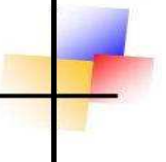


Web software application for the
Management of
Technical interventions
and Materials



Web software application for the Management of Technical interventions and Materials



The system

This application software has been designed to solve and manage all problems related to technical interventions performed at the customers' place in terms both of manpower than materials.

This software application connects the head office to all its technicians and all information are always available to both parts.

The software is composed by different but integrated and independent modules, such as

- ✓ technical interventions and materials
- ✓ “mobile” warehouse (on the vehicle) loading using the “bar code” (from the warehouse in the head office)
- ✓ warehouse loading in the “head office” using the “bar code” (from supplier orders or from production)

The “technical interventions and materials” module allows the company to achieve the following targets

- ✓ *transmission of all information from the “operational system” (central processor) in the head office to the technician's “handheld terminal” (portable terminal). Information can be about*
 - scheduled rounds
 - customer masters and item data sets
 - sale lists
 - sale terms
 - accounting situations
 - customer reliability
 - and so on

in other words all corporate rules that the technician must accomplish to since they are fundamental for the head office to check his job.

The first time the system sends all information about the technician but then just the changes in order to minimize times and amounts of information.

Whether the technician comes back or not to the head office (he may load his vehicle in different “points of supply” from the head office), data transmission can be done by phone (without coming back to the head office), by “radio” (in the head office and with wireless connection) or by the “cradle” (in the head office and with wired connection).



Web software application for the Management of Technical interventions and Materials



- ✓ *optimization of the technician's management of his customers.* The technician is guided by the system that:
 - suggests his rounds
 - checks if the customer is reliable (this check is done not only at the beginning but it is repeated for every line)
 - suggests only items specific for that customer
 - displays both synthetic than analytic statistics about interventions done for that customer
 - suggests prices and terms in function of corporate rules (that can be changed if the technician is authorized to)
 - allows the technician to manage “freebies”
 - disables the use of materials that are not stocked in the “mobile” warehouse (insertion, update, cancellation and print of sale documents like delivery notes or shipping documents),
 - displays customers' open stocks and it allows the technician to collect the related payments
 - allows the technician to collect deposits
- ✓ *automatic mobile warehouse management* through
 - automatic loading from the head office or from a point of supply
 - fast update after the delivery note printing
 - returns reception from customers
 - warehouse loading/unloading with goods received/delivered from/to another technician
 - mobile warehouse consultation
 - stock consultation
 - requests of material loading recovery both in function of what is normally used than use forecasts
- ✓ *transmission of all collected information from the technician's handheld terminal to the operational system.* Information can be:
 - rounds
 - new customer masters or changes to the existent ones
 - sale documents (a validity check is performed in the head office according to corporate rules) and then you can automatically move to invoicing and statistics
 - mobile warehouse movements
 - collections and deposits and from there operators can switch to accounting
 -

Whether the technician comes back or not to the head office (he may load his vehicle from different “points of supply” from the head office), data transmission can be done by phone (without coming back to the head office), by “radio” (in the head office and with wireless connection) or by the cradle (in the head office and with wired connection).

Web software application for the Management of Technical interventions and Materials



The mobile warehouse loading module allows technicians to load the mobile warehouse using barcodes wherever they are (both in the head office than from a point of supply). The system allows operators to

- ✓ *receive technician's request of warehouse loading on a optical terminal/reader (scanner) which is "portable and in radio frequency" and that has been supplied to the warehouse keeper*
 - ✓ *display on the handheld terminal*
 - *unloaded quantity*
 - *quantity in stock*
 - *loading quantity (what is coming out)*
 - *quantity to load (as a difference)*
- for every vehicle and item
- ✓ *update on the handheld terminal the suggested quantity to load and then add new items both "digiting" than scanning the barcodes on their related tags (this can be done for every vehicle and item)*
 - ✓ *issue and print delivery notes related to the mobile warehouse loading on the handheld terminal*
 - ✓ *load automatically the mobile warehouse from the handheld terminal and then unload the warehouse in the head office*
 - ✓ *print of the list of unloaded and loaded items and the ones in stock from the radiofrequency handheld terminal for every mobile warehouse*
 - ✓ *print barcode tags from the handheld terminal in case there is none on the item in the warehouse*



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To load the warehouse in the head office using the barcode from supplier or from production, the system allows operators to

