



PolyEdge™ Drone Detection

Effective Jam-Resistant Drone and Unmanned Aircraft System 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 tracking of drone and other unmanned aircraft system movements leveraging 5G sensing. 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-Drone uses existing electromagnetic energy from high-power cellular transmitters and evaluates their echoes for target detection and tracking when reflected by a drone or other UAS.



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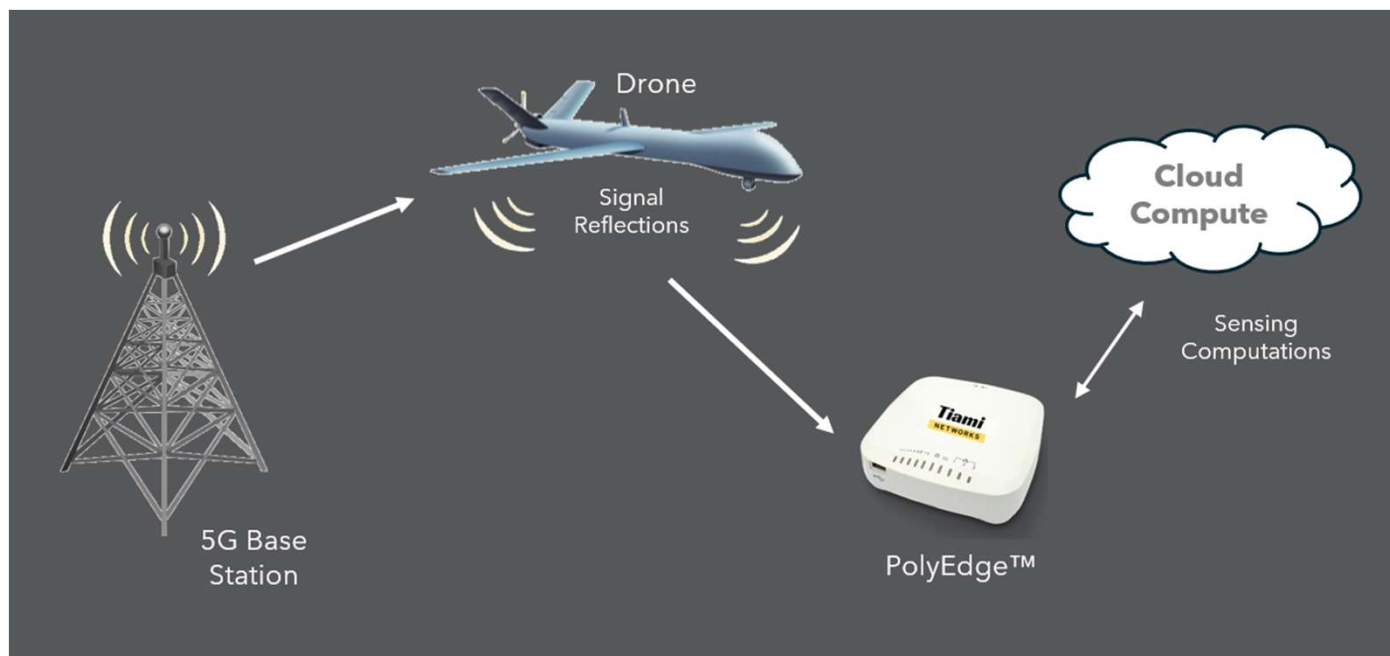
PolyEdge Principle

Connect: Our PolyEdge Multifunction Sensor is a versatile node in any 5G infrastructure, offering impressive 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 Agilinx® 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 and movement detection 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. Coverage beyond the US is expected as 5G is deployed globally.



Applications

- Drone and Unmanned Aircraft System Detection
- 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 Agilinx® 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