

# didcom<sup>®</sup>

## Success stories



MOBILITY ADO

### **About the client**

Autobuses de Oriente or better known as ADO, is a renowned Mexican bus transportation line. Established since 1939, it has positioned itself in Mexico as one of the main bus transport lines, covering 15 states of the Mexican Republic, in which 35% of the population of all of Mexico lives and that represent little more than the quarter of the national territory.

In 2018, it renewed its identity as MOBILITY ADO and currently has a presence in Spain, Portugal, Guatemala and Mexico, operating more than 8,000 vehicles, including urban, intercity and BRT busses, transporting more than 500 million passengers annually.

Part of the modernization of Mobility ADO has been reflected in its continuous effort to be at the forefront of technology, looking for new and better mobility solutions, integrating different modes of transport to make the lives of its customers simpler.



## Efficient connection with computer on board

MOBILITY ADO

MOBILITY ADO has an internal development system called “computer on board”, which has operated for more than 5 years and is constantly seeking to improve. For its operation it is necessary to interact with engine data, and for this, MOBILITY ADO had a foreign supplier which, as of 2016, stopped supplying the product that was used for said interconnection.

In the month of February of 2017, an opportunity for collaboration with didcom is presented, this in view of the need to have a provider that could develop custom hardware, in this case an electronic interface with engine data connection, which had as its main function interact locally with an internal system called computer on board, which manages the regulation of the operation and sale of ticket on board.

Based on the functionality requirement provided by MOBILITY ADO, the breakdown of the activities had to be analyzed with the didcom engineering team, so the project was divided into 2 areas.



Hardware



Firmware

It had to fulfill very specific functions and especially necessary for the computer board system to operate correctly.

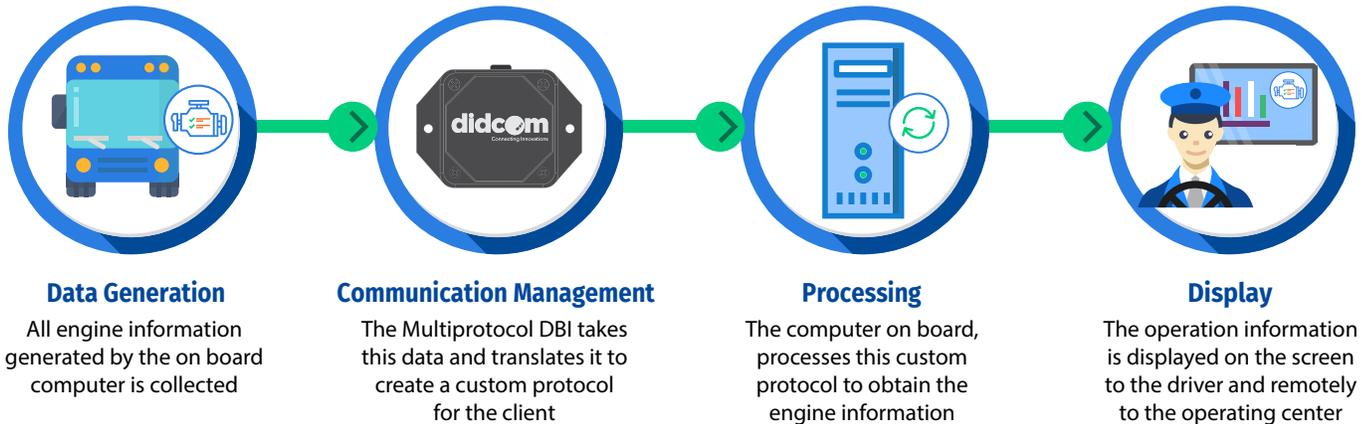
The development should consider an improvement of great importance with respect to the previous supplier: the new product must be multiprotocol, that is, to be compatible with the different bus manufacturing brands with which the service is offered and obtain the necessary engine data for its correct implementation, this with the purpose of standardizing the results independent of the unit model, since the fleet consists of units of different manufacture brands.

Another challenge to overcome was the time factor, since the on-board computer system was in constant use, and the products available from the previous supplier were being depleted in warehouses, so communication and exchange of information should be accelerated and coordinated efficiently. Information between MOBILITY ADO and didcom to be able to make the development process efficient, functionality evaluations, field implementation, improvement detection, and thus shorten any possible lag to guarantee the results and move on to the production stage.

*“The challenge was great, we had to develop new hardware to replace a discontinued one. The existing products in the warehouse were running out so we had to be fast”*



## The solution



A new product was developed which was called “DBI Multiprotocol”. An electronic device capable of physically connecting the computer on board and the automotive protocol of the unit, having as its main feature a functional communication, thus converting the source data of the unit to a destination data interpreted only by the computer on board.

This solution required that didcom engineers specialized in hardware and software areas work together to investigate and design the product that would meet the needs of the client.

The proof of concept took a period of 2 months, at which time the necessary maturity of functionality was reached, turning the proposed prototype into a functional product.

The Multiprotocol DBI began to be implemented immediately in different buses of different brands, being able to cover the operation of the computer on board system in the different routes that are established.

*“The new hardware had to work with multiple vehicles of different manufacture brands (multiprotocol)”*

### What engine data is obtained?

- + Odometer
- + Fuel Used
- + Average Fuel Economy Km/L
- + Accelerator Percentage
- + Vehicle speed
- + RPM
- + Coolant temperature
- + Engine oil temperature



These parameters are necessary to evaluate the driving in real time through the onboard computer, and notify the driver of any eventuality of operation outside the established range.

### Results that transcend

A functional product was developed in an optimal time, this allowed MOBILITY ADO to equip its fleet to continue regulating the operating ranges, regardless of the vehicle manufacturer brand, thus obtaining a greater number of monitored units.

Likewise, MOBILITY ADO obtained an additional functionality to the investments in technology previously made, taking advantage of its infrastructure and integrating new solutions that together offer a unique solution for the operation and business.

As of September 2019, 1,222 “DBI Multiprotocol” have been delivered, and there are plans to continue increasing according to the modernization of the fleet, reflecting the satisfaction of MOBILITY ADO in the results that said solution offers.

**didcom®**

#### **About didcom**

Didcom is a hub of engineering and technological development, offering to the international market complete solutions of Hardware, Software and Firmware, for the transportation industry, backed with personalized support and more than 10 years of experience.

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