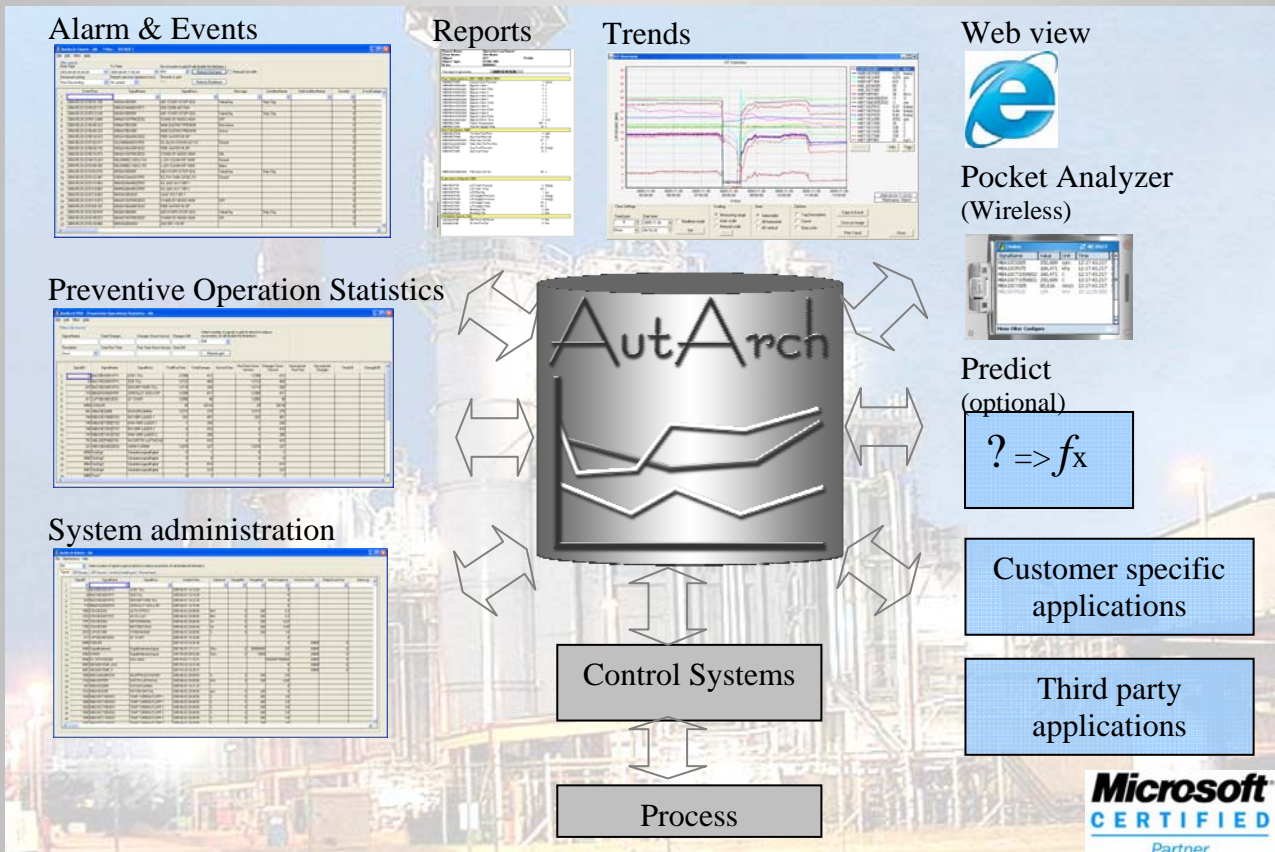


Use the history to create your future!

General: AutArch is a system based on an advanced historical database used to optimize complex process systems. The system consists of several modules where the database is the central part of the system to store and retrieve the process data from. The system is optimized to hold large amount of process data and alarms & events in long term storage. The system is based on an open platform with standard interfaces, which enables a wide range of control systems to be connected. It does also make it easier for customer and third party supplier to add extensions and connect existing applications to the system in an efficient way. The system is scalable and can be configured in a flexible way to suite a wide range of installations. Sampling of data from the control systems are mainly done via the OPC standard protocol.



