

SOFTWARE SOLUTIONS FROM EDGE TO INTELLIGENCE

From data acquisition to AI analytics

Firmware Development



- Assembly programming on 8-bit Holtek microcontrollers
- C development on STM32 processors
- Integration with Alexa via Espressif ACK Module

Software Development for Industrial Machine Interface



- C++ with libraries for various protocols: Modbus, OPC-UA, Siemens S7
- Node-RED / Java applications for data flow orchestration
- Python applications with libraries like PyModbus, PyOPC-UA for industrial communication

Edge Data Processing



- Neural Processing Unit (NPU)
- Graphics Processing Unit (GPU) with CUDA
- Yocto/Linux applications for gateways on NXP processors (i.MX8, i.MX9 etc.)

AI Computer Vision



- Object Detection with Yolo, OpenCV, ResNet, PyTorch

Web/Edge Application Containerization



- Docker, Docker Swarm
- BalenaOS
- Mender
- Reverse proxy: Nginx, Traefik

Data Transmission



- Sparkplug protocol for industrial data standardization
- MQTT with brokers like HiveMQ, Mosquitto, RabbitMq

Cloud Platforms



- Development in .NET Core/6+ and Java Spring Boot
- Time-series databases: TimescaleDB, InfluxDB 2.x, Prometheus
- Message queue systems: RabbitMQ
- Caching systems: Ehcache, Memcached, Redis
- Rapid development of taylor made IoT platforms with Thingsboard
- Software systems built and deployed on AWS.

Frontend and Mobile Applications



- Angular (v9-16) with Bootstrap, Material Design, NgRx
- Native Android applications,
- Xamarin, and MAUI
- iOS applications with Swift