IoT technology to monitor parking for disabled citizens in the North of Spain

Mobility management and the environmental impact caused by traffic are two of the major concerns for many municipalities today. This is the situation of Huesca, a capital city in North-Eastern Spain. In order to combat congestion in the city and improve its accessibility for disabled citizens, the municipal government has installed Libelium's smart parking sensor solution in 190 disabled parking bays to help detect occupancy and ensure there are enough spaces for those that need them.

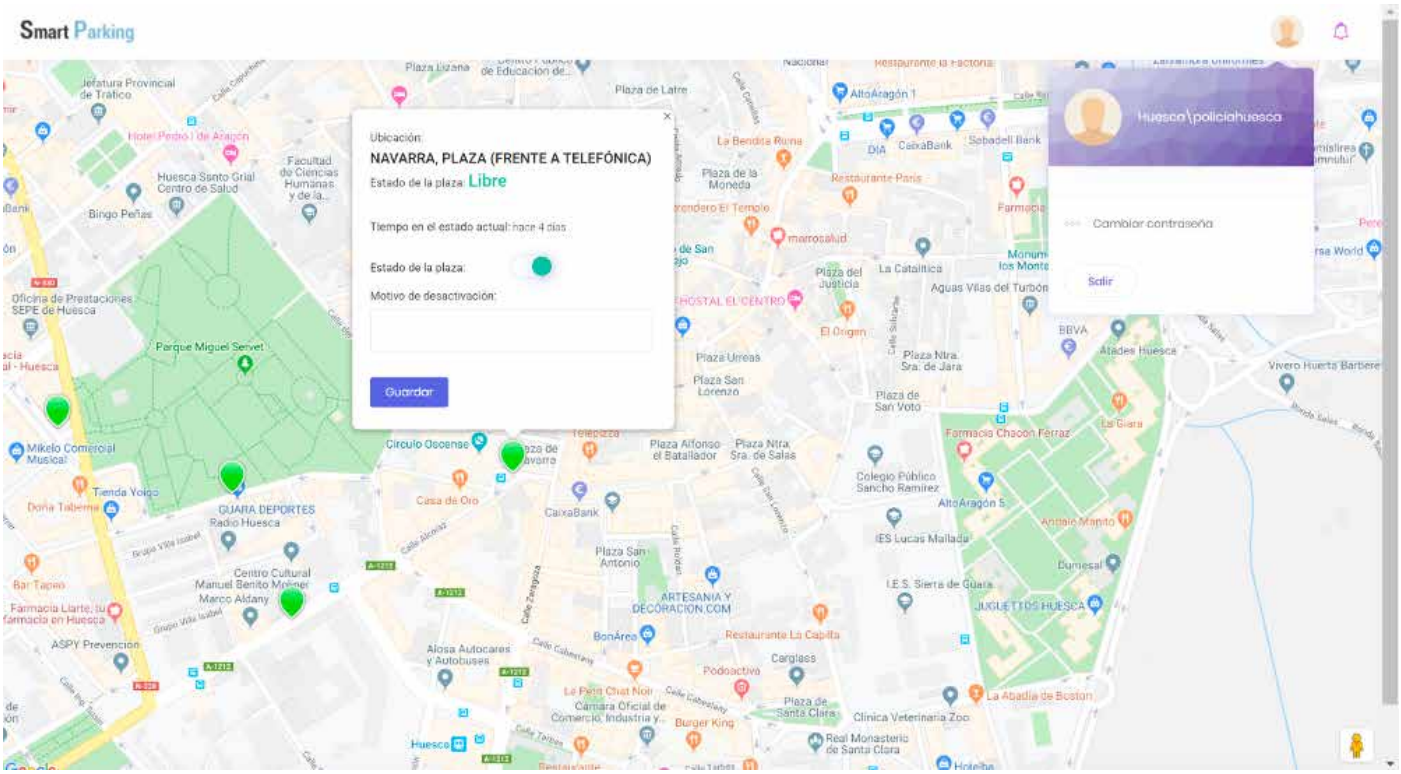
The Problem

There are plenty of problems with the way disabled spaces work. It's often time consuming for disabled drivers to find accessible parking, whilst many drivers ignore reserved bays and take the spots when they don't need them. In order to ensure that disabled bays are reserved for those that ned them, the municipal council had relied on handing out disabled badges to drivers and manually checking parking spaces – This was not only time consuming, but also fundamentally flawed as non-disabled drivers would often just borrow a disabled friends' badge. Some interesting facts: the amount of the penalty for improper parking in a disabled area in Spain is 200 euros; in 2019, the Local Police of Huesca issued almost 5,400 fines related to traffic infractions.

Smart Solution

Libelium's smart parking sensors combine radar and magnetic technology to detect space occupancy and send real-time updates to a central database. Disabled users can sign up to a municipality-run digital service using their smartphones to gain access to this database to see where the nearest disabled bay is located, saving them the time of having to drive around to locate an empty space.

