TMA solutions

TMA IoT Center

15 years of experience

Customers from **10** countries

400+ engineers

20+ products

50+ projects

Why TMA

End-to-end services: Testing | Deployment | Customer support

Experienced with latest embedded technology

Partnership with large embedded tech firm

Strong foundation, easy to scale

Flexible project model on choice: ODC | Fixed price | TaaS

Development Model

Full-cycle IoT Development
Transform your idea into ready solution with our end-to-end software development services

IoT Integrations
Ensuring software platform is compatible with existing infrastructure and legacy equipment

IoT Acceleration
Use our IoT accelerator to manage device connectivity based on predefined scenarios

User App Development
Manage devices' data with native mobile and web applications powered by an intelligent UX

Technologies

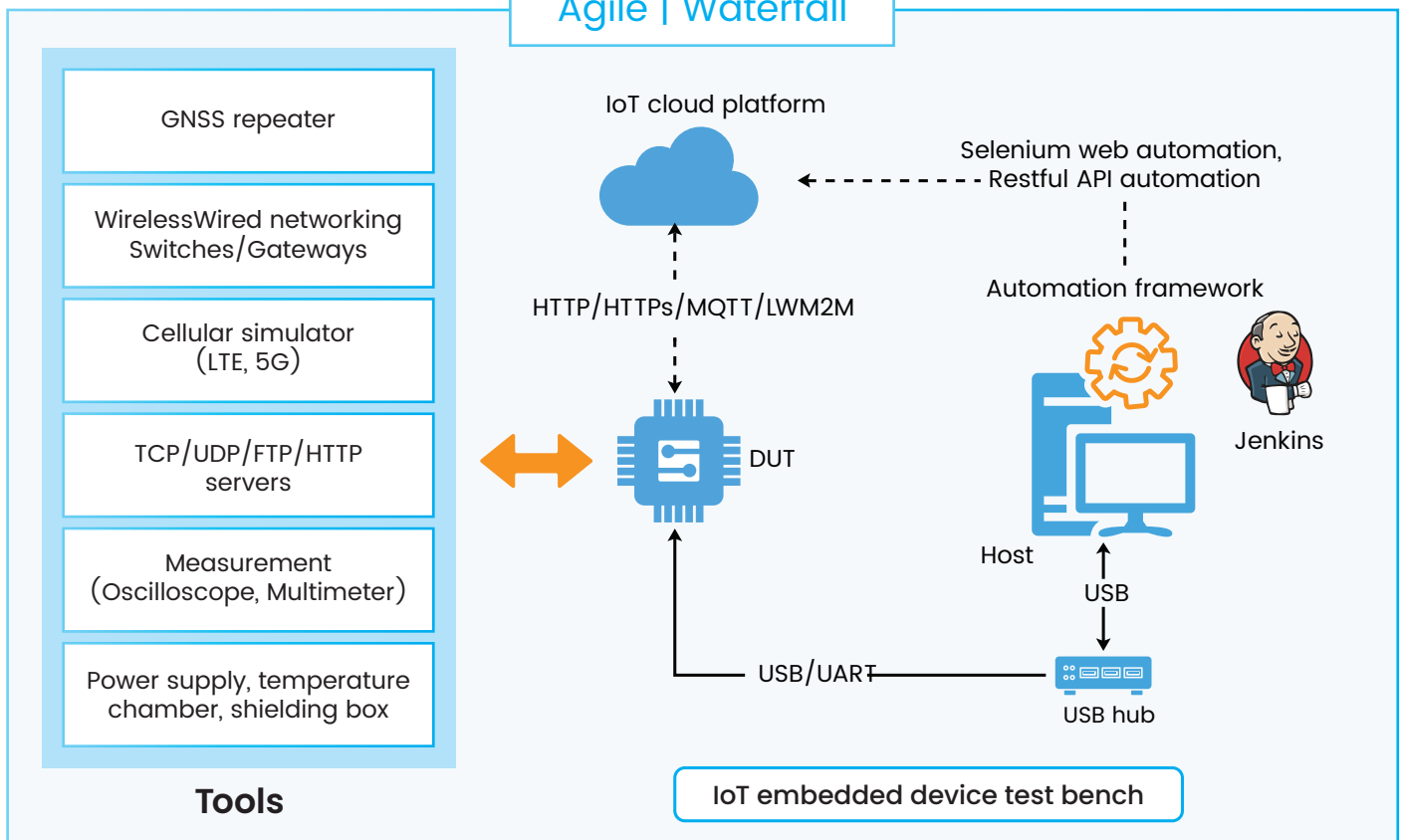|	
Programming	Edge computing, C/C++, Python, Java
OS	Android, RTOS, Yocto, Windows IoT Core, Linux, Raspberry Pi OS
IoT platform	AWS IoT, Google Cloud IoT, Azure IoT Hub, Sierra Wireless Legato/Octave, Thingsboard
Communication	2G/3G/4G/NBIoT/5G, Bluetooth/BLE, Wifi, LoRa/LoRaWAN, Modbus, CAN, LIDAR, SLAM, MQTT, CoAP, LWM2M, AMQP
Hardware	Arduino, ESP, NVIDIA Jetson, Google Coral, Raspberry Pi, Google Coral, Xilinx, Sierra Wireless FX30, STM/ ARM/ AVR/ TI
Devices	Mobile, sensor, GPS, light therapy device, Beacon, electronic plug ARM, Ar7240, RT-Linux, Android

