# A leading food and beverage manufacturer reduced product spoilage by 45% through **real-time IIoT based condition monitoring**

## Background

A leading food and beverage manufacturing company struggled with frequent equipment malfunctions in their production line, leading to product spoilage and high operational costs.

## Approach

- **Data Collection & Integration**
  - Installed IIoT sensors on key machinery in the production line to track operational metrics like temperature, pressure, and humidity in real-time.
  - Integrated sensor data with the company's existing Manufacturing Execution System (MES) to allow for centralized monitoring.
- **Predictive Maintenance Algorithms**
  - Developed machine learning algorithms to analyze the sensor data and predict potential equipment malfunctions.
  - Used historical data to fine-tune predictive models, improving accuracy in forecasting equipment failures and degradation.
- **Automated Alerts and Maintenance Optimization**
  - Implemented a system of automated alerts, notifying the maintenance team when equipment showed signs of impending failure.
  - Adjusted maintenance schedules dynamically based on real-time data, ensuring minimal disruptions to production processes.

## Challenge

- **Product Spoilage:** Equipment failures causing interruptions in the production process, leading to
- product wastage.
  **High Maintenance Costs:** Reactive maintenance strategies led to high costs for emergency repairs and replacements.
- **Inconsistent Production Quality:** Machinery malfunctions affecting the consistency and quality of the final product.

## Objectives

- **Ensure Continuous Production:** Minimize equipment breakdowns to avoid production halts and product spoilage.
- **Reduce Maintenance Expenses:** Shift from reactive to predictive maintenance to lower emergency repair costs.
- **Maintain Consistent Product Quality:** Improve equipment reliability to ensure high-quality, consistent output.

## Benefits

**Reduced Product Spoilage:** Equipment break-downs were reduced by 45%, minimizing spoilage and waste on the production line.