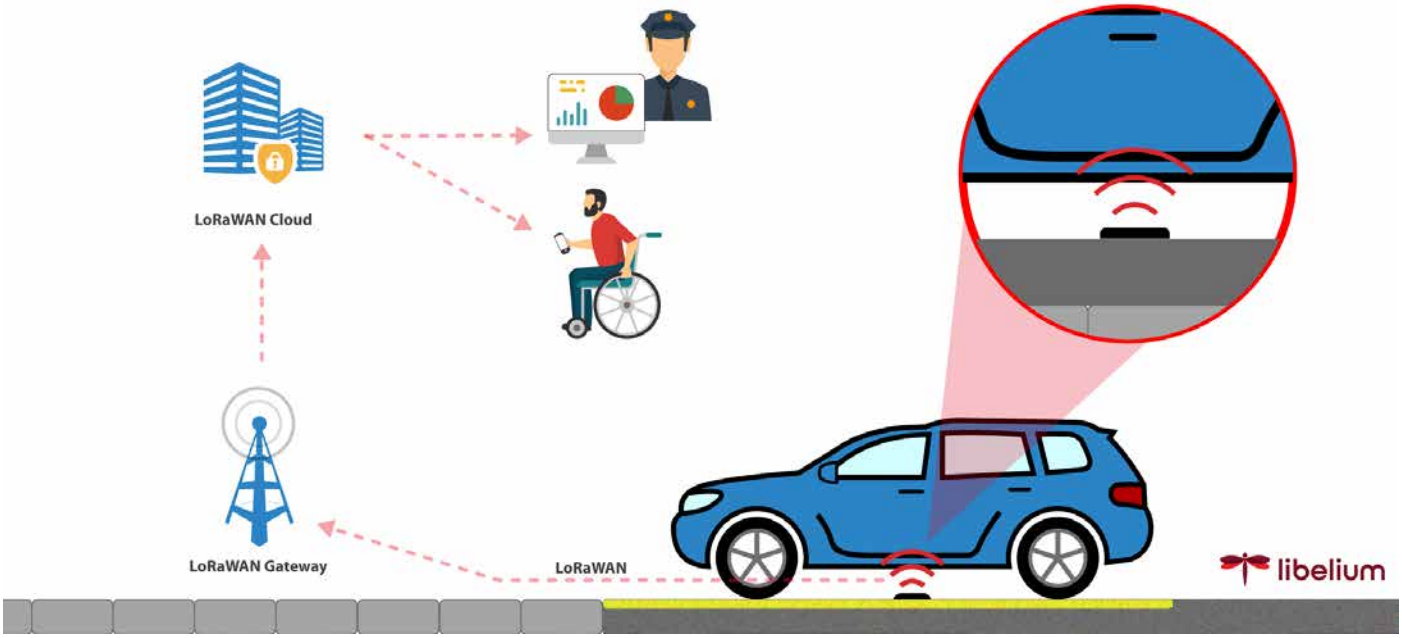
The use of the digital app also means that sensors can detect when someone who has not registered as disabled through the digital service is occupying a disabled space. This means that parking enforcement officers can pinpoint those that are parked illegally, and that it is no longer possible to borrow someone's disabled badge – You may be willing to share an official piece of paper, but people rarely share their smart phone with others.



The Technology

Parking sensors are nothing new, but Libelium's technology is the first to integrate radar. Technology into its IoT hardware. Radar enabled sensors allow for up to 99% detection accuracy, with wireless data on parking status sent directly to the cloud through the LoRaWAN network.

There are three ways to install the sensors themselves – Either on the surface of, buried or semi-buried beneath the parking bay. In all cases, the sensor requires almost zero maintenance thanks to radar technology not being affected by dirt, dust, oil spills or adverse weather conditions. With a battery life of up to ten years, these sensors can simply be installed and left to do its job.



Parking Transformed in Huesca

With the installation of Libelium's smart parking technology combined with the software solution developed by Tap (Libelium's partner), parking in Huesca is simpler and more efficient than ever. Parking enforcement has been streamlined thanks to accurate information on who is and is not allowed to park in disabled bays, whilst disabled drivers are able to quickly locate appropriate parking spaces through a simple app on their smart devices. With IoT hardware that can effectively be installed and left to work without interference, Huesca municipality's upgrade to a smart parking system has enabled a more time effective, financially streamlined approach to providing much needed parking access to disabled drivers.

More information:

- For technical details on Plug & Sense! Smart Parking: Smart Parking Technical Guide
- Read more about Libelium sensor product lines in the Waspmote, Waspmote Plug & Sense! Sensor Platform and Meshlium Gateway websites.
- LoRaWAN Networking Guide: libelium.com

Other Smart Parking success stories:

- Smart Parking project in Montpellier to relieve traffic congestion and reduce car parking search: libelium.com
- Smart Libelium: Living IoT Lab to monitor parking, water quality, ambient and environmental conditions: libelium.com
- Smart Parking and environmental monitoring in one of the world's largest WSN: libelium.com
- Smart Parking IoT platform to increase the efficiency of electric car recharging station: libelium.com

Discover the kit at The IoT Marketplace: Libelium S3 Smart Parking Cities Solution Kit.

More case studies at: http://www.libelium.com/resources/case-studies