



VTT LoRa Sensor System

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General Overview

- VTT has developed a sensor system for building and infrastructure measurements
- All sensors are wireless and battery operated
- LoRa and Bluetooth are supported
- VTT also provides a Gateway and Cloud server for data
- All software is based on “open source code” and thus they are totally vendor free and all development tools are available on internet
- Database is built on MariaDB (see Mariadb.org) which is most common database engine in the world
- VTT solution is to give the tools, database and documentation to the customer so he can use it freely without limitations and without extra costs.

Basic sensors

- VTT can integrate any sensor to LoRa sensor network
- Current sensors are:
- THP: (Temperature, Humidity, Pressure), basic sensor most common in any application (HW specification see slide 5)
- THPA: (same as above but with Activity sensor), sensor reacts to movements in the room
- THPV: (same as above but with VOC sensor)
- THPC: (THP with CO2 sensor)
- CO2: (CO2 sensor as stand alone)
- PRESS: pressure difference measurement, a precision instrument for AC and ventilation measurements (balancing of indoor/outdoor pressure level) 0.1 pascal resolution
- PM2.5 air quality sensor (Microparticles)
- MVOC: VOC sensor with specified inputs (client specific product)
- ENER: Energy measurement sensor for energy monitoring

Basic Sensors ...

- FROST: sensor which monitors soil temperature, permafrost, (etc. foundation monitoring)
- WALL: sensor to monitor wall structures (temperature, humidity) special wall mount

VTT is able to develop and integrate new sensors according to the customer specifications

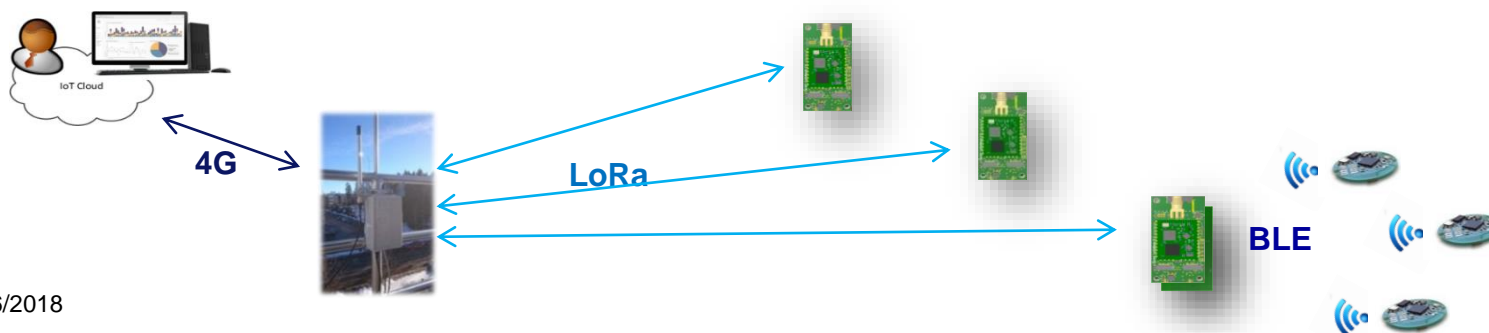
- VTT LoraNode board features:

- iM880A - module
 - Cortex – M3 controller
 - SX 1272 LoRa tranceiver with chip antenna or external antenna
- Integrated sensor including
 - Temperature sensor
 - humidity sensor
 - Air pressure sensor
- Two connectors for external sensor board in top side
- LittleNode connector in bottom side



- VTT LoraNode board use cases:

- Stand-alone sensor board with internal sensors
- Stand-alone sensor board with external sensors
- Multiple radio systems with LittleNode-board





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