Powering the IoT Revolution

libelium
Sergio Buen
Key Account Manager eHealth & Education
MySignals
the most complete IoT platform to develop eHealth and medical solutions

Index

- Libelium overview
- MySignals overview
- Improved version of MySignals: new features
- Cloud Plans for users and developers
- Using MySignals in minutes from scratch: step-by-step video tutorials
- Applications / potential projects
- Questions and answer (chat)
Why do +10,000 customers from +120 countries choose Libelium?

• 11 years in the IoT industry
  • Proven technology: 3rd generation of products
  • Certifications (CE, FCC, IC, Anatel, PTCRB, AT&T)
  • Easy to install and maintain
• Scalable: from PoC to 1,000's nodes projects
• 20-30% annual growth for 5 years
• 90% revenue international
• 90 partners - 43 distributors worldwide
Market position
Brand Awareness

- Referenced as key players by analysts Gartner, Forrester, IDC, Navigant Research, ABI Research, Beecham Research, Altimeter Group, IHS, Machina Research, Harbor Research, Stephenson Strategies and Redmonk.

- Libelium has been considered a “unicorn” company in technological sector in Spain by Financial Times.

- Distinguished by Gartner as Cool Vendor 2014.

- 38 Tech and business awards.

![Awards Logos]
Libelium technology impacts in the world

Powering the IoT revolution

- Air Pollution
  - Central monitoring of pollution levels in urban areas
  - Tracking pollution from industries and vehicle exhaust

- Radiation Levels
  - Monitoring of radiation levels around nuclear power plants
  - Detecting radioactive materials in the environment

- Forest Fire Detection
  - Early warning system for forest fires
  - Predictive analysis of fire behavior

- Wine Quality Enhancing
  - Monitoring of grape health and quality
  - Optimization of harvesting and storage

- Offspring Care
  - Monitoring of animal health and breeding
  - Automatic feeding and watering systems

- Sportsmen Care
  - Monitoring of athletes' health and performance
  - Real-time feedback for training

- Quality of Shipment Conditions
  - Monitoring of temperature and humidity in transport
  - Ensuring safe delivery of perishable goods

- Water Quality
  - Monitoring of water quality in rivers, lakes, and oceans
  - Early warning of pollution and contamination

- Structural Health
  - Monitoring of building integrity and structural stability
  - Predictive maintenance of bridges and historical monuments

- Traffic Congestion
  - Real-time traffic monitoring and prediction
  - Optimization of traffic flow and congestion management

- Smart Roads
  - Intelligent traffic management systems
  - Predictive analysis of traffic patterns

- Smart Lighting
  - Adaptive lighting systems based on foot traffic
  - Energy-efficient and sustainable lighting solutions

- Water Leaks
  - Early detection of water leaks in buildings
  - Prevention of costly water losses

- Vehicle Auto-diagnostics
  - Real-time vehicle health monitoring
  - Predictive maintenance and repairs

- Waste Management
  - Monitoring of waste levels in containers
  - Optimization of waste disposal and recycling

- Smart Parking
  - Real-time monitoring of parking availability
  - Efficient use of urban space

- Electromagnetic Levels
  - Monitoring of EMF levels near cell towers and Wi-Fi hotspots
  - Ensuring safe levels for public health

- Intelligent Shopping
  - Customized shopping experiences based on customer behavior
  - Personalized recommendations and offers

- Noise Urban Maps
  - Mapping of noise pollution in urban areas
  - Identification of noise sources and mitigation strategies
The most complete IoT platform to develop eHealth and medical solutions
MySignals overview
Changing the future of medical and eHealth applications

What is MySignals

Development platform for medical devices and eHealth applications.
Measures more than 15 different biometric parameters.
Add your own sensors to build new medical devices.
The most complete eHealth development platform
17 Wired & BLE sensors
Sensors
Wired and BLE sensor

* Spirometer:
  * Volume (l)
  * Air flow (l/min)
Sensors
Wired and BLE sensor

* Temperature:
  * Body Temperature
Blood Pressure:

- Systolic
- Diastolic
- BPMs
Sensors
Wired and BLE sensor

* ECG:
  * ECG Signal
  * Beats per minute (BPMs)
**Sensors**

**Wired sensor**

- *Airflow:*
  - Respiratory Rate (PPMs)
  - Breathing Intensity
Sensors
Wired and BLE sensor

* Glucometer:
  * Glucose levels in blood
Sensors
Wired sensor

* EMG
* Muscle rate
* Muscle signal
Sensors
Wired and BLE sensor

* SPO2:
  * Pulse (BPMs)
  * % Oxygen in Blood
**Sensors**

**Wired sensor**

* GSR:
  * Conductance
  * Resistance
Body Position:

