BMC Smart Box

Better Control Over Milk Quality through Technology

Case Study : Technology Solution For Bulk Milk Cooler

Executive Summary

We understand the problems faced by the milk industry. Our goal was to develop a solution that empowers BMC operators by making monitoring of milk stored at BMC facilities smooth, efficient and cost saving. BMC SmartBox is designed to monitor Bulk Milk Coolers (BMC) to keep track of milk quantity, temperature, compressor, and agitator status. Any deviation observed will notify the server through its GSM connectivity. With such attention to detail, BMC SmartBox is the most comprehensive monitoring system in the market. It is designed to:

- Eliminate problems of old systems.

- Deliver real-time   information about activities at BMC facilities.

- Reduce cost and increase efficiency manifolds

About BMC SmartBox

BMC is a one-stop solution to eliminate worries regarding preserving milk quality, micro-manage milk collection and storage process, and get swifter results. The device captures an accurate quantity of milk stored in the BMC and track changes in case of contamination and spillage of milk. It maintains and monitors the precise temperature in BMC to prevent curdling, souring and spoiling of milk while preserving proper quality. Additionally, BMC SmartBox monitors power supply through a generator or power grid to regulate temperature and quantity of milk in BMC even in the case of power failure. It helps in avoiding icing of milk as agitator rotates continuously in BMC while maintaining a suitable temperature of the milk. Hot water CIP is automatically detected. The maximum temperature for hot water and CIP duration is logged. Generates proper and required temperature in BMC to retain desired milk quality over an extended period.

Prompt AMCS is made up of several components, mainly our products that are interconnected, have role-based authorized access to data in BMC Cloud, and used by end-users like personnel at Milk Federations, BMC operators, and milk transporters. These components are BMC SmartBox device and BMC SmartBox App.

Challenges

The primary step was to gain practical experience of on-site problems, identify the locations where they prevail, and gain enough knowledge on the same to understand requirements of the system to be developed. The challenges discovered were required to be overcome before laying the foundation of a transparent system that could provide efficient ways to monitor BMC and avoid massive losses incurred by the dairy industry either due to poormilk quality or malpractices. Here, we mention a few of the significant challenges particularly for which, BMC SmartBox was developed and implemented.

- Lack of real-time information like quantity and temperature of the milk
- No mechanism to maintain and monitor the temperature
- Irregular Cleaning-in-Process (CIP) causing deterioration of milk quality
- Truck-wise manual recording of the datasheet
- Lack of a tool to check milk FAT & SNF and milk adulteration

How BMC SmartBox Helped

After fathoming out the causes of declining milk quality, the absence of milk data records and increasing malpractices, we subsequently built a solution that obliterates the challenges stated previously and acts as an interface between the BMC sites and the milk federations. Therefore, we introduced a revolutionary product called BMC SmartBox that:

- Monitors quantity of milk, temperature status, multiple compressors & agitator status, and power supply status
- Facilitates in-built Cleaning-in-Process (CIP) to check if the cleaning of BMC is done according to the required standards
- Has its inbuilt battery backup that continues to monitor the status of BMCs in case of power failures
- Allows knowing what volume of milk is available at any particular BMC facility through comprehensive reports of milk collection quantity in real-time.

- This feature helps is milk stock planning and allow logistics team to dynamically design tanker routes and ensure prompt collection of milk at low costs.
- Stores data in its internal memory card in case of connectivity issues
- Is a reliable device for getting accurate reports to the best possible extent
- The BMC SmartBox Software is designed smartly to analyze data and instantly send alerts via SMS, BMC SmartBox Mobile App, and emails to authorized users.

The most significant advantage of BMC SmartBox is that several key areas can be done remotely without visiting the site. It is connected to a GSM network to a central server that continuously collects information every 10 seconds from BMC SmartBox units. With all data of milk collection, dispatch and remaining quantity right at your fingertips. The BMC SmartBox is also tamper proof with unique interface of Milkoscreen or Milk Analyzer for measuring average FAT, SNF, and check milk adulteration. These features help in reducing malpractices to a significant extent.

Outcome

By installing BMC SmartBox system, monitoring BMC facilities has become easy. The operators can obtain real-time data and take timely, appropriate decisions which have significantly reduced monthly losses. Regular audits are carried out by the Milk Union officials at these facilities causing a remarkable plunge in malpractices.