Bulk/Belt Conveyor Systems Application

INTRODUCTION

The global Conveyor Systems market size was valued at $5.42 billion in 2021 and is projected to grow to $7.76 billion by 2029, exhibiting a compounded annual growth rate of 4.8%. E-commerce and Industry 4.0 are the driving forces behind the growth of the conveyor systems market.

The IIoT transformation of traditional supply chains are compelling organizations to adopt new technologies to enhance efficiencies and keep up with consumer demands. As an essential part of the production line, industrial conveyors are built to last and are often chosen because they are far more efficient than existing means of transport.

THE BULK/BELT CONVEYOR SYSTEMS PROBLEM

The continuous flow of conveyors enables materials to be transported over relatively long distances. However, the stress put on these mechanical machines over such lengths of time can result in a breakdown when least expected. Troubleshooting can be a tedious and arduous task as pinpointing the exact location of failures is difficult.

Due to the continuous demand for uptime, the machinery is known to be subject to wear and tear on critical points like bearings and, in many cases, can be overly maintained due to breakdown fears. In the event of a breakdown, an organization faces considerable loss of production due to unplanned downtime. Delays in getting the machinery back up and running often occur due to unpreparedness and a lack of replacement parts.

Furthermore, **personnel safety** is at **much greater risk** during events of r**eactive maintenance.**

THE BULK/BELT CONVEYOR SYSTEMS SOLUTION

Industry 4.0 has paved the way for the adoption of IIoT technology and the implementation of predictive maintenance on conveyors to limit the consequences of wear and tear. Deployment of IIoT smart monitoring systems will improve conveyor system maintenance management in the following ways:

Vibration

- Anomalous vibration occurs when a conveyor breakdown is impending. The application of a vibration monitoring device will provide early detection and additional time to prepare the

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necessary repairs when abnormal vibration harmonics are detected early on.

- A vibration monitoring device detects malfunctions by continuously monitoring the machinery and will send an alert to personnel to schedule maintenance and avoid an unexpected breakdown.

Temperature

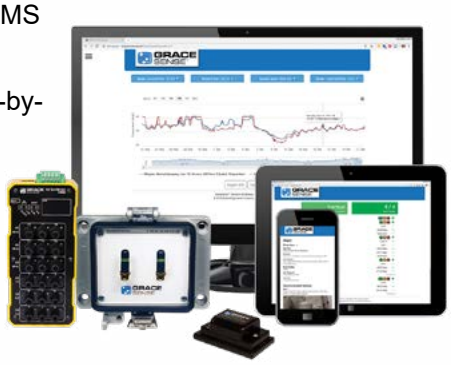
- In the event of a bearing failure and/or misalignment on a conveyor system, a temperature monitoring device will capture a significant rise in temperature over time due to the increased load placed on the motors and drive system.

- When a sensor detects a temperature increase early on, dedicated personnel will receive an alert that the monitored point requires attention. The failure prediction and alert enable personnel to act fast to prevent unplanned downtime.

ABOUT THE GRACESENSE™ PREDICTIVE MAINTENANCE SYSTEM

The GraceSense™ Predictive Maintenance System is an IIoT asset condition monitoring system that utilizes wireless sensor technology integrated alongside wired sensors. Advanced data analytics provide asset managers with deep insights to machine health to effectively prioritize resources and maximize the value of their maintenance spend.

GraceSense™ technology improves overall plant reliability, safety, and maintenance metrics by remotely monitoring asset health and sending timely notifications to plant floor personnel through SMS or email alerts with pre-configured, step-by-step remediation instructions when anomalous behavior is detected.



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