

CASE STUDY | PUBLIC TRANSPORT COMPANIES

SETA S.p.A. is the public transport company in the Italian provinces of Modena, Reggio Emilia and Piacenza. With approximately 52.1 million passengers, 835 vehicles and 1,059 employees, the SETA fleet covers 29.5 million kilometers annually. In the future, the company will rely on RFID to accelerate the refueling process of its buses.

SETA ACCELERATES THE REFUELING PROCESS OF ITS FLEET WITH RFID



INDUSTRY Public transport companies

About SETA S.p.A.

- Italian transport company
- 52.1 million passengers annually
- 835 vehicles
- 1,059 employees
- 29.5 million kilometers annually

Key benefits

- Automated bus detection
- Accelerated refueling
- Stable allocation of bus and gas station

KATHREIN PRODUCTS

- KATHREIN RRU 3500 Antenna with integrated reader
- KATHREIN Antenna WRA 7070

PARTNER BENEFITS

- Installations in 3 stations in Modena, Piacenza and Reggio Emilia
- 12 reading points
- 7 x KATHREIN ARU 3500
- 5 x KATHREIN WRA 7070

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Illustrations: The RFID readers have been mounted facing downwards directly above the gas pump and thus enable accurate and automatic vehicle identification. This has led to significant acceleration of the refueling process and has provided data on refueling frequency and energy costs for controlling purposes.

Loss of time at the biogas refueling station

SETA S.p.A. uses methane (LNG and CNG) as fuel for its bus fleet. This alternative energy allows greenhouse gas emissions to be significantly reduced and climate protection targets to be achieved more quickly. To refuel the buses, the drivers used plastic cards at the gas stations to authenticate their vehicles. In the bus drivers' day-to-day work, however, these cards proved to be less stable for identification of bus and gas station. The manually triggered process did not always run smoothly and often led to an unexpectedly long stay at the "gas pump".

Automated rapid identification with RFID

Since SETA wanted to have the vehicles released onto the road more quickly, the old card system had to be replaced. The process which required manual triggering by the driver had a significant weakness: It did not provide a fast, automatic connection between the bus and the gas station when the bus pulled in, and, besides, it was faulty. SETA commissioned Maser Italia, the KATHREIN partner, who had a long and extensive experience in the automatization of the petrol stations, and they designed a complete solution for automated identification of the vehicles at gas stations.

Challenge: Finding the appropriate RFID tag

When choosing the optimal RFID tag, Maser Italia had to ensure that the identification functioned in the vicinity of the gas station. Therefore, RFID labels attached to the windshield were eliminated as an option. This meant that the only possibility was an RFID transponder, which could be attached to the side of the bus and which at the same time was robust enough to function smoothly in any weather.

Hardware set-up

For this special environment, KATHREIN recommended that its partner use the KATHREIN ARU 3500 reader with integrated antenna for easy installation. After a short evaluation phase in the test laboratory at Maser Italia, they were ready to begin with implementation. At the same time, this special KATHREIN Reader also offers the option to download all the required

Direct collection of data The Kathrein TagBlower App software can also be used to read tags asynchronously and generate messages when a tag enters or leaves the read field. Besides, an additional external antenna, the KATHREIN WRA7070, was deployed. At the same time, a traffic light system controlled by the KATHREIN Reader informs the driver about the successful detection of his vehicle at the gas station.

Reading points: Incoming bus detection

To ensure rapid detection of the vehicle as soon as the buses pull in, RFID reading points are set up at each gas station. The antennas are positioned facing downwards and aligned in such a way that an optimum detection result is achieved. Maser Italia will work closely with the KATHREIN support team to fine-tune these antennas and in the subsequent go-live phase of the project. Central data collection is carried out in the KATHREIN TagBlower App at Maser Italia.

Project success at a glance

The implementation of a complete RFID solution helped to speed up the refueling process considerably. In addition, there is now precise identification between bus and gas station, i.e., Maser can provide SETA with accurate data on the energy costs, refueling frequency, etc., for their controlling purposes. Technical advantages resulted from the use of passive RFID tags, which proved to be more efficient than active tags in this project. They are cheaper to purchase and there is no need to replace the battery.

As part of the KATHREIN Partner Program, all participants were able to benefit from the cooperation. The Italian customer SETA S.p.A was able to communicate its requirements directly and easily to Maser, the local system integrator. The German Kathrein team supported them in selecting the right RFID hardware, as well as in the rollout of the project and providing support. In the course of the European energy transition, this project could also be a good and technically interesting model for other transport companies.