IoT Testing

What we offer?

Verification and validation for firmware and applications running on IoT embedded modules (2G/3G/4G/5G cellular, WIFI, Bluetooth, GNSS) with automation level > 70%

Development Model

Agile | Waterfall

Tools

- GNSS repeater
- WirelessWired networking Switches/Gateways
- Cellular simulator (LTE, 5G)
- TCP/UDP/FTP/HTTP servers
- Measurement (Oscilloscope, Multimeter)
- Power supply, temperature chamber, shielding box

IoT cloud platform

Selenium web automation, Restful API automation

HTTP/HTTPs/MQTT/LWM2M

Automation framework

DUT

Jenkins

Host

USB

USB/UART

USB hub

IoT embedded device test bench

Black-box test type

- Black-box test type: functional, performance, stress test, end-to-end testing.

Application Testing

- C/C++ API testing
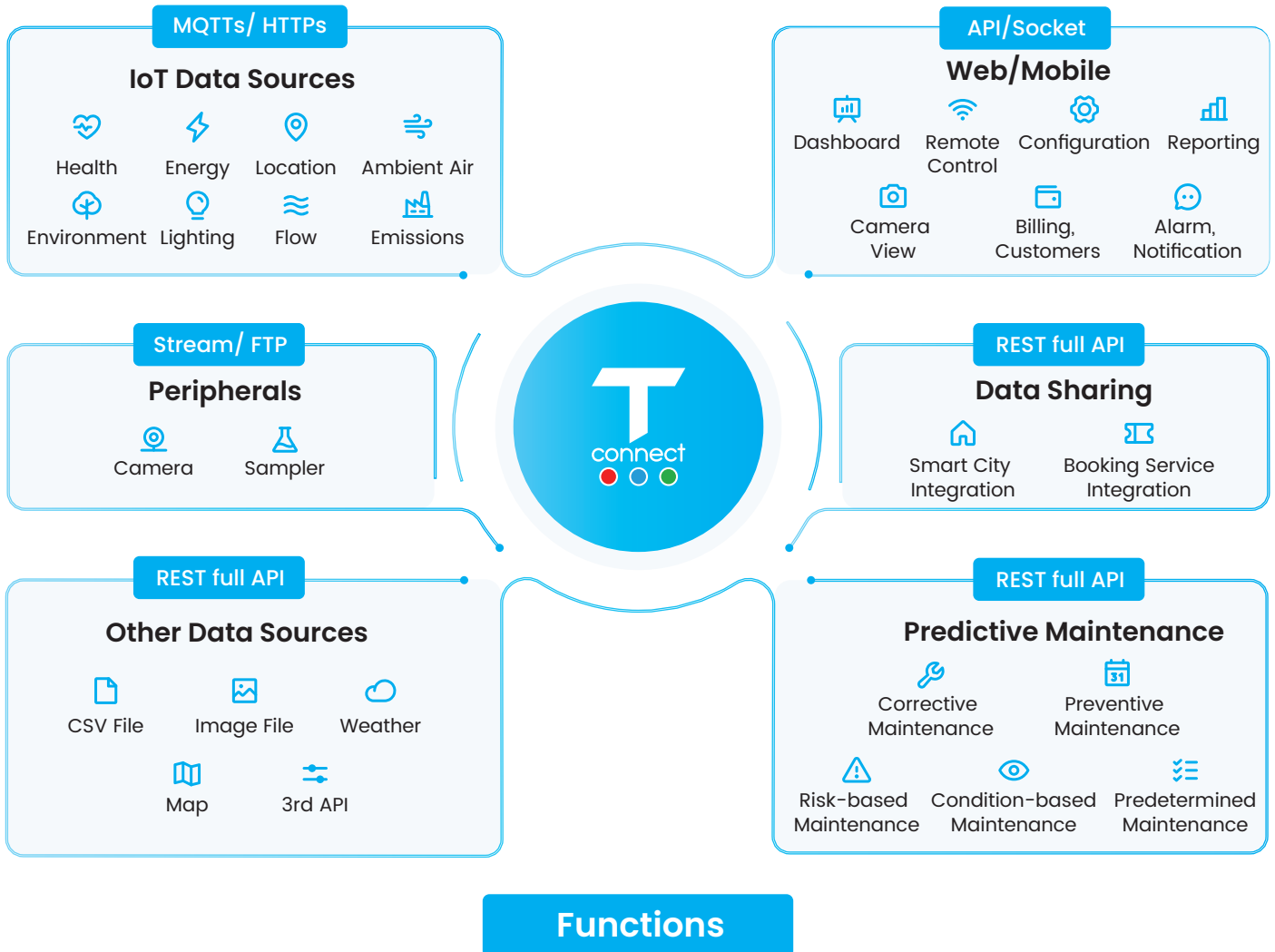
Firmware Testing

- Testing for AT commands based on ITU V.25 ter, 3GPP specifications and manufacturer's specifications.
- IoT cloud interaction testing: device management, firmware-over-the-air (FOTA), software-over-the-air (SOTA).

T-Connect

T-Connect is an **IoT platform** that helps customers build an IoT project quickly, based on existing hardware, connectivity, and functionalities.

MQTTs/ HTTPs
IoT Data Sources
- Health
- Energy
- Location
- Ambient Air
- Environment
- Lighting
- Flow
- Emissions

API/Socket
Web/Mobile
- Dashboard
- Remote Control
- Configuration
- Reporting
- Camera View
- Billing, Customers
- Alarm, Notification

Stream/ FTP
Peripherals
- Camera
- Sampler

REST full API
Data Sharing
- Smart City Integration
- Booking Service Integration

REST full API
Other Data Sources
- CSV File
- Image File
- Weather
- Map
- 3rd API

REST full API
Predictive Maintenance
- Corrective Maintenance
- Preventive Maintenance
- Risk-based Maintenance
- Condition-based Maintenance
- Predetermined Maintenance

Functions

Equipment management
Data collection, real-time device controlling

Responsive dashboards
Customize the dashboard interface according to the needs of the project

