didcom®
Success stories

Flexible Technological Solution to Optimize Operational and Administrative Processes
TATPA Transportes

TATPA Transportes offers urban and suburban passenger service managed under the BRT (Bus Rapid Transit) type of mass public transport system.

With an estimated demand of 105 thousand passengers a day, with 138 units it offers the service and runs a route of 13.8 km with a lane confined to the center, counts with 37 Stations and 3 terminals, it also has 19 auxiliary transversal feeder routes, and offers a continuous daily service from 04:00 a.m. to 00:00 a.m.

The operation of a BRT system implies a high degree of logistical complexity since the requirement of route compliance and punctuality are non-negotiable aspects. For its part, guaranteeing and maintaining the units in perfect condition are fundamental aspects of this urban transport system that has come to revolutionize the mobility of large cities in the Mexican Republic.

Managing this complex system requires an efficient telematics system capable of managing all these aspects for a multi-brand fleet, this being the opportunity for Didcom's participation.

TATPA Transportes

About the client
TATPA Transportes belongs to Mobility ADO that looks for new and better mobility solutions, integrating different modes of transport to make the lives of its clients easier.

With more than 85 years in the long distance passenger transport industry, MOBILITY ADO is consolidated as a comprehensive mobility group that offers multimodal solutions focused on the needs of its clients and users.

Since April 2015, TATPA Transportes operates the urban transport service for Linea 2 of RUTA (Urban Articulated Transport Network) in the city of Puebla

When it comes to service functionality, Linea 2 operates as a system where only articulated trucks are allowed to circulate in the confined lane. In other words, small feeder busses cannot circulate in said lane; Rather, they are responsible for transporting passengers from different points of the city to the confined lane, which provides the system with greater flexibility.

Due to the service configuration of Linea 2, TAPTA had a variety of types and brands of buses that met the requirements to operate the high demand for the service in its different area. Therefore, the essential requirements for Didcom to be able to offer Telematics services to TATPA were concentrated in 4 core requirements that represented the opportunity:

+ Real-time traceability
+ Multi-brand compatibility , capable of reading engine data of any manufacture brand of the busses
+ Development of custom software to optimize operational control processes
+ Driver identification

Once the requirements were known, Didcom presented a comprehensive solution proposal that sparked TATPA's interest. A period of 5 months of exhaustive tests of the different functionalities of the technology for the different types of busses began, validating the operation and veracity of the information obtained.

> *"A complete and flexible Hardware and software development solution was needed that together will help to optimize the daily operation processes in a fast and efficient way"*

After 5 months the test results were satisfactory in all its stages, so the technological proposal from Didcom was approved by the client.

Additionally, TAPTA increased the requirement by requesting the addition of new software modules that could cover the following points, with functionality capable of displaying information starting from the general to the detailed:

+ Mileage and Fuel Performance Module
+ Logistics Module
+ Management Report Module
+ Kardex module per driver

Although these modules, being very specific to the operation, did not exist in the initial proposal to the client, Didcom decided to develop them according to the new requirement to cover 100% of our client's need and offer them as a value proposition that immediately differentiated Didcom from any other competitor on the market.

The challenges

At the Hardware level, the requirements were covered through the implementation of Didcom's EPC technology that guaranteed multi-brand compatibility to obtain the information despite the different types of buses. In addition, the requirements for real-time traceability of the units and identification of drivers were met.

However, other aspects were a real challenge for Didcom since the TAPTA business model required a customized solution that would work according to its needs.

It was necessary to understand the business operating model, and the main thing was to make several tours of the different routes by Didcom development engineers in order to understand the operation and transfer that knowledge to the development and implementation of Software.

A strong research, design and development work was necessary to implement the technology to its business model, which was distinguished by the high degree of control in its operational and administrative processes.

