Actility

Success Story
- Smart Agriculture -

CHATEAU KEFRAYA SMART WINEYARD

In Lebanese Vineyard, LoRaWAN Is Making Wine Better

Château Kefraya deploys sensors, gathers data to improve resource management and grape quality

Faster, easier collection of data

Lebanon's Ministry of Telecommunications and Ogero Telecom have been busy rolling out a nationwide IoT network, a project they aim to complete by the end of 2017.

The country recognizes the potential benefits of IoT to industry, agriculture, healthcare, urban planning, exportation, etc. Increased efficiency, competitiveness and resource management will all result from the precision and data provided by IoT connectivity and, more specifically, LoRaWAN technology.

Meanwhile, partners are already beginning to implement solutions within a variety of sectors and end-customers are seeing the results. Such efforts have coalesced at Château Kefraya, one of Lebanon's pioneering examples of Smart Agriculture.

This 75 year-old vineyard, nestled in the West Bekaa Valley southeast of Beirut, spans 300 hectares across terraced

> **IoT is set to push the future of agriculture and farming to the next level**
>
> *Maher Choufani, IoT Project Manager. Libatel*

slopes in the foothills of Mt. Barouk, a thousand meters above the Mediterranean Sea. Château Kefraya has been in the Bustro family for generations and its wine is sold in over 40 countries.

As the estate already produces excellent, renowned wines (their Comte de M 2012 vintage was highly rated by famous wine critic Robert Parker), it is reasonable to inquire why a successful enterprise would seek to introduce new technology, especially in an industry often proud of traditional methods.

For the past three years, Château Kefraya has partnered with engineers from Saint Joseph University to improve agricultural methods and better manage resources. The research team studies the terroir, the combination of climate and soil, and its effect on grape quality.

"Enhancing agricultural techniques can't happen without agricultural research," said Dr. Yolla Ghorra Chamoun, a professor at Saint Joseph University. "Until now, the data was collected manually—a process that is long, hard and expensive."

Reaping early rewards

Even though the project is in its early stages, many results are already apparent. Château Kefraya's employees are spending less time walking around the vineyard analyzing the vines themselves. They find the new data accurate and reliable and are even using it to compare with laboratory analysis of their grapes and during tastings. Furthermore, the estate intends to use the collected data in the future to determine how and when to take certain actions within resource management, such as optimal irrigation times and locations, which will then lead to higher production quality at a lower cost.

"Now, by placing sensors in the field," reports Dr. Chamoun, "(we) automatically collect data to achieve results that are faster, clearer and better."

CHATEAU KEFRAYA
UN TERROIR. UNE AME. UN GRAND VIN.

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Maher Choufani, IoT Project Manager at Libatel, has also been impressed by the speed and effectiveness in which the various parties worked together to implement a full LoRaWAN Iot solution from scratch. Within two months, they successfully collaborated with a major telecom operator, university research team, various IoT solutions providers and the wine estate itself to deploy the sensors, connect them through gateways to the platform and onward to users' online dashboards.

"I was surprised by how much IoT—especially LoRaWAN—helped the viticultural engineers improve wine quality, and therefore wine production," Choufani said. "IoT is set to push the future of agriculture and farming to the next level."

While Libatel touts the evolution toward what they describe as "precision viticulture", the country of Lebanon itself has further evidence that IoT can increase productivity and efficiency to boost the country's exports and achieve its larger economic goals.

Selecting LoRaWAN for quick implementation

Several weeks ago, Ogero and Libatel joined the team. For 40 years, Libatel has pioneered technology in both the public and private sectors with IP telephony, software development, data switching and routing, security and now the Internet of Things and Smart Solutions.

Libatel is testing IoT applications and installing sensors throughout the vineyard— even on the grapevines themselves—to help the research team gather data for the estate. Their software engineers have developed a program in parallel to receive the data sent by the sensors in the field. To transmit this data, Libatel choseLoRaWAN for its ability to provide low-power, wide-range solutions within a rapid timeframe. Actility assessed the requirements and, through the ThingPark platform, provided full support during its deployment.

The data is then visually presented through clear charts and graphs in real time on the computers and smartphones of the agricultural engineers and winemakers' computers and smartphones. The information includes soil and water temperature, humidity, soil moisture, luminosity, etc., on six different parcels.