

Case Study

Carbueros Metálicos Freight Management

Project Characteristics

Profile

Founded in 1897, Carbueros Metálicos is a leader company in the sector of gases for industrial and medical sectors in Spain that counts on more than 200 distribution centers around the country, what guarantees a personalized attention to the customer. With more than 1.200 professionals at your disposal, Carbueros Metálicos works to offer high quality products and services.

Challenge

To carry out the selection of the most appropriate hardware environment for the development of an application for the management of freight and delivery of material at distance through mobile devices installed on the trucks. Then, it was necessary to synchronize these terminals with Carbueros Metálicos database so as to facilitate the transfer of information in both directions.

Solution

A thorough analysis on the hardware supply market was carried out to find the most appropriate support to develop the application and the features required.

Result

The chosen hardware and the application developed allowed not only to control the delivery of material from the trucks, but also to input information related to the delivery and return of products. Besides, the synchronization of the portable terminals with Carbueros Metálicos database allows a quick updating of the information.

Technology

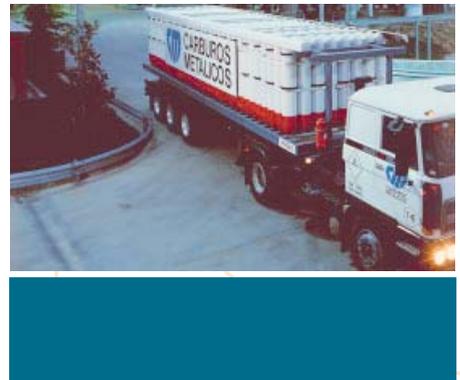
Pocket PC operative system, PPT2800 by Symbol portable terminals, Sybase Ultra-lite database, Zebra printers, Mobilink synchronization server, Zendworks.

CARBUEROS METÁLICOS

Since its creation in 1897, Carbueros Metálicos has constantly grown what made it become the leader company in the sector. Currently, it counts on more than 1.200 professionals, 17 production plants, 2 laboratories, 41 own centres and more than 200 distribution centres around the country.

Due to the big size of the company and the importance of having a strict control of all the processes, including the freight and delivery of products, they decided to develop an application that facilitated the managing and tracking of deliver products from the fleet of trucks. The main goal of this project consisted on improving the existing paper format since it was obsolete and non productive.

After seeking advice, Carbueros Metálicos relied on Concatel for developing and implementing the project.



MARKET ANALYSIS

After the award of the project, Concatel made a detailed analysis of the different necessary elements that are available on the market for developing the application (PDAs and portable printers). The search of material was very difficult for Concatel since the project was very innovative and there was not much experience on the development of these kinds of projects on the national market. It was necessary to do many trials to check the operation of each of the chosen elements, what on the other hand allowed to acquire an important experience and knowledge on this field.

Finally, a Sybase database together with a PDA Windows CE PPT 2700 by Symbol was used. However, after several trials, it was observed that with this PDA hard reset was produced and there was loss of information, including the application itself. And this happened because the information was stored in a RAM memory.

It was necessary to expand the search and analysis of the market till getting an appropriate tool, a PDA Pocket PC PPT 2800. This PDA stored the information in Flash memory, which different from a RAM memory, is not a volatile memory, what solve the problem of hard reset.

Then, the appropriate printers had to be chosen, the ones that met the requirements of the hardware environment as well as the demands of the client. After several trials, the portable printers Zebra were chosen.

INFORMATION MANAGEMENT

The application developed includes different modules for the management of documents present in a delivery system: delivery notes management, receiving slips, stock, etc.

These modules, together with other features, such as the settlement, the note of non-delivered products or the collect management allow the freight company to manage and input in the PDA all the incidents and changes produced during the delivery. Besides, the execution of the application over a Windows operative system facilitates the browsing and the input and consulting of information for the experienced users.

The management system used by Carburos Matálicos allows to improve the control process and tracking of the products delivery, as well as the availability of information and the productivity of processes.

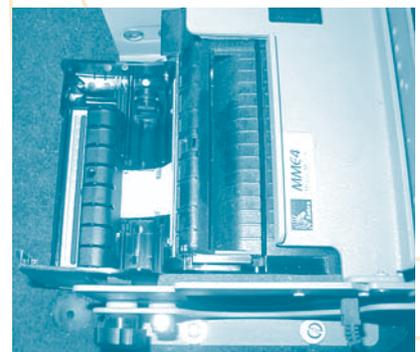
IMPLEMENTATION OF THE APPLICATION

After choosing the material, both the PDAs as well as the portable printers, the application was implemented.

The use of a Flash memory in these mobile devices made the System department to develop several studies regarding the way of structuring the application in this kind of memory, since Flash memory has not been used in this kind of devices.

On the other hand, the innovative character of the project and the fact of being the first one carried out in Spain complicated the development since there was no support in the national level.

However, the detailed study made by Concatel team allowed to overcome the difficulties.



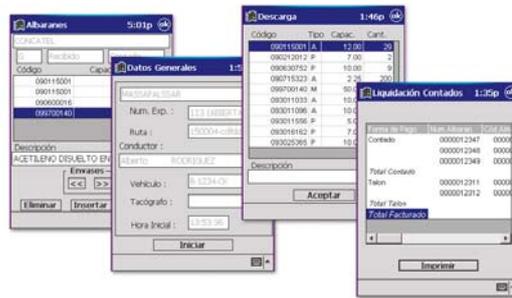
INFORMATION UPDATE

The main goal of the project was to computerize the material delivery process and avoid the double work, while reducing the costs. For this, regarding the software used, it was necessary to develop a synchronization process that allowed the flow of information (delivery notes, road notes, changes, receiving slips, etc.) from the PDA to the information system of Carbueros Metálicos, as well as the other way around.

First, some synchronization scripts were developed for the direct update: variation of the number of containers delivered, variation of stock, etc. However, since some updates required more complicated processes (estimate of prices, discounts, etc.), it was also necessary to develop stored processes that allowed to synchronize this kind of information.

Consequently, the creation of these processes allowed to develop an application through which Carbueros Metálicos can load the necessary information in the PDA of each truck from the database before starting the delivery. Then, at the end of the day, the information stored in the PDA is transferred to Carbueros Metálicos database.

The possibility of carrying out this automatic synchronization avoids having to input the information manually, as done before. So, not only the necessary time for updating the information is reduced but also are the costs.



WIRELESS TECHNOLOGY

At the beginning, a cable system to synchronize the process was chosen, using the protocol TCP/IP and a net Ethernet in each of the offices that Carbueros Metálicos has around the country.

However, a more advanced PDA was chosen, what allowed using wireless technology and transmit the information by radio frequency. Therefore, cables were not used any longer, though it was also necessary to encrypt the information. So there was a change in the record and keys of the information, what ensures confidentiality of the information transmitted.



RESULTS

The implementation of this project has allowed Carbueros Metálicos to control and manage the freight of products by the carrier through a mobile terminal (PDA) in an easy and simple way. Then, all the information gathered during the transport and input in the PDA is transferred to Carbueros Metálicos database, which is immediately updated. Apart from making the passing and consulting of information easier, the use of this application and of the mobile terminals has reduced the costs dramatically and the processes have been optimized since it is not longer necessary to repeat the work twice.

Finally, the bet Carbueros Metálicos made on implementing a wireless technology project of this kind shows not only the desire for innovating and offering high quality products and services, but also the different possibilities that this kind of technology can offer.

Thanks to the development of this project, Concatel is at the forefront of wireless technological projects in Spain.