?

SOLUTION

The simple answer is: not that much.

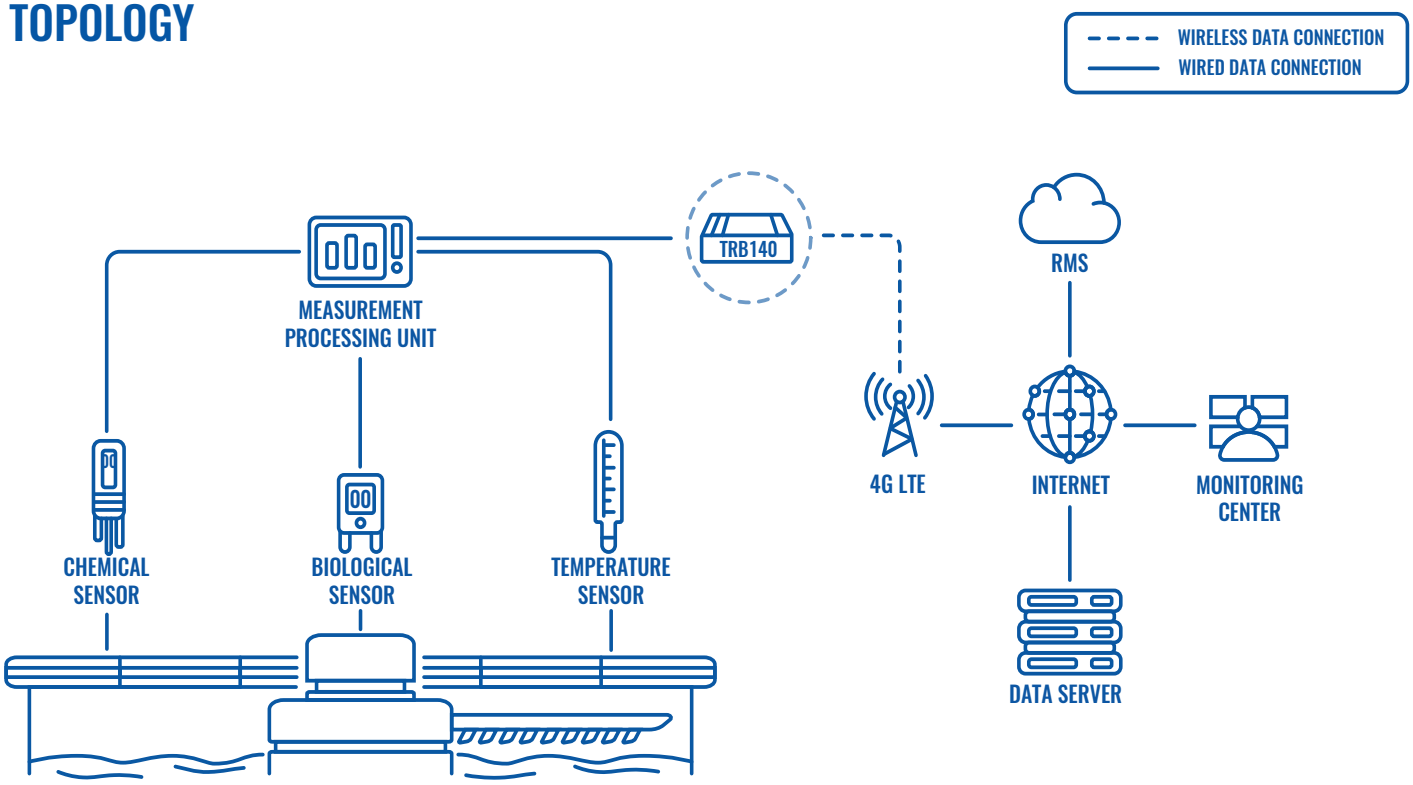
The continuous sampling and calculation can be done by a sensor equipped with a measurement processing unit. That sensor would need an internet connection to send the data to a server for storage and send alerts to personnel whenever the analysis finds a critical deviation from the acceptable standards.

When the water source is a relatively urban area with good cell reception, that internet connection is easy to establish. When it's in the middle of nowhere, where only wild animals tread – not so much. This is when an industrial gateway, such as our TRB140, must be included in the setup.

This gateway is very small and boasts an OpenWRT-based operating system, making it a highly customizable and easy-to-install Swiss army knife of a connectivity device.

Compatibility with our Remote Management System (RMS) enables the TRB140 to be managed remotely, a crucial feature for use in remote water sources that would otherwise require a substantial amount of traveling and related costs to operate.

TOPOLOGY



BENEFITS

• The TRB140 provides a stable and reliable cellular internet connection at an affordable cost without adding setup complexity.

• Designed with flexibility and compatibility in mind, this device is small in size and includes an OpenWRT-based operating system, allowing it to fit perfectly in a variety of solutions that struggle with applying more conventional, less flexible devices.

• RMS compatibility makes this gateway shine even brighter in IoT solutions in remote locations while including extra security features such as SMS control, firewall, VPN, and IPsec.

WHY TELTONIKA NETWORKS?

It's easy to take certain aspects of modern life for granted. It's a sign that things are working seamlessly behind the curtain, so much so that we simply get used to it. But it isn't obvious – it's the result of a seamless IoT solution working perfectly.

This seamlessness is a feature of our device portfolio and one we keep in mind from the very beginning of design to the last measure of quality assurance. When you choose Teltonika Networks, you choose that seamlessness.