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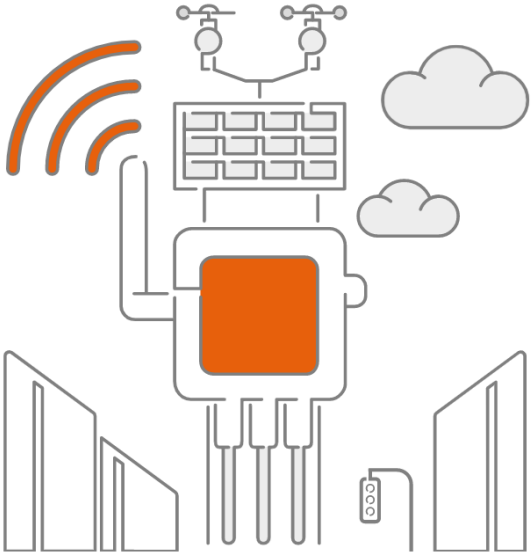
Cloud Dev Kit

What might a Smart City involve?

- Outdoor air quality, pollution
- Indoor air quality
- Noise levels
- Water quality
- Floods, spills and leaks
- Parks and green areas
- Traffic and mobility
- Pedestrians traffic
- Social distance and capacity control
- Parking spaces
- Lighting
- Buildings
- Waste management
- Garbage trucks and containers
- Public service vehicles
- Public transport capacity

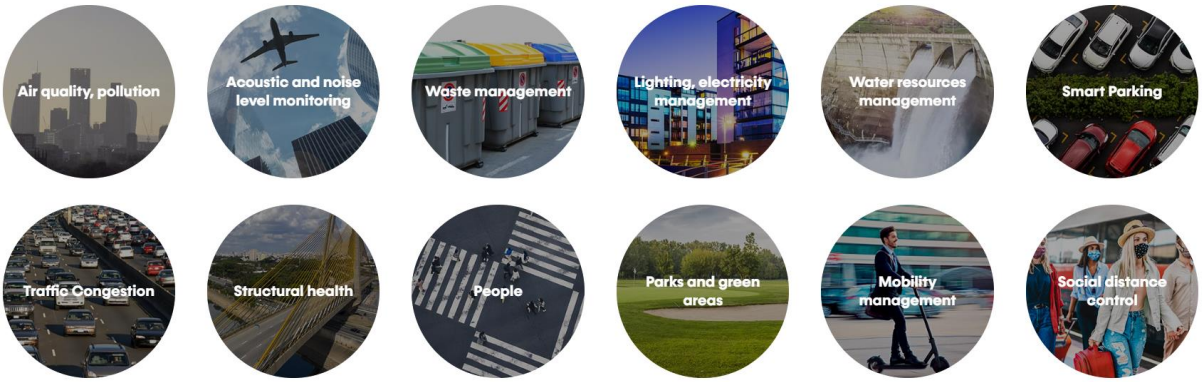


IoT Solution for Smart Cities

What can be measured?

- Air quality, pollution
- Noise levels
- Waste management
- Lighting
- Parking
- Buildings
- People
- Parks and green areas

Applications of IoT technology for Smart Cities



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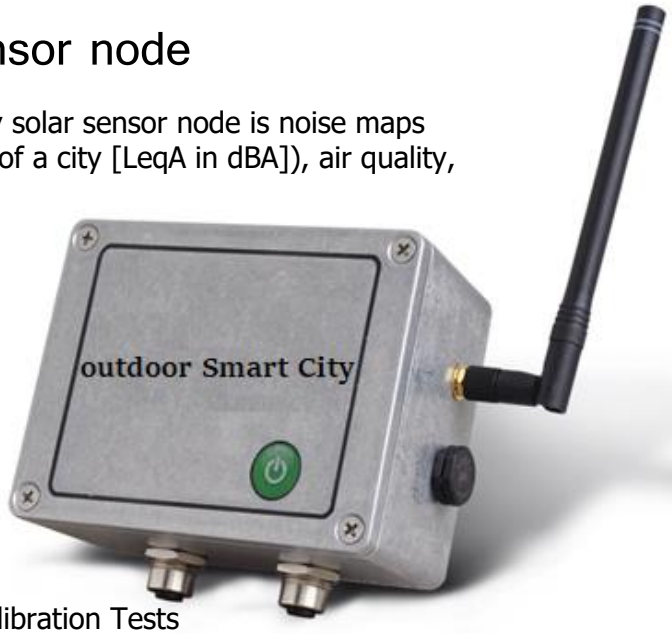
IIOT smart outdoor gateway

