



## PolyEdge™ Smart Cities

Empowering Cities with Effective Data without Compromising Privacy

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 is well-suited for Smart Cities, where efficient management of urban infrastructure and services is critical. Its capable of seamlessly blending radar sensing with 5G and Wi-Fi networks, providing real-time data that can enhance city operations.

It excels at occupancy detection in public spaces, traffic monitoring, and environmental sensing, allowing city planners to optimize the use of space, improve safety, and manage resources more effectively.

By detecting and analyzing ambient wireless signals, PolyEdge can track the flow of people and vehicles in urban areas without the need for intrusive surveillance. This data can help improve traffic management, reduce congestion, and inform decisions around public transportation and infrastructure investments.



# PolyEdge™ Smart Cities

## 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 Agilix® 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

- Traffic Monitoring
- Vehicle Classification
- Pedestrian Monitoring - Outdoor
- Person Tracking - Indoor
- Environment Real-time monitoring
- Autonomous vehicles/UAV
- Air pollution monitoring
- Infrastructure-Based Tele-Operated Driving

## 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 Agilix® SoC FPGAs
- 5G waveform as a radar signal

## Operational Benefits

- Monitoring the environment in real time, such as observing traffic and intrusion detection.
- Ensuring self-driving cars and drones can navigate obstacles and follow traffic rules.
- Using technology to assess air quality by analyzing wireless signals.
- Increased security in public spaces.