UNLOCKING THE AUTOMATION OF CENTER-PIVOT IRRIGATION SYSTEMS

HIGHLIGHTS

- Center-pivot irrigation systems are a great way to use water resources where exactly needed, reduce water consumption rates, and offer farmers convenience and efficiency. But to maximize their potential, they must be connected to a network for remote access, management, and control.
- Since crop fields are located in rural areas, providing network connectivity for the irrigation system isn't an easy task. Luckily, we have just the right router for that – RUTX11.
- With a cellular connectivity option, carrier aggregation feature, and other perks like GNSS and multiple interfaces, RUTX11 is sure to equip the entire irrigation solution with robust, uninterrupted connectivity that enables remote access, saving farmers tons of labor costs and time.

THE CHALLENGE – OUTDATED IRRIGATION

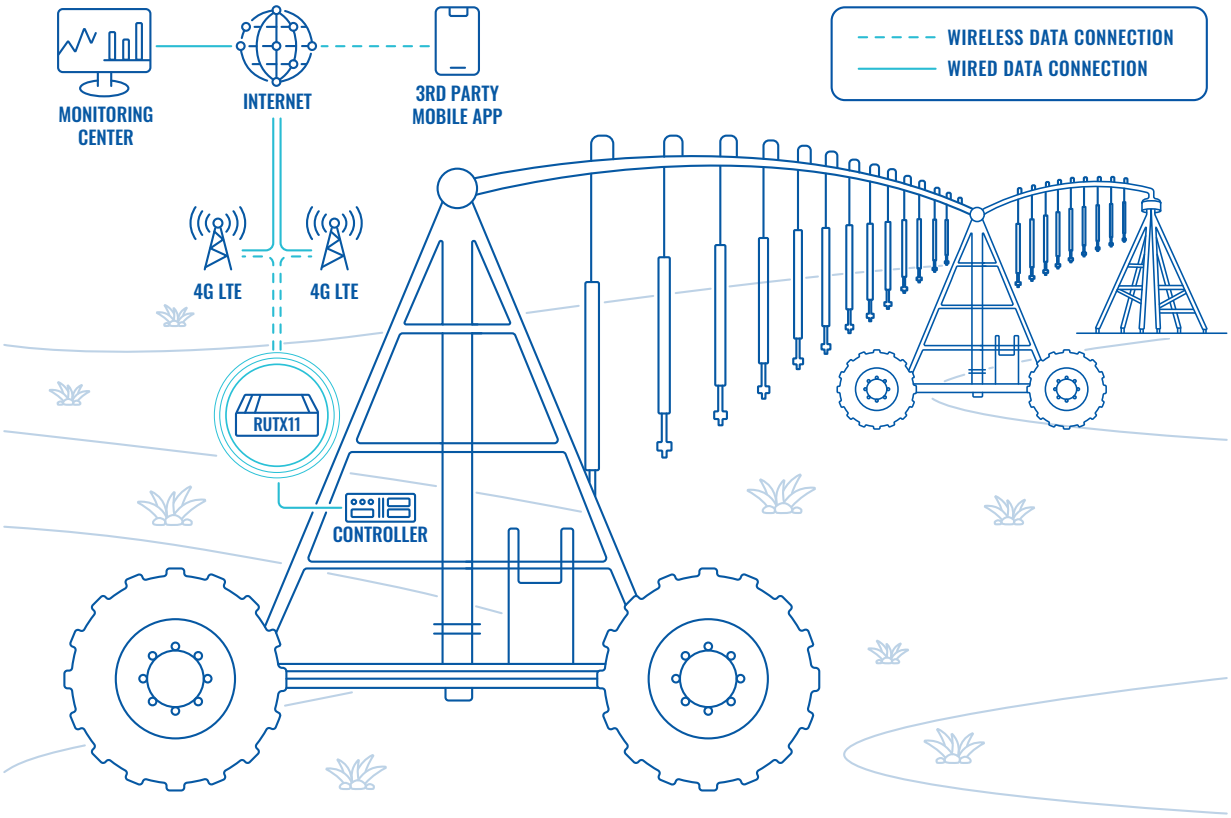
Every living creature on our planet relies on water to survive. Despite its fundamental role in our environment, ecosystems, and food supply, the ways we treat water resources aren't necessarily the smartest. Current water consumption statistics reveal that agriculture takes up to 70% of all global water withdrawals. However, this percentage is estimated to only increase, as we're about to welcome 2 billion more people into the world by the end of 2050.

And yes, it makes sense that this amount of water gets dedicated to growing crops we feed farm animals with. Still, a whopping 40% of the water farmers use in their crop fields gets wasted due to outdated and poorly thought-out irrigation practices.

Luckily, there are ways to solve this issue, one of them being center-pivot irrigation systems. These can reduce water consumption by automating the entire crop field irrigation process, including applying fertilizers and other chemicals to crops. But the potential doesn't stop there.

With the help of network connectivity, such systems help farmers save time, reduce labor costs, and increase efficiency by providing remote access to the system. This allows irrigation scheduling based on specific criteria or environmental conditions. However, achieving such cool things isn't easy, as crop fields are located in rural areas without excellent network coverage. That's why a solution like this must be equipped with the best network connectivity devices.

TOPOLOGY



THE SOLUTION – PIVOTING TO AUTOMATION

A perfect candidate for enabling M2M communication and providing robust network connectivity is our RUTX11 cellular router that rings all the bells and whistles. First and foremost, with the ability to have cellular connectivity as the primary Internet source, RUTX11 is sure to provide the entire center-pivot irrigation system with a robust and uninterrupted network – even in the countryside. The router also offers a carrier aggregation function, allowing the merging of two bands for a significant boost in data transmission bandwidth. This technology further increases the network's reliability with improved coverage and stability, crucial for solutions located in remote areas.

But what exact opportunities does such reliable network connectivity provide? The number one benefit of robust network connectivity is the ability for the entire system to perform M2M communication and exchange data between pivot's controllers, monitoring center, and third-party apps. This makes the entire irrigation system's status and data visible remotely. Farmers can then track, control, and make adjustments to the system without needing to travel to each irrigation system point. Controlling the operating times of components, as well as monitoring a myriad of data, can be done anywhere, anytime!

Another cool thing about RUTX11 is its GNSS feature, which is especially relevant for farmers with many irrigation systems spread across the fields. If one pivot happens to stop working, it can send corresponding notifications to the monitoring center and, thanks to GNSS, provide its exact location. This can help farmers quickly and conveniently identify which pivots have stopped working and take appropriate action to the call. Our router also has many different interfaces, such as I/Os, Ethernet, and a USB port, which can be used to connect serial devices using a USB-to-Serial converter. These interfaces make the device easily applicable to multiple pivots that might require different interfaces.

Such a solution not only helps cut water consumption costs and thus lower the percentage occupied by global water withdrawals, but it enables the farmers to perform their day-to-day tasks much more efficiently.