

## APS (Autonomous Power Supplier)

European GSM providers that expand their activities to African countries, usually face problems when it comes to power supply the GSM Rx-Tx cellular system. To resolve the problem they use APS systems that are 20' containers with battery-arrays and dc-ac inverters stored inside. The batteries may charge by the use of a photovoltaic element or a windmill generator, mounted on top of the container, or a diesel engine generator stored inside the container, or even any combination of those. It is vital to monitor the inner temperature, as very low or very high temperatures may cause fatal problems to the batteries. At the same time, it is also important to monitor the battery voltage and the current consumed by the station, for the A/C system and the GSM transmitter, as well as the photovoltaic, windmill, or diesel generated current(s). It is also useful to monitor the diesel-oil level in the tank included in the container, to prevent lack of fuel for the diesel-generator operation.



Typically, APS systems are spread around a very wide area, located in remote sites, where in most of the cases it is difficult to be accessed by technical personnel for inspection, or maintenance.

The use of iLOG-GSM is the solution to the problem:

Each APS carries a monitoring system based on an iLOG-GSM that automatically transmits the station readings, on predefined time intervals, using Internet access via GSM to send data files to multiple Email accounts or FTP sites. At the same, alarms are immediately transmitted via the GSM network to multiple SMS recipients.

This way, crucial information on the APS operation is always in hand, regardless of how far the APS is actually located, while immediate alarming allows technical personnel to handle maintenance.

# Cold chain monitoring – HACCP

Companies that process dairy products, use milk as the main raw material for their production. It is extremely important that milk must be collected, transported and processed under specific temperature conditions that will guarantee that the product is in excellent shape and no vitiation occurred.

Originally, milk is produced in farms spread around the countryside, where big collection tanks exist to gather the locally milked product. Every a few kilometers, a central collection point exists, with really big tanks, to gather milk from the farms nearby. So, it is important to monitor the tank temperature in each and any of the farms, as well as in each and any of the central collection points. Furthermore, it is also useful to monitor the milk level in those tanks, in order to schedule an efficient collection plan for the tanker vehicles.



When milk is collected from the central points and is transported to the main industrial facility, the milk temperature is also important to be monitored. Finally, the store temperature in the major tanks located in the factory must be monitored too, as well as the milk level.

The use of an iLOG-GSM and iLOG-LAN combination is the solution to the problem:

Each farm will have its own iLOG-GSM to monitor the milk temperature and tank level. Furthermore, each central collection point will have its own iLOG-GSM to monitor the milk temperature and tank level, too. Finally, each tanker vehicle will carry its own iLOG-GSM to also monitor the milk temperature and tank level. At all cases, the readings will automatically be transmitted, on predefined time intervals, using Internet access via GSM to send data files to multiple Email accounts or FTP sites. At the same, alarms will be immediately transmitted via the GSM network to multiple SMS recipients to take immediate action, i.e. maintain the cooling system, or call the tanker vehicle to collect the product.

Each major tank in the factory will have its own iLOG-LAN to monitor the milk temperature and tank level, as well as parts of the process sequence to guarantee the well being of the product. The readings will be automatically transmitted, via wired or wireless LAN, to send data files using Internet to multiple Email accounts or FTP sites, or to control the iLOG-LAN units remotely by the use of a local PC.

This way, crucial information on milk is always in hand, regardless of how far the farm or the collection point is actually located, while immediate alarming allows technical personnel to handle maintenance and control.

# Greenhouse

The unpredictable weather conditions and the increasing demand for vegetables, flowers and other agricultural products all around the year long, have led modern farms to invest in greenhouse worldwide. Several crucial parameters must be monitored inside a greenhouse to assure the well being of the plants in process. Furthermore, local automation systems based on PLCs take control of the inner conditions and activate the appropriate machinery. Unfortunately this isn't enough, as in most of the cases the greenhouses are located far away from the maintenance personnel and greenhouse administration.



Therefore, it is highly needed to install a telemetric monitoring system that will guard the installation, keep historical data for the most important parameters of the greenhouse environment, transmit data and alarms to remote control centers, and last but not least, automatically transmit SMS alarms to authorized technical personnel, in order to handle critical cases.

The use of an iLOG-GSM can resolve the case easily, regardless of the actual location of the remote greenhouse and the control center. If a phone line is accessible, then an iLOG-EDM could be used too, attached to an external dialup modem, to handle the transmission. If more I/Os must be monitored, than those an iLOG can hold, then multiple iLOG-LAN units should be used, hooked on the same local network with an external GSM router that will handle the transmission.

Each greenhouse will have its own iLOG system and the readings will automatically be transmitted, on predefined time intervals, using Internet access to send data files to multiple Email accounts or FTP sites. At the same, alarms will be immediately transmitted via the GSM network to multiple SMS recipients to take immediate action.