

CELLULAR ROUTER FOR AI BIODIVERSITY AUTOMATED CARE

HIGHLIGHTS

- ✔ [RoboticsCats](#) is a developer of computer vision, AI and robotics technologies from Hong Kong that provides early wildfire detection and environmental monitoring products.
- ✔ In collaboration with the Hong Kong Bird Watching Society, RoboticsCats developed the AI Biodiversity-Care system. This networking solution utilises covert surveillance cameras to monitor a popular habitat for migratory birds 24/7 and automatically alert personnel if trespassers or signs of forest fire are detected.
- ✔ Enabling this outdoor solution is our RUT951 cellular router, equipped with dual SIM WAN failover functionality, IPsec protocol support, SIM command for automatic reboots, and a host of features for easy remote management and control of the networking solution.

THE CHALLENGE – THE ABCS OF BIODIVERSITY

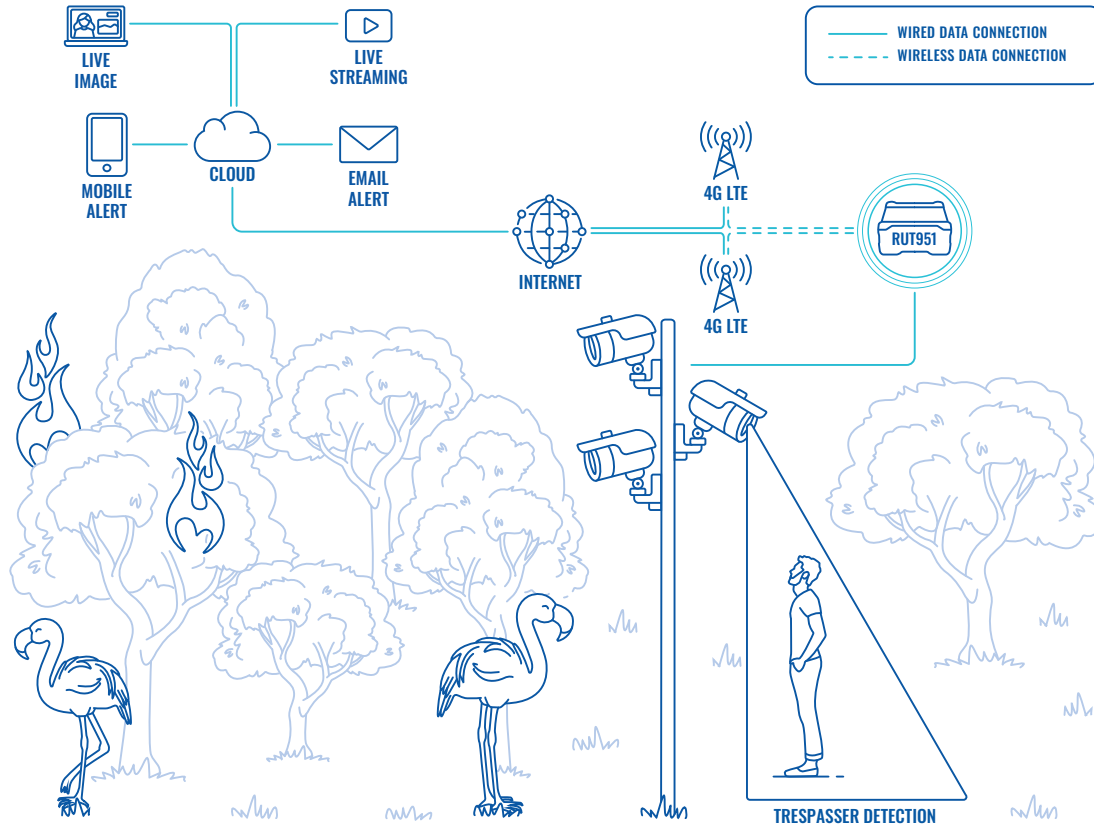
Since 1970, the average size of wildlife animal populations worldwide [has declined by 69%](#). Given these percentages, it's no surprise that wildlife and biodiversity conservation efforts are doing everything they can to combat this trajectory.

The [Hong Kong Bird Watching Society](#) (HKBWS) is a good example of this. Established in 1957, HKBWS raises awareness and promotes action by organising local birdwatching activities.

To ensure these activities do not interfere with the birds, HKBWS teamed up with RoboticsCats to deploy the AI Biodiversity-Care system (ABC) at a fish pond managed by HKBWS, as it is a popular habitat for migratory birds during winter and spring. This system utilises covert surveillance cameras to monitor the birds 24/7 and automatically alert personnel if trespassers or signs of forest fire are detected.

Of course, such a system requires robust and reliable connectivity for real-time detection and video streaming. Ensuring automated, high-availability operation and remote management of this outdoor solution is paramount for its success. In other words, an industrial-grade and feature-rich cellular router is needed.

TOPOLOGY



THE SOLUTION – WILDLIFE PROTECTION CELLULAR ROUTER

RoboticsCats chose the Teltonika Networks RUT951 industrial cellular router for its ABC outdoor solution. Connected to the CCTV cameras via Ethernet, this 4G router provides reliable and seamless LTE Cat 4 connectivity for both video streaming and automatic alerts. This connectivity is further boosted using a rooftop SMA antenna for improved mobile signal reception.

Integral for this networking solution is the RUT951 being no mere router with a SIM card: it has 2 SIM card slots, enabling WAN failover that automatically switches to an available backup carrier connection in case one of the cards fails.

In addition, RoboticsCats relies on the RUT951's robust VPN support, and the IPsec protocol in particular, for secure site-to-site remote control of the outdoor solution from its office, where the RUTX11 cellular router is used.

It also uses the Auto Reboot feature of RutOS to automatically reboot the cellular router if either the connection or the IPsec VPN is unstable. Manual reboot via SIM command is also possible. After rebooting, the device automatically emails the RoboticsCats engineering team, helping them respond to unexpected incidents quickly. Overall, this automates network management and improves remote site operations.

The RUT951 dual SIM card router is encased in aluminium housing with plastic panels and can comfortably operate in temperatures ranging from -40 °C to 75 °C. This makes it more than reliable for deployment in Hong Kong fish ponds as well as by RoboticsCats' partners and customers overseas, using the solution's blueprints.

RoboticsCats standardizes its remote camera network design using Teltonika routers and shares the design blueprint and best practices with its overseas partners and customers.

Just as in wildlife protection, networking solutions benefit from planning failsafe backup plans. A dual SIM card router offers a level of connection reliability without which an automated AI system cannot operate reliably. The RUT951 is therefore the perfect device for ensuring smooth operations.