- ✓ *add the essential data of the document* (supplier/department, number and date) on a mobile and radiofrequency optical terminal/reader (scanner) given to the warehouse keeper
- ✓ *scan the barcode on items or on their boxes with the handheld terminal and then digit their quantities* in function of the suggested or chosen measurement unit/units
- ✓ *choose an item* (for family or group, in alphabetical order, considering part of its code and so on) if it has no barcode and then digit its quantity
- ✓ *print barcode tags* from the handheld terminal in case there is none on the item in the warehouse
- ✓ *load automatically the warehouse in the head office* using the radiofrequency handheld terminal
- ✓ *print of the list of loaded items a from the radiofrequency handheld terminal* for goods inward (from supplier than considering internal production)



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benefits

This application software rationalizes all activities connected to technical interventions at the customers' place using just handheld terminals supplied to technicians and it allows operators to

- ✓ *avoid "data rewriting"*: handheld terminals supplied to operators collect data that are no more written on a piece of paper but that are transferred directly to the "central system" with no need of a further data rewriting by people in the head office
- ✓ *avoid errors*: the fact that data must not be written up and they are suggested by the handheld terminal, limits strongly final errors. The use of handheld terminals and "bar codes" allows operators to check constantly activity correctness.
- ✓ *avoid wastes of time*: the fact that data must not be written up and they are suggested by the handheld terminal, limits strongly wastes of time. Automatism in the information structure (for example: contracts, interventions, availability and so on) avoid both searches than unuseful wastes of time due to manuality
- ✓ *avoid operator costs*: no data rewriting means also no need of people involved in such activities
- ✓ *avoid manual checks*: handheld terminals allow real-time checks to data collected by operators. Further checks can be done in the head office.
- ✓ *improve operator productivity*: automatism in the information structure make operators more confident and productive and so they are less subject to errors or wastes of time
- ✓ *integration with any operational system*: the handheld terminals' database can exchange information with any operational database in the company, improving times and results to both information structures

So thanks to its benefits, the system allows the company to

- minimize errors and times
- reduce costs



Web software application for the Management of Technical interventions and Materials



This application software rationalizes all activities connected to warehouse loading and unloading using just a mobile radiofrequency handheld terminal which is given to the warehouse keeper. For this reason it allows operators to

- ✓ *avoid “data rewriting”*: handheld terminals supplied to the warehouse keeper receive automatically all requests of mobile warehouse loading from the technicians. The operators just needs to scan item barcodes for items to load without the need of pieces of paper.
- ✓ *avoid errors*: the fact that data must not be written up limits strongly final errors. The use of handheld terminals and “bar codes” allows operators to check constantly activity correctness.
- ✓ *avoid wastes of time*: the fact that data must not be written up and they are suggested by the handheld terminal, limits strongly wastes of time. Automatism in the information structure (for example: item suggestion and barcode reading) avoid useless wastes of time due to manuality and fasten up activities.
- ✓ *avoid manual checks*: handheld terminals allow real-time checks between suggested items to load and barcode scanned by the warehouse keeper.
- ✓ *automatic warehouse loading/unloading*: the scan of item barcodes loads automatically the mobile warehouse and at the same time it unloads the warehouse in the head office
- ✓ *improve operator productivity*: automatism in the information structure make the warehouse keeper more confident and productive and less subject to errors or wastes of time
- ✓ *integration with any operational system*: the handheld terminals' database can exchange information with any operational database in the company, improving times and results to both information structures

So, thanks to its benefits, this application software helps the company to

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Web software application for the Management of Technical interventions and Materials



This application software rationalizes all activities connected to warehouse loading in the head office using just a mobile radiofrequency handheld terminal and an optical barcode reader which are given to the warehouse keeper. For this reason it allows operators to

- ✓ *minimize "data writing"*: on the radiofrequency handheld terminal the warehouse keeper must only digit the essential data of the loading document and then (this is the main part of the job) "scan" the "barcode" of items to load
- ✓ *minimize errors*: the scanning of item barcodes to load minimizes errors
- ✓ *minimize wastes of time*: the scan of item barcodes to load fastens up loading activities
- ✓ *automatic warehouse loading*: the scan of item barcodes loads automatically the warehouse in the head office
- ✓ *improve operator productivity*: automatisms in the information structure make the warehouse keeper more confident and productive and less subject to errors or wastes of time
- ✓ *integration with any operational system*: the handheld terminals' database can exchange information with any operational database in the company, improving times and results to both information structures

So thanks to its benefits, the system helps the company to

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features

Principles followed in the design and implementation of this software application are

- it must be suitable for different corporate realities
- it must be user friendly
- information must be consistent

For this reason it has the following features:

