

## Apps and RFID for automation along the value chain in window manufacturing

In the last three years, Felbermayer, a firm located near Vienna has introduced the MES-System FEtronic consisting of business apps and web portal. Eberle GmbH has developed the web-based integrated solution for automated wood and wood-aluminium window production. The apps are linked into various different workflows allowing customised mapping of business processes. Data transfer from existing window construction software takes place automatically by XML.



The entire production process from the delivery of materials through the various stages of production up to dispatch and assembly is mapped at Felbermayer's using apps. A specific app was developed for each stage of production, which makes the order data and the features required for automation available to the machines (robots) and at each work station.

### Quick and easy to adjust

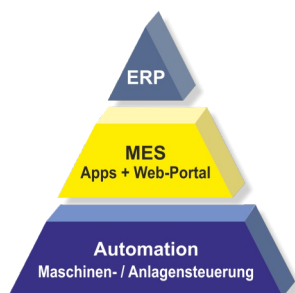
Due to their programming by a next generation RAD-software development tool the apps can be changed quickly and easily so that they can be easily adjusted to customised operating requirements.

In this way flexibility in the entire manufacture, delivery and assembly process is increased. A software update for an app is completely customised and only takes place when working procedures or business conditions change and require an adjustment.

Each app is thus a completely precise customised tool for the co-workers in the company at a particular work station or for a specific task.

### Individual and practical

Each worker can contribute to the configuration of the app, so that using it is as simple and practice-oriented as possible. Visualising the order line by means of a traffic light colour scheme ensures that the progress of production is intuitively identifiable. An app for storing parts in a buffer zone and the graphic display of trolley loading makes production management easier and more flexible as parts can be grouped together and reserved for automatic reproduction for example.



Architektur: Manufacturing Execution System (MES)

## Apps and RFID for optimisation along the value chain in window manufacturing

### Visualisation in real time with livestream

An app control indicates on an app or a group of apps how many parts in an area of production in a period of time and of a particular order were manufactured and graphically displays the efficiency in real time. Production performance data are clearly visualised and individually focussed in a production cockpit. In this way production quantities are always clearly visible and manufacturing problems are quickly identified.

### Mobilising business processes

Mobilising business processes and interconnecting all those involved in an order by means of the apps, optimises the entire value chain of window production.

All co-workers have access to the orders and their progress at all times and independently of where they are.

All teams from distribution, preparation, picking and assembly can communicate easily by app and if necessary can make additional changes to an order or organise any unplanned operations and tasks.

Each app has a light to signal good and defective parts for quality control. In this way parts can be stored conveniently in a buffer zone for reworking or automatic reproduction.

### RFID for automation

Extensive automation of the stages of production and order traceability is achieved using RFID. Each part receives a specific RFID tag at Felbermayer so that it can be identified automatically by mobile or stationary readers. Trolleys, transport frames and containers are also provided with an RFID tag. In this way, order picking for transporting to building sites and keeping those items belonging to an order together along with fixtures and assembly materials can be

controlled more efficiently and securely, erem die among other things. This in turn speeds up the procedures for checking the completeness of an order in dispatch as well as in the loading of trucks and allows for predominantly paperless transactions.



With RFID errors like mixing up similar parts like e.g., glass panes, are avoided and which parts are on a transport frame or in a container can be ascertained at all times via mobile devices. Tracking and supervision of deliveries and transportation is optimised by contact-free identification via RFID. A multimedia app for a montage with digital signature and images as evidence of delivery and documentation at the building site or customer's completes the range of apps. Using this app significantly reduces the list of complaints and outstanding accounts.



App window replacement

### Work interconnectedly, flexibly and automatically

The bottom line is that using apps and RFID fully exploits the possibilities for automation and flexibility. Mobilising business processes and linking everyone on the value chain with real time information by means of the internet optimises the overall cost-effectiveness and sustainability of the company.

### Agile corporate development

These quickly adjustable apps allow a convenient and continuous process of improvement at Felbermayer, without needing to be tied to particular software updates as is usually the case with traditional IT solutions. The successful implementation of the app based MES- Systems FEtronic will be advanced and developed with further apps.

For further information go to: [www.hgp-Eberle.de](http://www.hgp-Eberle.de).