CELTIC-NEXT
Proposers Brokerage Day

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Pitch of the Project Proposal

Cloud-Integrated BVLOS Drone Ecosystem for Critical Infrastructure

BIRMINGHAM CITY University

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Teaser

Main benefit: Revolutionises infrastructure monitoring with a cloud-based, cellular-controlled drone system for national-scale BVLOS operations.

Added value: 5G/6G integration enables cost-effective, scalable drone management. Centralised cloud Ground Control Station (GCS) increases reliability and reduces infrastructure costs.

Why Participate?
Collaborate with leading industry partners like Network Rail, and DroneCloud.
Shape the future of 5G/6G-enabled drone technology across critical infrastructure.

Organisation Profile

- **Birmingham City University (BCU)** is renowned for its multidisciplinary approach, combining science, technology, engineering, and arts (STEAM) to foster innovation in research and industry collaboration.

- BCU is actively involved in AI/ML and digital infrastructure inspection, contributing to cutting-edge technologies through its strong partnerships with industry and participation in EU-led projects.

- With a focus on practical industry applications, BCU's research centres blend academic rigour with real-world impact, positioning the university as a leader in technology and engineering education.

Proposal Introduction (1)

Vision: Create a cloud-based, cellular-controlled drone ecosystem for national-scale BVLOS operations, transforming the way critical infrastructure (rail, highways, utilities) is monitored and maintained.

Motivation: Current radio-based C2 systems are expensive and limited in range. By leveraging 5G/6G networks and cloud-based control, we aim to enhance scalability, reliability, and cost efficiency in drone operations.

Content: Cloud-based Ground Control Station (GCS) for real-time drone management.
Dual C2 architecture: Combining radio and cellular networks for seamless, long-distance drone control.
Real-time data collection for predictive maintenance and reduced human risk.)

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Proposal Introduction (2)

Expected outcomes:

- Cloud-based BVLOS drone system integrated with 5G/6G networks for infrastructure monitoring.
- Prototype of drones controlled via a cloud-based Ground Control Station (GCS) over cellular and radio networks.

Impacts:

- **Economic**: Significant cost savings for infrastructure maintenance through automated drone inspections.
- **Environmental**: Reduced carbon footprint by replacing traditional methods with drones.

Schedule (36 months):

- Phase 1 (0-12 months): System design, regulatory approvals, and initial development.
- Phase 2 (12-24 months): Prototype development, field testing, and validation.
- Phase 3 (24-36 months): Full-scale deployment, trials, and commercial

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Partners

DroneCloud (UK): It is a SaaS platform providing end-to-end management for drone operations and Uncrewed Traffic Management (UTM).

Birmingham City University (UK): Pioneering RTO active in AI and software engineering

Network Rail (UK): Largest infrastructure owner and operator in the UK

HERO (Austria): It is a certified drone service provider specialising in automated, BVLOS drone operations for infrastructure monitoring, using advanced drones-as-a-service models.

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Contact Info

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Presentation is available via:

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