Undoubtedly, the objective was clear: to speed up the management and information collection times in the operation of your BRT system to improve decision-making on issues such as:

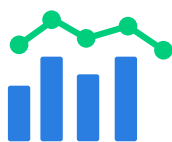> *"A customized solution was needed, which adapts to the customer's business model"*

Routes tracking

Operating incidents

Operator assignment

Mileage conciliation

Fuel performance comparison

Punctuality and compliance

Didcom's expertise in the technological area allowed a quick conceptualization of these challenges, having clarity of the variants to consider to offer a solid and reliable solution that even exceeded customer requirements.

The solution

ENGINE PROTOCOL CONVERTER

IOX - NFCREADER

V+ GND CAN H CAN L

GPS - GO9
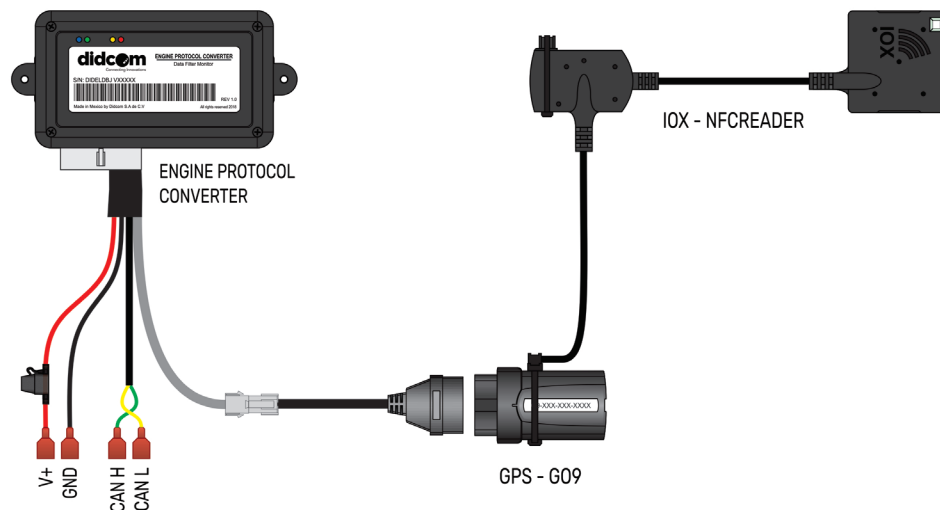
Didcom soon took on the task of implementing the ideas in the creation of dashboards, reports, charts, alert systems and others, achieving the integration of all customer requirements, both at the Hardware and Software level, obtaining a satisfactory result and especially useful for the operation and administration of the client.

At the Hardware level, 3 types of integrated devices were implemented, which together offer real-time traceability of the units, obtaining multi-brand motor data and identifying the driver.

Didcom - EPC (engine protocol converter)
Device developed by Didcom that collects multi-brand engine data and fault codes

Geotab - Go9 (GPS device)
Real-time traceability device of which Didcom is an authorized distributor in Mexico.

Geotab - IOX NFC (driver identifier)
Device that allows driver identification and of which Didcom is an authorized distributor in Mexico.

At the Software level, new functionalities were added to those that the monitoring platform offers in a native way, creating the necessary modules to cover the client's requirements, being:
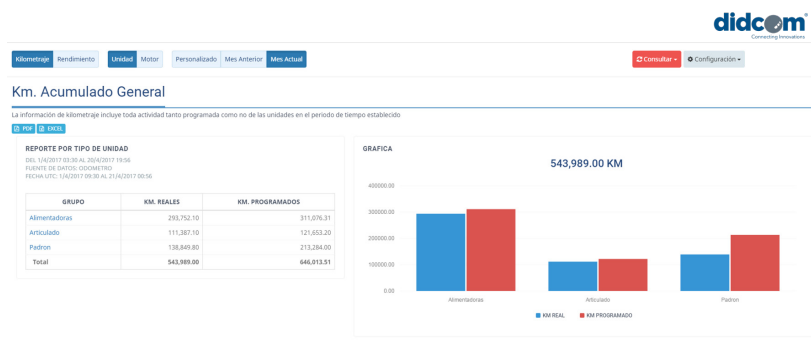
1 Management report module
Summarizes the operational information on compliance and operating times

