تحضير، تعبئة و تغليف، حلول هندسية
Process, Packaging, Engineering

SCADA Systems in pharmaceutical industry: Overview and advantages.

The pharmaceutical industry is one of the most critical industries at all times because of the high safety requirements and the handled risks during the use by patients. To satisfy all these factors, pharmaceutical manufacturers invest and use highly reliable systems to control, monitor, register the entire process variables and validate it. However, for very long time, most of this work used to be done using basic tools such as manual gauges and meters with pens and papers at least until SCADA arrived.

SCADA is a shortcut for **S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition system, SCADA is an integrated system which is used to control and monitor every part of a certain plant. It provides many features like graphical user interfaces for monitoring and controlling system variables, alarms, recipes management, and data logging, which makes it perfect for systems that need strict control like pharmaceutical preparation lines.

Usually, SCADA is an integration of multiple small systems (see Figure-1). Supervisory computers, which collect data and send commands to the field devices using some kind of communication infrastructure. Field devices can be RTUs that read system variables and send it to the supervisory control system to receive commands, which it uses to control system

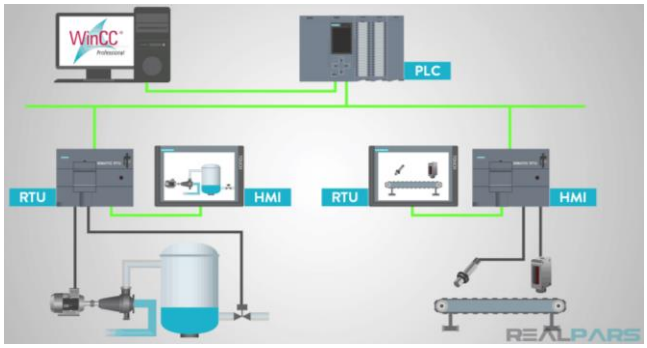

Figure 1 – SCADA Components, By

actuators or PLCs, which can monitor the system and control its actuators directly. Most of the applications, SCADA has graphical user interfaces that help users to monitor and control the system and it is known as HMI.

When we at AFAQ01 implement a SCADA System, we are using a single platform that can not only improve our processes, but also satisfy requirements of the U.S. Food & Drug Administration (FDA). The FDA's Title 21 of the Code of Federal Regulations Part 11 — also known as 21 CFR 11 — establishes rules for the use of electronic records and signatures, covering authentication, confidentiality, integrity, availability and more (See Figure-2).

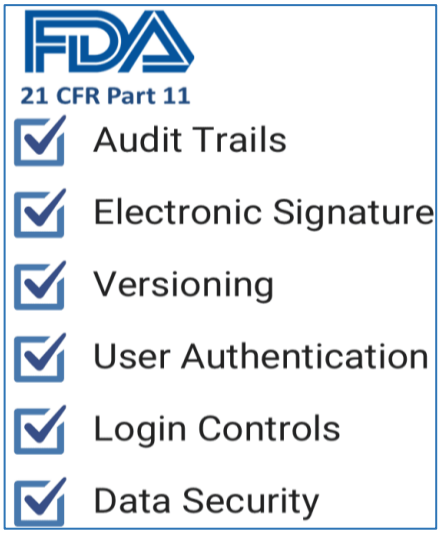

Figure 2 – FDA 21 CFR 11

To help the operator to control these huge number of process variables and parameters (such as: pH, Conductivity, Temperature, Dissolved oxygen...etc) We provide a 3D graphical user interface that have a significant role in better understand, hence, better use of the equipment. Audit-Trails (See Figure-3) is also used, to provide the required validation overall process without the need of the old traditional way with papers, pens and signatures.

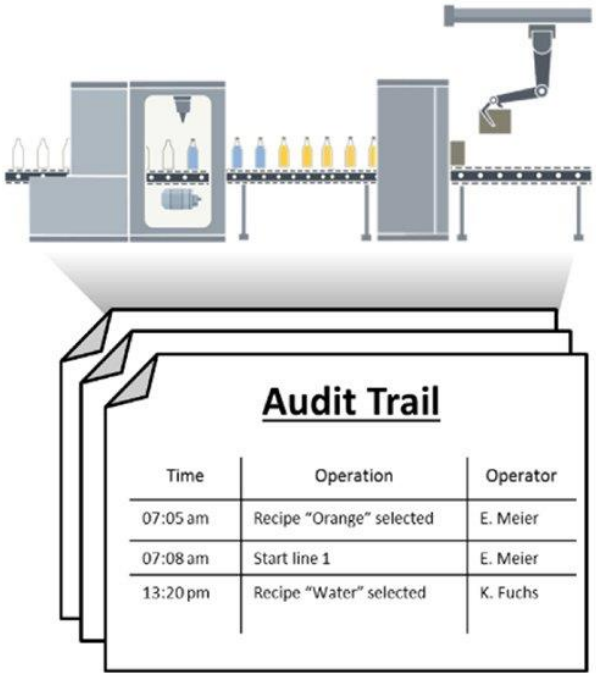

Figure 3 – Audit Trails

SCADA is a major step to apply the concept of INDUATRY 4.0, wich is located under the interest of AFAQ. When AFAQ equipment and customer's communication system infrastructure are merged together, we can touch the extra end of machine reliability, traceability and customer support. All these factors will help AFAQ to reach the pharmaceutical industry demands with higher performance and reliability.

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