



**electronics-lis**

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Services, products and expertise in: Concept, design and manufacturing of electronics and complex mechatronic systems

**DU's control extensions**

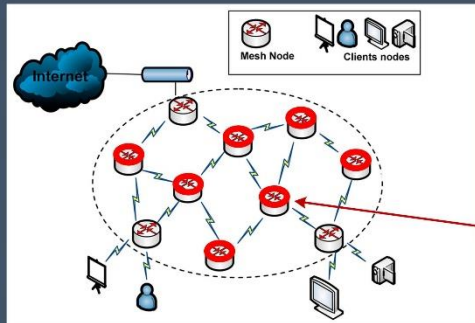
# Monitor Data Logger

Concept, design and integration of electronics and mechatronic systems



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wireless mesh as **Monitor and Data Logger (Node)**



MDL-Node



## Application

- >> Humidity sensor accuracy:  $\pm 2\%$ , range: 0 to 100 %
- >> Temperature sensor accuracy:  $\pm 0.2\text{ C}$ , range: 0 to 65 C
- >> Gas sensing (optional): ethanol accuracy: 15%, range: 0 to 1000 ppm
- >> Air quality (optional, TVOC): resolution 1 to 32 ppb, range: 0 to 60000 ppb
- >> Light density (optional): photovoltaic voltage
- >> Optional sensor: dust, methane, CO2 etc.

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## Technical description

- >> Extrem low power leading to long life supply (few years): different configurations and cell technology, two AAA batteries
- >> Modular design: large extension possibilities
- >> USB interface applied as user's interface and battery's charge
- >> Power harvesting possibility (optional) based on photovoltaic cell
- >> Long batteries life
- >> Batteries state monitoring
- >> Additional EEPROM memory

## WiMi

- >> Mesh configuration (multi-hop routing)
- >> Sub-GHz: 915 or 868 MHz
- >> Optional low power ZigBee protocol: IEEE802.15.4
- >> Output power: 10 dBm
- >> Sensitivity: -113 mVpp
- >> Range: few hundred meters in function of building structure and programed power

## Mechanical description

- >> External dimensions: 96 x 47 x 24 mm
- >> Weight: 350 g
- >> Different implementations



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# Monitor Data Logger

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wireless mesh as **Monitor and Data Logger** (Access)

## User access: World Wide

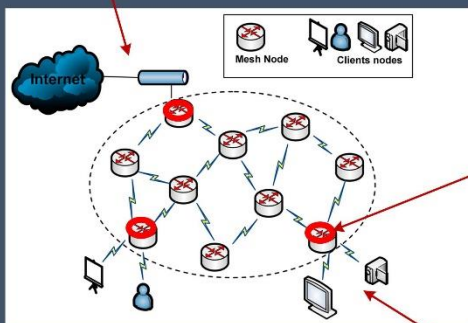
### Data in the Clouds (optional)

- >> Configuration defined by customer based on the services and tools proposed by Google, Amazon, Microsoft etc. related to local requirements and restrictions
- >> Specific solution based on the **Private**

Data Base

## Data

- >> Defined by customer:
  - \* List of parameters
  - \* Measurement **timing**
  - \* Editing form as Excel, text, chart etc.
- >> Configuration including number of nodes, required measurement and timing **programmable** by user via Web interface
- >> Data protection
- >> Programmable alert by **SMS** sending



**MDL-Access**

## WiFi

- >> **Mesh** configuration (multi-hop routing)
- >> IEEE 802.11 b/g/n network controller
- >> Single-band **2.4 GHz**
- >> Output **power**: 19 dBm
- >> **Sensitivity**: -98 dBm
- >> Large memory size: max **3 MB (flash)**
- >> **Security** protocols: WPA/WPA2, TLS, SSL
- >> **Range**: few hundred meters in function of building structure, programed power and communication charge

## User access: local/direct

- >> Local WiFi
- >> USB connection
- >> **Android** application
- >> Apple application (optional)
- >> **Web page** access to download results and configure monitoring network
- >> **LoRa** technology (optional) long range greater than 15 km

## Deliverable

- >> Requested **number** of nodes and access (minimum one) points
- >> **Android** application including download and mesh configuration facilities
- >> Necessary documentation and **user manual**
- >> **Optional** HW devices and accessories
- >> **Optional** services and tools leading to additional costs in relation with chosen **IoT** (Clouds) solution



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