TECH OFFER

# Ai System For Real-Time Monitoring, Anomaly Detection And Predictive Maintenance

## KEY INFORMATION

TECHNOLOGY CATEGORY:

**Energy** - Sensor, Network, Power Conversion, Power Quality & Energy Management

**Environment, Clean Air & Water** - Sensor, Network, Monitoring & Quality Control Systems

**Green Building** - Sensor, Network, Building Control & Optimisation

**Infocomm** - Smart Cities

**Logistics** - Delivery & Distribution

TECHNOLOGY READINESS LEVEL (TRL): TRL6

COUNTRY: GERMANY

ID NUMBER: TO174554

## OVERVIEW

With the prevalence of Internet of Things (IoTs), urban cities have evolved into Smart Cities, where information is constantly collected and fed into the cloud. Hence, there is a need for a smart grid system that can analyse these data and use it to provide real-time or predictive assistance to citizens and businesses to improve quality of life.

This technology offer is a highly customisable AI system for real-time monitoring, anomaly detection and predictive maintenance.

The AI is able to provide real-time monitoring of desired systems from distribution networks (power, water, and gas) to other applications such as fibre optics cable monitoring. This monitoring system includes an automated detection and localisation of network anomalies and defects based on incoming sensor data. Using data-driven forecast, it is able to provide insights for predictive maintenance and minimise the disruption of the monitored system. The use of this technology is suitable for other cases such as route optimisation, smart mobility and $CO_2$ forecasting.

The technology owner is interested in pilot projects, R&D collaboration as well as to license this technology.

## TECHNOLOGY FEATURES & SPECIFICATIONS

This technology offer is a highly customisable AI system for real-time monitoring, anomaly detection and predictive maintenance. The features and specifications of the technology are as follows:

- Real-time monitoring
- Anomaly detection
- Predictive maintenance
- Data-driven forecast
- Dedicated software algorithms integrated with physical analytics expertise
- Digital Twin simulations
- Conditional route optimization
- User-friendly visualisations

## POTENTIAL APPLICATIONS

The main application for this technology is for industries that requires real-time management, anomaly detection and predictive maintence on their systems. The potential applications includes but are not limited to:

- Power, water, and gas distribution networks
- Optimised sensor positioning
- Smart mobility
- $CO_2$ forecasting
- Route optimisation (eg. Waste or delivery route optimisation etc.)
- Planning tool (eg. Day-ahead and intra-day operation optimisation and long-term scenario simulator)

## MARKET TRENDS & OPPORTUNITIES

This technology allows for customisable solutions that can accommodate different industries needs and requirements. It can also improve both the daily routine operations and long-term strategic development of the industrial adopter.

## UNIQUE VALUE PROPOSITION

This technology offer is suitable to be implemented for both Smart Grid and Smart City.

For Smart Grid solutions:

- Investment-optimised sensor positioning
- Prevention of blackouts via early identification of broken power lines and critical issues. In case of water solution, prevention of water loss due to hidden leakages in water networks
- Significant cost reduction for network expansion requirements
- Predictive maintenance for cable status

For Smart City solutions:

- $CO_2$ emission reduction
- Citizens/customers satisfaction due to better life quality
- Simulation scenarios for parking optimisation
- Simulation scenarios for waste management
- Long term strategic planning