+ General Summary: Shows by route the number of units that worked on the route, number of cycles, average journey times, average frequency time and% compliance
+ Operational Information: Shows by group of units the number of cycles vs scheduled as well as the% of compliance and punctuality

2 Kardex module per driver
It displays the records of the drivers in the units, it displays the units in which it operated as well as the initial and final records of each unit.
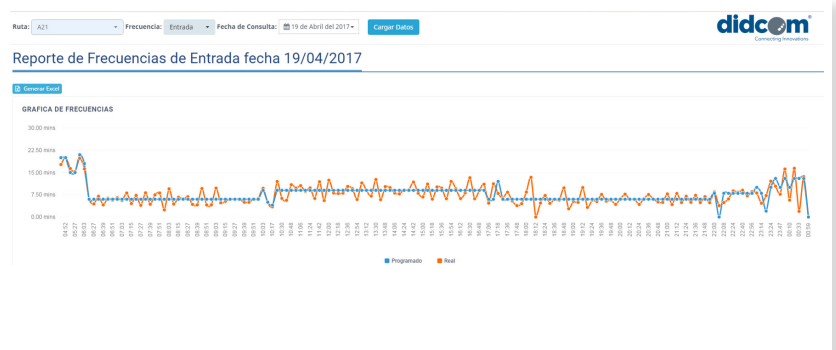
3 Logistics module

Monitors routes and compliance with cycle times, frequencies and punctuality

+ Weekly Plan: Option of the module developed to load the programming (Route, Unit, Weekly Plan, Schedule)
+ Configurator: Option to define start and end of working hours in the units
+ Punctuality: Report of compliance with the scheduled times Vs
+ Frequencies: Comparative report of input and output frequency programmed Vs real
+ Times: Comparative report of stay times and programmed route VS real
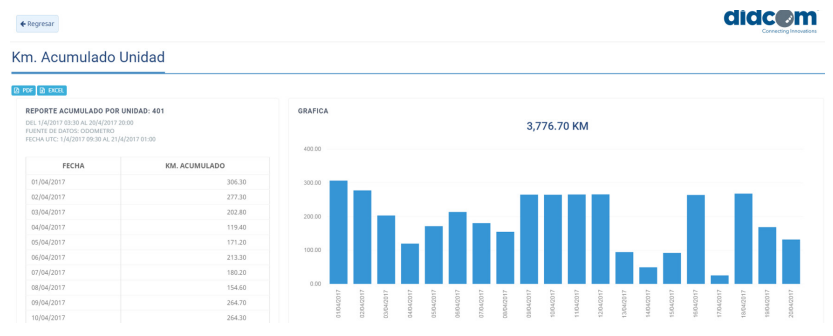
4 Mileage and Fuel Performance Module

It quantifies the mileage and fuel performance generated by the units, showing information at the operational group level, date or by operator. Gets monthly accumulated mileage and unit performance, has the functionality to go from the general to the particular:

+ Mileage and Fuel Performance by group and unit brand
+ Mileage and performance detailed by group
+ Mileage and daily performance per unit and driver

Results that transcend

Today, on Linea 2 of Puebla, 138 buses are dedicated that travel daily 30,580 km in 20 hours of daily service. TATPA Transporte has organized, optimal and above all efficient control of operation, based on real-time information that helps them to be informed in a timely manner to make accurate decisions based on 100% reliable information.

Since mid-2016, Didcom has provided TATPA Transportes with the technology described above, in these 4 years we have offered tangible results with a mature level of support, a very low percentage of device replacement, but above all, our commitment to accompanying the client that allows us to help them with new requirements, which pays off in our professional growth.

Didcom makes public its gratitude to Transportes TAPTA for the opportunity to support its operation, and above all for the trust that throughout this time they continue to show us.

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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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