

Smart Material Handling with ADLINK

Use Case Spotlight

Edge IoT creates intelligent conveyors for enhanced functionality, longevity and operations

ADLINK Edge IoT Use Case Spotlight

Conveyors are one of the most critical pieces of machinery in manufacturing and distribution operations. For some, material handling systems are the core of business and for others, conveyors are the key to keeping customers happy with prized possessions going to the right location. ADLINK's Edge IoT solution ADLINK Edge®can be used to make conveyors intelligent so they can communicate with the other conveyors, robots, systems, and people around them improving operations, machine longevity and creating new data-based services revenue.

Conveyor Challenges

As the primary material movers in operations, conveyors are known to experience extreme amounts of strain which can cause a number of operational challenges:

Operational Business Challenges

- Conveyor belt and motor damage due to excessive impact forces, mistracking, and blockages
- Having the time and personnel to perform conveyor system audits
- Reducing conveyor maintenance and failure for continued handling and operations
- Conveyor system longevity and return on investment
- Finding new ways to offer value-added services to customers and partners
- Keeping customers happy by moving their materials efficiently and on-time



Information and Operational Technology Challenges

- Connectivity between different PLC, sesnsors, and machinery with cloud(s), historians, and IoT platforms
- Reducing costs related to automation upgrading and data integration
- Optimizing human-in-the-loop (HITL), AI and vision technologies with material handling systems
- Real-time data streaming across the entire material handling system
- Reducing network latency for faster connectivity and decision making
- Ensuring foolproof infrastructure, network, and device security

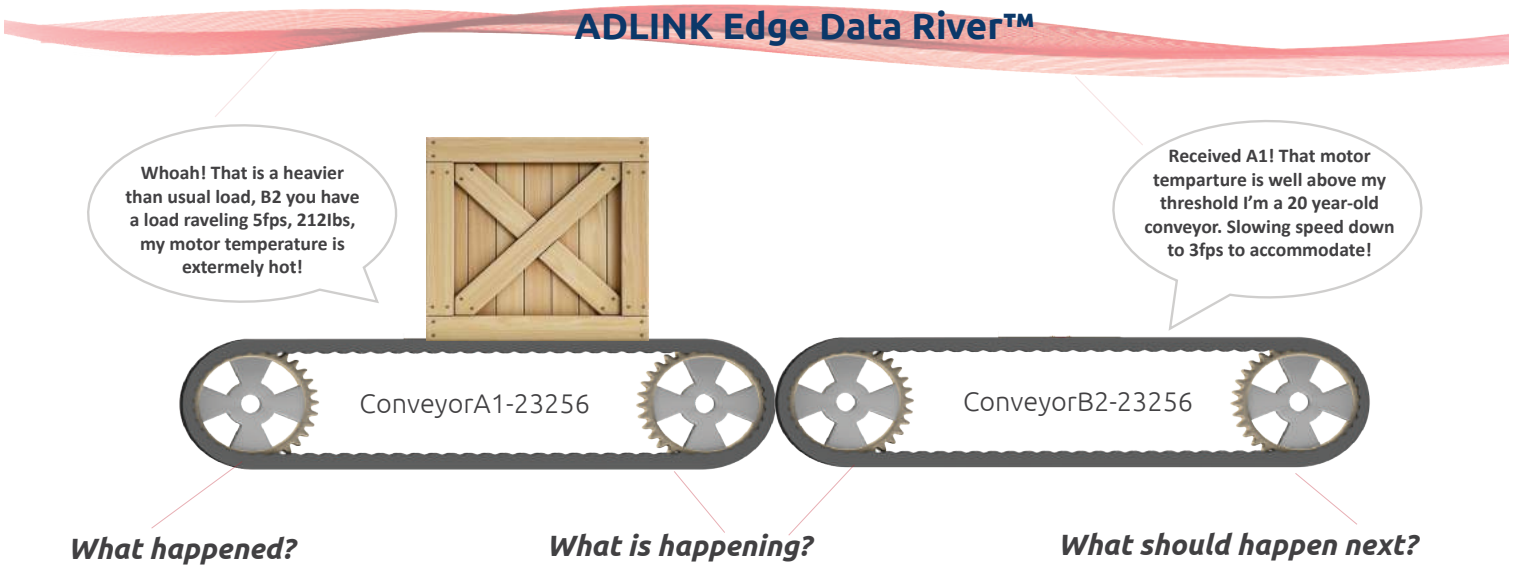
ADLINK® Leading EDGE COMPUTING

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The Solution Edge IoT with ADLINK Edge®

ADLINK's Edge IoT solution for intelligent conveyors can include ADLINK's leading edge hardware, data streaming software, and edge IoT apps built to openly automate material handling systems.

