10th International Research/Expert Conference
"Trends in the Development of Machinery and Associated Technology"
TMT 2006, Barcelona-Lloret de Mar, Spain, 11-15 September, 2006

PREVIEW OF TOOLBOX GSM

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ABSTRACT
Toolbox GSM is the name for recently developed complex system of goods supplies and take-off. This system allows fully automate demands on supplies of new goods, consumer getting 24 hourly access to goods, that have had to order before. The Toolbox GSM consist of case that contains goods, barcode scanner, GSM modulus for communication and program with WWW interface that caters entire logic. Basic pillar of the system is automatic record of take-off of tools and goods. Flow of goods and person identification is done by barcode. The code of taken goods from case is send by GSM module to the supplier company for the record. All recording proceed according to criteria arrange with customer. Standard criteria include: quantity and type of goods, person that take-off this item, date and time. Developed system on the supplier side automatically processes the data and provide automatic refill of the toolbox with the new items. Duty of supplier is provide refill of the case (Toolbox GSM) with the new items. Configuration of requirements, monitoring of flow of goods and other parameters are accessible via WWW interface. There could be defined several levels of access rights for supplier and customer. Developed system makes easy and more quickly flow of goods and next invoicing of goods.
Keywords: Trading system, work automatization, WWW

1. PREVIOUS STATE OF ORDERS A SUPPLIES
Each productive engineering company has in his shop floor big consumption of tools, for example tools for turning operations, milling, cutting operation and making screw-threads. The system of purchase of this material should be very sophistry; flow of tools in the bigger company often required specialized labor force.
Previous state of production of orders and verification of supplies of goods requires a lot of manual work. When computer age coming to us, It is getting better. But it's innovation only from spectacle of company leaders, because they could obtain better statistic information (computer could offer this). However, when you ask common worker, many of them say that his work is more complicated and he has to think about. The computer is something mystical for common workers and he approach to computer with big distrust. He should pursue a lot of operations (that previously does not make) for statistical output. Important element: "think about work" is insuperable obstacle for many workers. In system of supplies, orders, consumption and subsequent invoicing approach other factors, which can influence faultless functioning of whole company. It is impossible order tools at the moment of the requirement, because at that point can come to suspension of production and subsequent financial losses. The responsible stuff should be appointed.

All of these problems are possible pass by the help of developed Toolbox GSM, which simplify above described operations and shifts some duties to supplier.

2. TOOLBOX GSM

2.1. Benefits

Toolbox GSM is dispenser of necessary tools, which is placed right on the production shop floor. Box contains all necessary tools. Goods contained in the toolbox is property of supply organization, it is a big benefit for company. When workers need a new tool, it is possible take out the tool from the box and system of Toolbox GSM consecutively generates invoice for all taken tools at the end of the settled time period. Production company (customer) can save fairly big amount, because they do not need stock and have instant access to necessary tools. Supplier should keep constant quantity of tools. Developed system provides evidence of issued instruments, notice supplier on necessity of refilling of box and itself produce required statistic.

2.2. Principle of function

Toolbox GSM consists of case that can have arbitrary proportions, everything depend only on consumer requirement. Typical proportions are between 700x700x200 mm and 1400x1800x200 mm. All of cases have transparent front door, so naked eye can check contents of the case (figure 1). The case contents small Liquid Crystal Display which report status information and provide easy user guide.

Figure 1: Toolbox GSM

GSM module (Siemens TC45) with implementation of programming language JAVA is one of the components of the case. This GSM module (figure 2) provides internet access using GPRS technology. Advantage of GPRS technology is permanent on-line internet connection with high speed [3]. The GSM module connects directly to central server in the Prosperity System company and sends security and service information there. This server supplies entire logic of developed system. Centralized logic has big advantage in the case of possible problems. As the server store very important data, the data are backed up each 30 minutes.

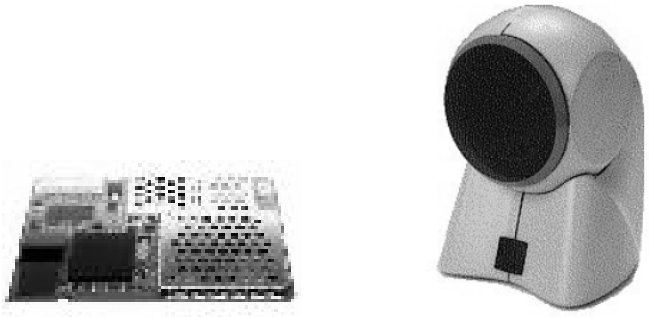

Figure 2.: GSM module and barecode scanner

The information about goods flow are obtained by the help of omni directional laser barcode scanner Metrologic MS7100 Orbit (figure 2), which is based on holographic scan technology. Barcode reading in visual angle of sensor is done fully automatic without activating any button. Service life of light source (laser diode) is possible extend by sleep mode. The laser is switched off in the sleep mode; this mode is automatically finished by barcode reading.
Each worker should be identified by access card, which is based on barcode (Figure 3).

Figure 3.: Access card

There are the name of the worker and his identification barcode on the identification card. The information about Toolbox (Identification and location) is written on the right down. Access rights are possible define via WWW interface.