Database: When storing data, irrelevant data (noise according to the accuracy of the measurement) on analogue signals is removed by a compression algorithm. Except saving space, this will also optimize access time from the database. The level of compression can be adjusted by the user or be tuned and evaluated automatically by an analyzing application.

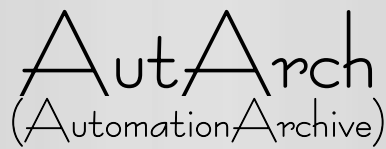
All digital signals are equipped with accumulators for counting switches and operating hours to be used for maintenance purpose. The archived data is stored in a Microsoft[®] SQL Server[™] database. The database

contains special designed functions to be used when storing, evaluating and analyzing data. These functions are available not only for internal purposes, but also for external systems. The database structure and internal functions are documented and supported to the customer. The database contains a calculation engine, where the user can create calculated signals with advanced formula expressions. (Some calculation functions like average

values, min, max etc. are implemented as standard functions available as attributes on all signals.)

Client applications: There are several client applications within the system. Some of them are described in following section:

Trends: All signals in the database can be viewed as trends in a trend viewer tool. The trend viewer is very flexible for configuring new trends. A trend is a set of signals. In each trend, the user can select time range, scroll, zoom etc. Selected data can be exported to Microsoft[®] Excel[™] etc.



Reports: Reports can be configured in a very flexible way by the user. The reports can be generated from MS Excel, and in addition to already existing AutArch functions, Microsoft® Excel™ standard functions can be used.

Alarms & Events: The Alarms & Events application is an application used for analyzing collected events from the systems. All events can be selected from the database. Filtering and sorting can be done in a very flexible way. Favourite filters etc. can be stored for future use.

Preventive Operation Statistics: The “POS” application presents the statistic data for each digital signal. For each digital signal following parameters are stored:

- Total operating hours.
- Operating hours since last time service was made on the object.
- Total switches (counters) of the signal.
- Switches since last time service was made on the object.

Maintenance data from the supplier of the object can be entered in the application and stored in the database. Filters can then be used to get an indication of which objects that will need service within e.g. one month.

Pocket Analyzer: The pocket analyzer is an application developed on Windows Mobile® platform to be running on a PDA (Personal Digital Assi-stant). The PDA communicates with the database via Wireless LAN, GPRS or other

suitable communication standard. From the PDA, signals can be selected into lists and be put into “online mode” which presents updated real time values on the PDA. Set point values and other values can be set from the PDA for simulation etc. A DMM (Digital Multi Meter) or handheld simulator can be connected to the PDA via a serial cable. The connected signal can then also be stored in the database and be used as reference to a “checked” signal. By saving relations between the reference signal and tested signal, this can be used as a “check out” tool or commissioning tool, where one man has control of the complete signal chain from the process. If the Pocket Analyzer is a requested function but not the historical database, the Pocket Analyzer can be delivered with a “communication engine” only.

Web View: By the using a set of web components, standard web pages can be used to view history or real time data from the database.

OPC clients: The OPC clients (OPC Data Access and OPC Alarms & Events) that are used to collect data from the control systems into the database are designed for manage high throughput without data loss even if the database would be temporarily unavailable. Priority settings can be made to not overload a computer by collecting data.

Predict: Predict is an optional application that can be connected to the database. The application uses an intelligent

method to analyse a selected process. By evaluating historical data and using “artificial intelligence”, the application will find a robust mathematical model with good accuracy describing the process. The model can be used to simulate other operating conditions, or to optimize the control by predicting the result based on other tuning parameters etc. This optional application can also be connected to other systems or use data to train the model on via e.g. Microsoft® Excel™.

Connection to other client applications: Customer specific applications can easily be connected to the system by customer or third party companies. The documentation describes the functions to use and connection principles are general Microsoft® standard.

Remote connections: There are several easy and safe ways to connect to the system from a remote office or site. Replication to a separate “Offline” system can also be made by encrypted transfer files.

Safety: There are several different safe ways of regulating access to the system.

Certifications: The system is tested and certified by Microsoft® for Microsoft® Windows® XP and Microsoft® SQL Server™.

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