- Position of the t
**Sensors**

**BLE sensor**

* **Body Scale BLE:**
  * Weight: Kilograms 5-150Kg
  * Bone: Percentage 0-100%
  * Body fat: Percentage 0-100%
  * Muscle mass: Percentage 0-100%
  * Body water: Percentage 0-100%
  * Visceral fat: Percentage 0-100%
  * BMI: Kcal 0-500Kcal
  * BMR: Kcal 0-500Kcal
Sensors
Wired sensor

* Snore:
  * Snore rate
  * Snore signal
Sensors
BLE sensor

* Alarm button
The data gathered by MySignals is encrypted and sent to the Libelium's Cloud.
Data visualization
On the device - Android and IoS apps - MySignal's Cloud
MySignals Standalone Mode
Offline mode
MySignals Mobile Apps
Using Bluetooth Connection Mode
MySignals Cloud
Using Server Connection Mode

![Screen with WiFi and Configuration settings](image)
# MySignals Cloud

## Using Server Connection Mode

### Member

<table>
<thead>
<tr>
<th>Name</th>
<th>Abbie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surname</td>
<td>Ratke</td>
</tr>
<tr>
<td>Member ID</td>
<td>29</td>
</tr>
<tr>
<td>Last update</td>
<td>2017-06-04 01:32:69+02:00</td>
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<table>
<thead>
<tr>
<th>Height</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
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</tr>
<tr>
<td>Birthday</td>
<td>12 Dec 1955</td>
</tr>
<tr>
<td>Department</td>
<td>Traumatology</td>
</tr>
</tbody>
</table>

### Data

- **Body position**
  - Temperature: Normal range: 36 - 38°C
  - Muscle contraction (cpm): Normal range: 0 - 10 cpm
  - Heart rate (bpm): Normal range: 60 - 120 bpm
  - Respiratory rate (cpm): Normal range: 12 - 25 cpm
  - Conductance: Normal range: 2 - 7 Ω
  - Diastolic pressure: Normal range: 40 - 80 mmHg
  - Systolic pressure: Normal range: 90 - 120 mmHg
  - Oxygen saturation

### Blood Pressure

- Blood Pressure Graph: Days March 2018 - May 2018
  - Blood Pressure: Mean 120/80, Max 130/90, Min 110/70
**MySignals Cloud**

**Using Server Connection Mode**

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### Members

<table>
<thead>
<tr>
<th>Surname</th>
<th>Name</th>
<th>Height (cm)</th>
<th>Weight (kg)</th>
<th>Birthday</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratke</td>
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<td>74</td>
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<td>Traumatology</td>
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<tr>
<td>Bouch</td>
<td>Alice</td>
<td>181</td>
<td>50</td>
<td>1984-01-22</td>
<td>Cardiology</td>
</tr>
<tr>
<td>Nank</td>
<td>Amy</td>
<td>202</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shanahan</td>
<td>Balee</td>
<td>155</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Connelly</td>
<td>Breanne</td>
<td>154</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nader</td>
<td>Dorothy</td>
<td>151</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lewism</td>
<td>Edra</td>
<td>170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoro</td>
<td>Jacinte</td>
<td>157</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smith</td>
<td>Orlando</td>
<td>209</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biss</td>
<td>Peter</td>
<td>164</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Showing 1 to 10 of 15 entries.
MySignals Cloud
Using Server Connection Mode
Two Models
MySignals SW and MySignals HW
MySignals SW

SOFTWARE DEVELOPMENT PLATFORM
For application developers who do not want to cope with hardware issues but just use a quick prototyping platform for medical and eHealth applications.

Buy Now

- Ready to use off-the-shelf version.
- As easy as connecting your headphones to a MP3 player.
- Handy and robust ABS white box.
- Includes Cloud access and Android and iPhone Apps.
- With CE / FCC / IC Certifications is perfect for any kind of project.
MySignals SW
BLE Complete kit & Complete kit
MySignals SW

HARDWARE DEVELOPMENT PLATFORM

For hardware developers, researchers and makers who want to have complete access to the PCB and electronics.

Buy Now ➤
MySignals SW
BLE Complete kit & Complete kit
Improved version of MySignals
New features

1) New TFT screen
2) New sensors added
3) New security features
4) New continuous wave record mode
5) New pairing functionality
6) More robust hardware usability
7) New Android / iOS App
**Cloud Plans for storage and visualization for users and developers**

**User Cloud Plans**

The user plans are meant to be used to test the performance of MySignals. These are the best plans if you want to try it in a quick and easy way. The MySignals kit including all the sensors on different users as each one can have its own profile. All the data is sent to the Libelium Cloud, so users do not need to set up their own servers.