- ✓ *multi-company*: this application can manage different operational realities
- ✓ *security*: this instrument can be completely configured by the user in terms of administration of access policies

For “technical interventions and materials”, it allows operators to

- ✓ *perform data transmission wherever they are*: whether the technician comes back or not to the head office, information needed by the technician can be transmitted by phone (the handheld terminal is equipped with a GSM card), by “radio” (the handheld terminal is equipped with a radio card) or by the “cradle” (the box of a handheld terminal linked to the central system by the network).
- ✓ *suggest rounds for the day*
- ✓ *check customer reliability*: considering information about customer reliability, the company can automatic check if customers are reliable in other words if a customer has no more credit and technicians try to select him, the system displays a message and activities are stopped. This check is done also for every line in the document, in other words if the credit expires in function of the amount of a single “line” in the document, it is stopped at that point unless the technicians collects more money from the customer and that allows further sales.
- ✓ *suggest only items used by the customer*: considering the “customer historian” operators can suggest “only” the items used by customers. This functions does not avoid the sale of different items that would be suggested from next visit.
- ✓ *display intervention statistics*: the “customer historian” allows the technician to display synthetic than analytic intervention statistics about the customer for a technical evaluation both of interventions than types and volumes of materials used.
- ✓ *suggest lists and terms of intervention*: the transmission of corporate rules like “lists and terms” of intervention to the handheld terminal of



Web software application for the Management of Technical interventions and Materials



the technician allows him to receive the suggestion of such information during the insertion of the document. These information can be changed if he is authorized to; this features fastens up effectiveness and it avoids possible errors

- ✓ *offer freebies, and so on:* technicians can manage the terms of promotional campaigns, like “freebies” and so on
- ✓ *avoid the sale and display items that are “not in stock”:* the application on the handheld terminal checks and disables the use and sale of items that are not in stock in the “mobile” warehouse”
- ✓ *collect customer payments:* the application on the “handheld terminal” allows technicians to display customer’s open stocks than to collect their related payments
- ✓ *receive deposits:* technicians can collect and record deposits against issued documents
- ✓ *load the mobile warehouse:* this instrument provides for the automatic warehouse loading both from the head office than from a “point of supply”, the prompt update after the printing of the document related to the intervention, the possibility of loading “returns” from customers and to “exchange” items with other technicians, the consultation and the inventory of the “mobile” warehouse and the automatic loading in function of what has been used
- ✓ *perform data transmission:* whether the technician comes back or not to the head office, information collected by the technician on his handheld terminal can be received by phone (the handheld terminal is equipped with a GSM card), by radio (the handheld terminal is equipped with a radio card) or by the “cradle” (the box of an “handhle dterminal” connected to the central system by the lan) in the head office
- ✓ *activate automatism in the head office:* data received by the handheld terminal activate automatism like “rounds” done, openings or changes to customer masters, statistics, invoicing, deposits and advance payments, and so on.



Web software application for the Management of Technical interventions and Materials



For “the mobile warehouse loading”, it allows operators to

- ✓ *receive recovery requests*: from the “handheld terminal”, the mobile radiofrequency terminal receives the request of recovery for the “mobile” warehouse
- ✓ *loading proposals*: on the radiofrequency handheld terminal the system suggests items and the related quantities to load, the warehouse keeper can add new items both “digiting” them than “scanning” their barcodes on the related tag
- ✓ *print delivery notes*: the radiofrequency handheld terminal issues and prints delivery notes when the loading has been done
- ✓ *load the mobile warehouse*: the radiofrequency handheld terminal issues automatically the “mobile” warehouse loading and the related unloading of the one in the head office
- ✓ *list unloaded, loaded items and the ones in stock*: the radiofrequency handheld terminal prints a list of unloaded, loaded items and the ones in stock in every vehicle
- ✓ *print barcode tag*: the “radiofrequency handheld terminal” allows operators to print barcode tags upon request of the warehouse keeper

Features for the warehouse loading in the head office, the system allows operators to

- ✓ *scan item barcodes to load*: with the radiofrequency handheld terminal the warehouse keeper scans the barcodes of items to load
- ✓ *load the central warehouse*: the radiofrequency handheld terminal issues automatically loading requests for the warehouse in the head office
- ✓ *loading lists*: the radiofrequency handheld terminal issues the list of loaded items
- ✓ *print barcode tags*: the radiofrequency handheld terminal prints barcode tags upon request of the warehouse keeper



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configuration

✓ platform

operating system : Windows CE for the handheld terminal

database : SQL server (Windows CE)