Rule setting
Easily set rules, thresholds and schedules

Integrated cameras
An integrated variety of IP/WIFI cameras

Integrated multiple alarm channels
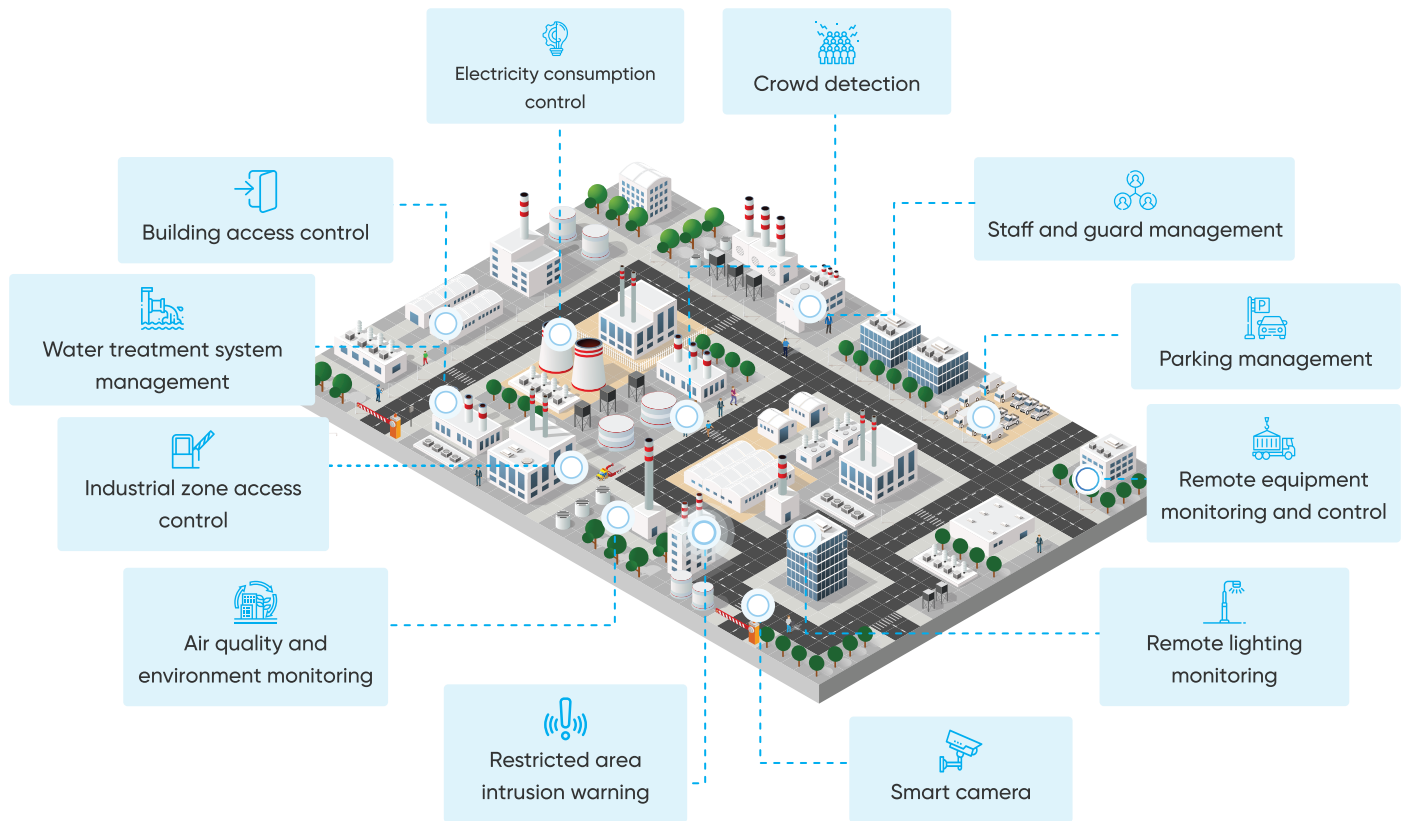Integrated alerts via SMS, call, Skype, Zalo

Risk forecasting analysis
Analyze data to predict possible risks

Smart Industrial Park

Electricity consumption control

Crowd detection

Building access control

Staff and guard management

Water treatment system management

Parking management

Industrial zone access control

Remote equipment monitoring and control

Air quality and environment monitoring

Remote lighting monitoring

Restricted area intrusion warning

Smart camera

Machinery and equipment are optimized, automated and remotely controlled to reduce operating costs.

Facial recognition feature, automatic alert system prevent strangers from entering to ensure security and safety.

Container's refrigeration system is remotely controlled to reduce the risk of damaged goods

System automatically sends warnings to timely solve any problem and avoid causing damage to equipment.

Smart Building

Business Building

Recognize employees, customers, strangers by using FaceID to ensure security and safety of buildings.

Easily manage the list of employees, deparments, customers and meetings

Employee timekeeping. Grant access permission. Manage, report the time and history of access.

Resident Building

Smart lockers support residents when they are not available to receive delivered goods.

Support multiple building access methods: QR code, FaceID...

Track access history. Remotely open/close doors. Ensure security and safety of buildings.

