



HID Global® BEEKs™ BLE™ Beacons Monitor Belgian Trains' Locations With Far Greater Precision Than GPS

The national railway company of Belgium, NMBS/SNCB, maintains and operates approximately 550 train stations that cover over 3,600 kilometers of track. Like all mass transit systems, it relies on thorough and regular inspections of trains and equipment to keep passengers and crew safe.

CHALLENGE

To ensure safety and on-time departures, NMBS/SNCB relies on a set of procedures undertaken each time a train arrives at a station until it departs. As an approaching train reaches a preset GPS coordinate, an app on the onboard attendant's smartphone or smartwatch signals software to enable the necessary security procedures of the train halt from the attendant's point of view. This allows the train to arrive and depart with safety for the passengers and on schedule.

But what if limited GPS and cellular coverage, such as in tunnels or underground stations, obscure an attendant's smartphone signal, thus making it difficult to know the train's real location? In some cases, a train's GPS location can appear to be as much as 10 kilometers out from the station when, in reality, it is close enough to trigger the starting procedure. When this happens, it delays the start of the safety check and ultimately delays the train.

As a stopgap, train attendants used to manually update the GPS location in their mobile devices, which is both inconvenient and time consuming.

"This was a workaround and not something we felt was sufficient for our digital process, so we started looking for a solution that wasn't reliant on improving the cellular network, which is not in our control," said Nathan Willekens, Innovation Project Manager, NMBS/SNCB. "We knew we had to find a different way to mimic someone's location within the vicinity of the station. That is when the idea of using HID® beacons to transmit a specific ID came into play."

SOLUTION

NMBS/SNCB turned to HID Global, which had successfully implemented a beacon-based location system in the Liefkenshoektunnel of Antwerp, helping cars to precisely find the proper exits through the Waze navigation App when no GPS signal is present.

Starting with a pilot program with the trains arriving at the Brussels airport station, HID deployed its real-time location services (RTLS) platform that leverages its BEEKs Bluetooth® Low-Energy (BLE) beacons to help quickly and precisely locate the train attendants' smartphone or smartwatch within a station. BEEKs can be centrally managed through the cloud.

In the NMBS/SNCB system, beacons are installed on the platforms to communicate with the attendant's smartphone app. When the system detects the Bluetooth device, it is given priority over the potentially inaccurate GPS signal. It took just six beacons to accurately identify and transmit location coordinates of trains arriving on any of the airport station's four tracks.

"We were impressed not only with the accuracy — we knew with more certainty that the train was in the location identified by the beacon — but also by the efficiency with which the beacons were able to operate and the area they could cover. Having established proof of concept (POC) with the airport station, we recommended the system be expanded to additional stations," said Willekens.

And expand they did.

RESULT

Following the successful pilot project, NMBS/SNCB has implemented HID Global Location Services and 65 beacons at three more stations. Soon after, the Brussels-Luxembourg station was also equipped with an additional 16 beacons and four gateways. Another 10 stations are also in plan.

Cost-effective, easy to deploy, with a long battery life and requiring little support to maintain the beacons, the system has eliminated human error from the safety check process and made the overall procedure more efficient by eliminating the need to manually enter the GPS coordinates of arriving trains. That means a safer, more dependable transit system.

"The biggest win for us, of course, is safety and punctuality, because the attendant isn't distracted by the need to override locations and the digital process isn't delayed," said Willekens.



Solutions:

- HID Location Services BEEKs Bluetooth Low-Energy (BLE)
- BluFi™ BLE
- Bluzone™ Cloud Services

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Nathan Willekens,
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