<table>
<thead>
<tr>
<th>Usage</th>
<th>Usage</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic</strong></td>
<td><strong>Pro</strong></td>
<td><strong>Elite</strong></td>
</tr>
<tr>
<td>99€ / year</td>
<td>199€ / year</td>
<td>499€ / year</td>
</tr>
<tr>
<td>(Free first year)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usage</th>
<th>Platform Testing</th>
<th>Small Dev. Deployment</th>
<th>Professional Dev. Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Profiles (members)</td>
<td>5</td>
<td>50</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Departments</td>
<td>1</td>
<td>16</td>
<td>Unlimited</td>
</tr>
<tr>
<td>MySignals Devices</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>DB Storage</td>
<td>0.1 GB (0.5 Million register approx)</td>
<td>2 GB (20 Million register approx)</td>
<td>6 GB (600 Million register approx)</td>
</tr>
<tr>
<td>Traffic in GB</td>
<td>2 GB</td>
<td>3 GB</td>
<td>15 GB</td>
</tr>
<tr>
<td>Android/iOS Apps</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Encryption Point to Point</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Libelium Cloud Access</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>API Cloud</td>
<td>✓</td>
<td>✓</td>
<td></td>
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</tbody>
</table>

**Developer Cloud Plans**

The developers plans are the best option for users who want to store the data gathered by MySignals in their own servers. This type of plans allow to use the Cloud API to read the information from the Libelium Cloud and write it in their own Cloud platforms.

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</tr>
<tr>
<td>API Cloud</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
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</table>
## Cloud Plans for regular users

Have in a quick and easy way all the sensor data

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<td>Unlimited</td>
</tr>
<tr>
<td><strong>Departments</strong></td>
<td>1</td>
<td>10</td>
<td>Unlimited</td>
</tr>
<tr>
<td><strong>MySignals Devices¹</strong></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>DB Storage</strong></td>
<td>0.1 GB (10 Million registers Approx)</td>
<td>2 GB (200 Million registers Approx)</td>
<td>6 GB³ (600 Million registers Approx)</td>
</tr>
<tr>
<td><strong>Traffic I/O²</strong></td>
<td>2 GB</td>
<td>5 GB</td>
<td>15 GB³</td>
</tr>
<tr>
<td><strong>Android / iOS Apps</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Encryption Point to Point</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Libelium Cloud Access</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>API Cloud</strong> (Necessary to extract the information to a third party server)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Price</strong></td>
<td>99€ / year (First year free)</td>
<td>199€ / year</td>
<td>499€ / year</td>
</tr>
</tbody>
</table>

¹ Additional requirements apply. ² For cloud applications. ³ For hub-based solutions.
Cloud Plans for developers
Use the Cloud API to read the information in your own server

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<td>15 GB</td>
<td>50 GB³</td>
</tr>
<tr>
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<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Price</td>
<td>199€/year</td>
<td>299€/year</td>
<td>599€/year</td>
</tr>
</tbody>
</table>
API Cloud

API

Data stored in the MySignals Cloud may be accessed to be visualized in external Web and mobile App's (Data can also be stored in a third party Cloud)

Using a Third Party Cloud

Developers may migrate the information stored in the Libelium Cloud to a third party Cloud server easily using the API Cloud provided.
Developers may also send the information coming from MySignals to a third party Cloud server using directly the WiFi radio (HTTP, TCP/IP, etc.). This option just for MySignals HW.
Using MySignals in minutes from scratch
step-by-step video tutorials
Case study and applications
Potential and real projects

- Nursing homes
- Rural areas and remote locations
- Studies of human diseases
- Primary healthcare projects, eConsult, healthcare providers...
- NGOs projects
- Research and Education
- Sports centres
- Extra service in physiotherapy centres
Case study

MySignals helps to reduce maternal deaths in Dominican Republic
MySignals helps to reduce maternal deaths
Dominican Republic

- **Challenge:** monitoring patients with risk of suffering arterial hypertension to identify the symptoms of preeclampsia and prevent the disease.
- **Partner:** Infectología’s Dominican Foundation
- **Sector:** eHealth.
MySignals helps to reduce maternal deaths
Dominican Republic
THANK YOU
Questions&answers
Sergio Buen Francisco
Key Account Manager Education & eHealth
s.buen@libelium.com