GTAC Riomesh Field Day

30 October – 1 November 2026

Fraser Island / K’gari, QLD, Australia

An off-grid field event for engineers working with remote monitoring, control systems, and industrial automation.

Hosted by GT Automation and Controls | gt-ac.com.au | info@gt-ac.com.au

About the Event

K’gari (Fraser Island) is the world’s largest sand island - and one of Australia’s most remote and diverse landscapes. With no cellular coverage and varied terrain (open beaches, dense forest, hilly inland tracks), it is the ideal proving ground for off-grid mesh radio technology.

The GTAC Riomesh Field Day brings together a small group of engineers, strictly limited to 15 participants, for a hands-on weekend exploring LoRa mesh radio communications and remote I/O control in real-world field conditions.

Each attendee will be issued a Riomesh radio unit for the duration of the event. The mesh network will be our primary communication tool across the island.

What is Riomesh?

Riomesh is an open-source LoRa mesh radio platform for remote I/O and telemetry, developed by GT Automation and Controls. It leverages the open-source Meshtastic radio project as its underlying firmware and mesh networking layer.

Key capabilities:

- Wireless mesh networking with no cellular or Wi-Fi dependency
- Remote control of digital outputs (solenoid valves, relays) over the mesh
- Sensor telemetry (temperature, humidity, power, soil moisture) from remote nodes
- Home Assistant integration via MQTT auto-discovery
- Self-healing mesh routing: nodes relay packets to fill coverage gaps
- OTA firmware updates over the mesh
- Low cost per node - designed for at-scale deployment

Built on the Meshtastic open-source LoRa firmware platform, with custom hardware (T3S3-based PCB) and a Python Home Assistant addon.

Target applications: irrigation automation, mining site telemetry, remote power monitoring, agricultural sensing, and any application requiring remote I/O without cellular infrastructure.

Event Agenda

Day 1 - Friday 30 October 2026

- Afternoon: Arrival at K’gari, check in to accommodation
- 17:00: Welcome session, project overview presentation
- 18:00: Equipment briefing and radio distribution - each attendee receives a Riomesh node
- 19:00: Opening dinner (casual, get to know the group)

Day 2 - Saturday 31 October 2026 (Full Day)

- 07:30: Breakfast, field kit preparation
- 08:30: Field Test 1 - Mesh range on open beach and flat terrain. Measure RSSI, SNR, packet loss at increasing distances.
- 11:00: Field Test 2 - Hilly terrain and tree-cover testing. Node relay placement, mesh routing under obstruction.
- 13:00: Lunch break
- 14:00: Live Demo - Remote I/O over the mesh: valve switching, sensor telemetry, HA dashboard
- 15:30: Technical presentation: LoRa, Meshtastic, Riomesh architecture
- 17:00: Open Q&A; and group discussion
- 19:00: Included dinner - networking evening

Day 3 - Sunday 1 November 2026 (Half Day)

- 08:00: Breakfast
- 09:00: Group repeat of best test from Day 2 - all attendees participate in node placement
- 10:30: Results analysis - review data, discuss findings
- 11:30: Wrap-up presentations and feedback session
- 12:30: Radio collection, depart

Who Should Attend

This event is for engineers and technical professionals who work in environments where conventional communications infrastructure is limited or unavailable.

Target attendees:

- Electrical and Automation Engineers - system designers, integrators, control systems engineers
- Power Industry - utilities, substation engineers, transmission and distribution professionals
- Mining and Controls - underground and surface mine automation, site telemetry, SCADA engineers
- Agriculture - precision irrigation, remote monitoring, smart farming technology
- Remote Monitoring Specialists - anyone solving the 'no cellular' problem for industrial I/O

Strictly limited to 15 participants. Priority given to engineers with active remote monitoring or automation projects.

What is Included

Included in the ticket:

- Accommodation for 2 nights (Friday and Saturday, 30–31 October)
- Saturday evening dinner (networking meal)
- A Riomesh radio unit for the full duration of the event
- All field testing activities and technical sessions
- Access to live Riomesh demo equipment and data

Not included: travel to K’gari (barge/ferry from Rainbow Beach or River Heads), meals other than Saturday dinner.

Vehicle Requirements

High-clearance 4WD is required on K’gari. Observe all road rules, ranger postings, and local council advice. All roads on K’gari are sand or unsealed tracks - standard passenger vehicles cannot access the island.

Attendees should arrange their own 4WD transport or car-pool with other attendees. Vehicles must have lowered tyre pressures for beach driving. Queensland Parks and Wildlife Service (QPWS) vehicle access permits are required - GTAC will advise on group booking.

Data Collection & Consent

By attending the event, you consent to data collection by GTAC for the radio traffic, telemetry, raw messages, and GPS position. This data is used solely for field test analysis and post-event reporting shared with all attendees. No personally identifying information beyond event registration details will be stored or disclosed.

Register Your Interest

Tickets are strictly limited to 15 participants. To request a ticket, visit:

gt-ac.com.au/riomesh-field-day

Or email: **info@gt-ac.com.au** with subject "Riomesh Field Day Ticket Request"

Tickets will be allocated based on industry fit and project relevance.