CPU cores	4
CPU architecture	64 bits
CPU frequency	1 GHz
RAM	2 GB DDR3
Storing	SSD disk 16 GB
Linux Kernel	3.16
WiFi	a/b/g/n (up to 144 Mbps)
Cellular	Up to 42 Mbps downlink
Geolocation	GPS + GLONASS*
Power consumption	~ 15 W
Enclosure (mm)	255 x 225 x 80
Certifications	CE (Europe) / FCC (US) / IC (Canada) / ANATEL (Brazil) / RCM (Australia) / PTCRB (US) / AT&T (US)

Soil moisture (3 depths)
Soil temperature
Leaf wetness
Solar radiation (PAR and UV)
Atmospheric pressure
Stem, truck and fruit diameter
Anemometer
Wind vane
Pluviometer
Air temperature
Air humidity
Luminosity (Luxes Accuracy) for Smart Lighting
Ultrasound (distance measurement)

IIOT outdoor Smart City solar sensor node

The main applications for this IIOT outdoor Smart City solar sensor node is noise maps (monitor in real time the acoustic levels in the streets of a city [LeqA in dBA]), air quality, waste management, smart lighting, etc.



Material	polycarbonate
Sealing	Polyurethane
Cover screws	stainless steel
Ingress protection	IP65
Impact resistance	IK08
Weatherproof	true - nach UL 746 C
Temperature	-30 °C to 70 °C
Approximated weight	800 g

Sensors supported :

- Noise / Sound Level Sensor (dBA / LeqA) + Calibration Tests
- Particle Matter (PM1 / PM2.5 / PM10) – Dust Sensor
- Carbon Monoxide (CO) [Calibrated] (low concentrations)
- Carbon Dioxide (CO2) [Calibrated]
- Molecular Oxygen (O2) [Calibrated]
- Ozone (O3) [Calibrated]
- Nitric Oxide (NO) [Calibrated] (low concentrations)

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- Nitric Dioxide (NO2) [Calibrated] (high accuracy)
- Sulfur Dioxide (SO2) [Calibrated] (high accuracy)
- Ammonia (NH3) [Calibrated] (low and high concentrations)
- Methane (CH4) [Calibrated] – and other combustible gases
- Hydrogen Sulfide (H2S) [Calibrated]
- Temperature
- Humidity
- Atmospheric pressure
- Luminosity (Luxes Accuracy) for Smart Lighting
- Ultrasound (distance measurement)

IIOT outdoor Smart Agriculture solar sensor node

IIOT outdoor Smart Agriculture solar sensor node is designed for monitoring vineyards to enhance wine quality, determining selective irrigation on golf courses and monitoring conditions in greenhouses, among others.

Sensors supported :

- Soil moisture (3 depths)
- Soil temperature
- Leaf wetness
- Solar radiation (PAR and UV)
- Atmospheric pressure
- Stem, truck and fruit diameter
- Anemometer
- Wind vane
- Pluviometer
- Air temperature
- Air humidity
- Luminosity (Luxes Accuracy) for Smart Lighting
- Ultrasound (distance measurement)

IoT Solution for Water Management

What water quality projects look for...

↑ Increases

- Recaptured revenue
- Coordination and synergies between stakeholders
- Predict potential failures
- Manage pressure and consumption

↓ Reduces

- Up to -10% reduction in water consumption per capita
- Reduced leakage: -20% wastage reduction
- Reduced billing
- Cut down costs: maintenance, repairs and energy

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