2.3. Taking tools away from the Toolbox

The procedure of taking tools from the Toolbox is very simple and it is possible describe this procedure in a few steps:

- Identification of worker by access card
- Display write progress information's out
- Scanner read barcode of detracted tool.
- Display writes confirmation out and twice shortly beeps, than Toolbox expect next operation.

The owner of the all goods in the case is supplier (just till to the take away). If the tool are taken away by mistake, it is possible return the tool by the help of special return card. However it is possible return only unused package.

2.4. Business system accessible via WWW interface

Each consumer obtains access to the business system by the installation of Toolbox GSM. Whole system consists of several modules. Administrator is able to set up access rights (including devolution of setting up access rights). The user can setup up just only access rights which are subset of his access rights. The system support several language mutation, but in this time just Czech language is fully supported. The English translation will be finished soon. System with all modules is displayed on figure 4.

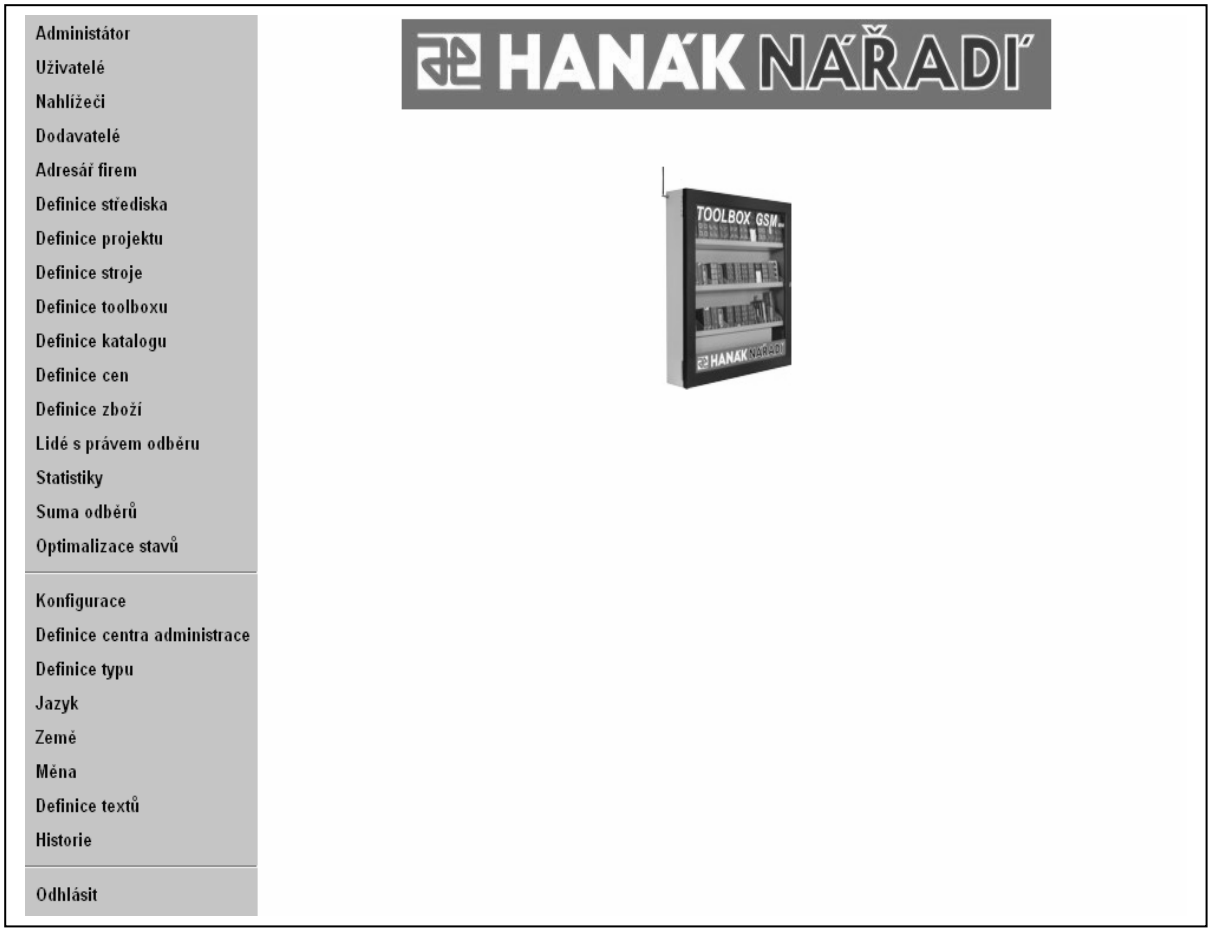

Figure 4.: Business system of company HANÁK NÁŘADÍ with all modules

3. CONCLUSIONS

Toolbox GSM is the name for recently developed complex system of goods supplies and take-off. This system allows fully automate demands on supplies of new goods, consumer getting 24 hourly access to goods, that have had to order before. Box contains all necessary tools required by customer. Goods contained in the toolbox is property of supply organization, it is a big benefit for production (customer) company. Production company can save fairly big amount, because they do not need stock and have instant access to necessary tools. Developed system provides evidence of issued instruments, notice supplier on necessity of refilling of box and itself produce required statistic.

4. ACKNOWLEDGEMENTS

This work was supported by the GAČR under grant No. 102/05/0271, and by the Ministry of Education of the Czech Republic under grant No. MSM 7088352101.

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