



CASE STUDY

INDUSTRIAL SHIELDS

MONITORING TRAFFIC VOLUME IN A PETROL STATION



In this case, our client located in Tarragona (Spain) wanted to monitor the traffic of vehicles at his service station. In 2016, service stations in Spain could only change the price of fuel once a day. Currently, each station tries to develop its own system to fluctuate prices according to customer behavior.

Therefore, our client wanted to have a real-time study of vehicle traffic in their area to have solid data and have a market strategy based on the data collected.

SUMMARY

Today, service stations are not just places to fill your car with gasoline. They are centers that concentrate a very wide commercial offer of products and services for vehicles and occupants: refueling, restaurant, car wash services, workshop, supermarket, among others.

Knowing the behavior of the consumer in different periods of time, and on specific dates, allows service station managers to plan the commercial offer to launch special promotions or even adapt the price of fuels at key moments, how they could be on weekends or the busiest hours on holidays.

The solution proposed by Industrial Shields in this case adapts to the environment and uses wireless communication to collect and send the data to a server.



GOALS

- The fuel company wants to know the average duration of the stay of the vehicles, to have forecast of specific moments where queues are generated to refuel and when to make changes in the price of gasoline, among other utilities.
- Also wants to know the rate of vehicles that access the service area and do not refuel. This is important to know not only the vehicles that do not refuel but also those that stop to consume at the bar or the store of the gas station, that way is it possible to know the best time to promote products, both from the store, the cafeteria or the gas station.
- The project has also planned to measure the volume of traffic that passes along the road in front of the service station every hour to compare data with customer consumption.

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CONCLUSION (HARDWARE)

To obtain all the traffic information in the area near the service area, the following system has been prepared:

To detect the vehicles: electromagnetic transducers have been located in each of the lanes of the highway that pass just in front of the service area, the transducers have also been placed at the entrance and exit to the service area to be able to study the vehicles that enter, and the average time each of them spends inside the station.

Each time they detect a vehicle, electromagnetic transducers send the data captured via radio to the receiver. The receiver is an OpenMote B module that receives data from all transducers installed in the area. OpenMote B modules work with Open Source 6TiSCG implementation.

The OpenMote B receiver is connected to an Industrial Shields controller of the WiFi & Bluetooth LE family. The Industrial Shields PLC can log into the local network of the service area via WiFi and using the Modbus TCP/IP protocol..

The data is stored on the server and monitored with the use of Node-Red. The client can access the data and visualize it according to the area, the desired time slot and even compare them with other days to facilitate the study of traffic.