Easily receive notifications from management staff (electricity, water bill...). Enhance the value of buildings.

Case Studies

Embedded IoT Modules & SIMs

Connect to devices & machines of IoT system such as public safety, telematics, mission-critical networking applications; rapidly provide cellular connectivity to Cloud

Heavy Vehicle Management

Manage heavy vehicles via IoT device (Web and App). Collect data. Automatic triggering alarm based on different events. View and locate devices on Google map

Inventory Monitoring

An energy-saving GPS tracker system. Search for assets by using the web or mobile app and get an overview of all locations with the asset map

Mobile Access Controller - Management Centre -

A fleet management system that helps their customers in fleet planning, streamlining operations, and monitoring fleet location

Bus Monitoring System

Monitor the location of buses in real-time, calculate the number of passengers getting on/off the bus, analyze their age and gender

Dryer Machine Optimization

Fully automate and remotely control dryer machine. Real-time data collection. Predict relative amount of water

Emergency Monitoring & Responding System

Allow users to receive instructions, alerts and declare alerts through screens on watches. Utilize BLE technology and the LoRa protocol for communication between the cards, devices, and the gateway to the central system.

Air Conditioner Smart Control System

Remotely control air-conditioner and heat pump via Wi-Fi. In-built smart sensors detect surrounding temperature-humidity levels to create a proper climate for users

TMA
solutions

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