PolyEdge™ **UAS Detection & Tracking**

Effective Jam-Resistant Unmanned Aircraft System (UAS) & Drone Detection

Tiami Networks is at the forefront of integrating fifth-generation (5G) connectivity with advanced edge computing, revolutionizing how wireless devices interact and function. Our PolyEdge Multifunction Sensor combines data and radar sensing, machine learning (ML), and 5G technology in a single, powerful solution.

PolyEdge excels at offering precise detection and tracking of unmanned aircraft system and other drone movements leveraging 5G as a signal of opportunity. It offers enhanced tracking and surveillance capabilities, has no active transmitters, is jammer resistant, and invisible to radar search.

This compact, self-powered sensor for 5G-Based Passive Radar System for Counter-UAS uses existing electromagnetic energy from high-power cellular transmitters and evaluates their echoes for target detection and tracking when reflected by a UAS or other drone.

PolyEdge Principle

Connect: Our PolyEdge Multifunction Sensor is a versatile node in any 5G infrastructure, offering impressive passive radar functionality. Efficient in various settings, it complies with global industry standards.

Compute: Central to our solution is embedded machine learning, powered by Intel® FPGA technology. This facilitates rapid data analysis and enhances decision-making. The fusion of Intel Agilex® SoC FPGAs with our technology heralds a new era in 5G and edge computing.

Track: We utilize 5G (and 4G and Wi-Fi) as a radar signal of opportunity allowing object detection and movement tracking without direct 5G device interaction.

Operational Frequencies: Our solution utilizes a 2-antenna FPGA operating in the 0.6–3.7GHz range. With multiple operators using 5G we have near-nationwide coverage in the US. OCONUS coverage is expected as 5G is deployed globally.
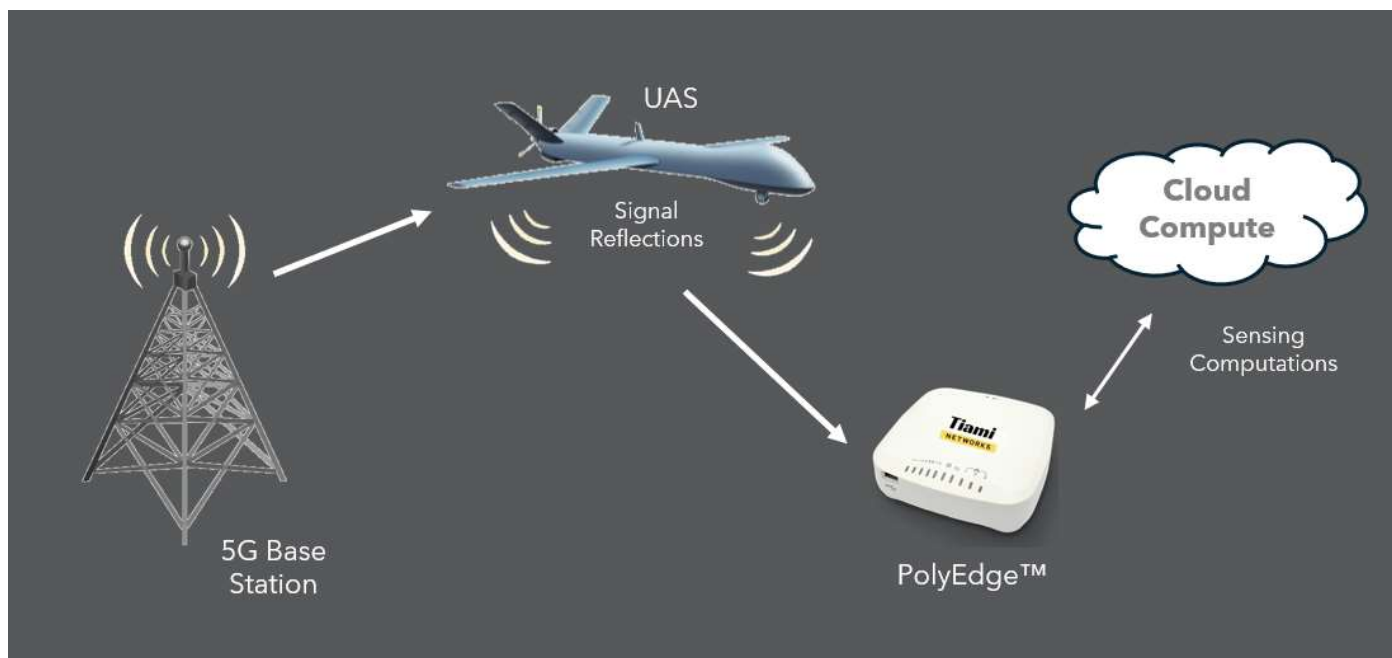
Applications

- Unmanned Aircraft System & Drone Detection & Tracking

- Environment Real-time monitoring

- Environment Perception

- High-Definition Map Collecting and Sharing

Key Characteristics

RF Receiver
- Physical Dimensions: 97x155x15mm (W,D,H)
- External Power: 5V

Host PC
- Physical Dimensions: 350x300x120mm (W,D,H)
- External Power: 110 V

Cabinets
- TS2 Type 1P cabinets

- Intel® FPGA technology
- Intel Agilex® SoC FPGAs
- 5G waveform as a radar signal

Operational Benefits

- Nationwide coverage from multiple network operators (AT&T, T-Mobile, Verizon, etc.)
- No emissions (no active transmitters, invisible to radar search, jammer resistant)
- Air surveillance with automatic spectrum de-confliction (no electro-magnetic pollution)
- Weather independent surveillance
- Remote and stand-alone operation
- Interconnect several sensors into a sensor cluster for extended coverage and accuracy

Tiami
NETWORKS

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