How it Works



1. Connect the Unconnected

ConveyorA1 is a newer conveyor whose load maximum is higher than his peers. A heavier than usual material hits ConveyorA1's belt causing higher than usual motor temperatures and slower than usual belt speeds. ADLINK's rugged edge hardware immediately extracts conveyor speed, load, age and temperature information directly off of the conveyor. Non-invasively and with no internet connection necessary, the conveyor is now generating real-time information. The conveyor is now connected.

2. Stream Data Anywhere

With ADLINK's open automation architecture and real-time data streaming on the ADLINK Edge® Data River™, information between any automation system, machine, sensor, and more can be communicated real time. ConveyorA1 immediately communicates that a heavier than usual material is on its way by sending the load, temperature and speed information to ConveyorB2, as well as communicating that information to the cloud and back-end historian. Data is now streaming from multiple endpoints to multiple endpoints real-time.

3. Control the Edge

Leveraging a suite of ADLINK Edge IoT apps, when ConveyorB2 receives the information ConveyorB2 is able to immediately slow itself down to the right speed by computing ConveyorA1's information relative to its own age, current load and temperature. Engineers and other personnel can obtain real-time alerts and notifications remotely on the situation, as well as visualize holistic conveyor system health with user friendly dashboards. Conveyor system owners and manufacturers can also create dat subscription services for partners and distributors, with easy central management.

Benefits Edge IoT Made Simple

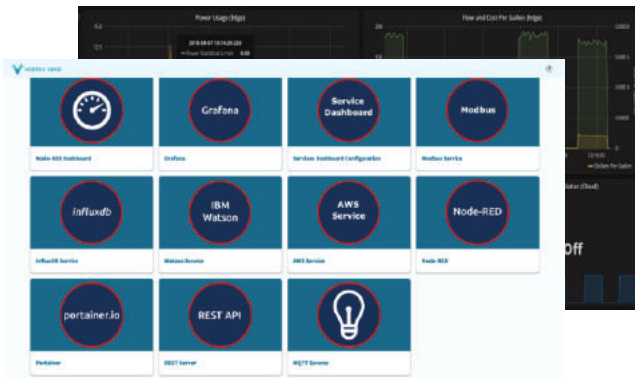
- Connect and stream data real-time between any controller, sensor, historian, IT system
- Real-time warnings and event alerts on conveyor system health
- Decrease conveyor system maintenance, repair, and upgrading costs
- Distributed system integration with open automation
- Sell relevant conveyor data as a value-added subscription service to distributors and vendors
- Non-invasive approach allows for implementing without disturbing existing environment
- Modular architecture, independently upgrade hardware and software
- Edge computing for fast decision making and reduced latency in system communication

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Value Creating New Experiences

ADLINK's Edge IoT solution for intelligent conveyors increases overall competitiveness, productivity, and costs. The more intelligent the conveyor becomes, the quicker it can take action in the moment to preserve its overall health and reduce maintenance. Intelligent conveyors allow products to get to their destinations quicker, keep operations smooth, and customers happy. With the additional ability to monetize data by selling pertinent conveyor system data to distributors and material handling vendors, new value-added services revenue can also be obtained.



ADLINK Solution Components

ADLINK's Edge IoT Solution for intelligent material handling includes:

Edge Hardware Options

- ADLINK MXE Intelligent IoT Gateway

Edge IoT Software

- ADLINK Edge® and real-time data streaming on the ADLINK Edge Data River™

Edge IoT Apps

- ADLINK Edge® Visualization
- ADLINK Edge® OT Connect
- ADLINK Edge® Cloud Connect

Existing IT and OT Components Can Include

- Material handling systems, parts, and components
- Any sensors and gauges
- PLC controllers and SCADA servers
- Process historians and databases
- Cloud, analytics, IoT platform
- Enterprise resource planning (ERP)
- Warehouse management system (WMS)
- And more*

*ADLINK's Edge IoT solutions are all vendor-agnostic, built on open standards, and architected with modular components which allow for easy integration with any existing IT and OT system



About ADLINK

ADLINK Technology is a global leader of Edge Computing with a mission to reduce the complexity of building IoT systems. Like our company name, we provide the Analog Digital LINK to make connecting people, places, and things easy. We manufacture edge hardware, real-time data streaming software, and Edge IoT apps to form Edge IoT solutions for manufacturing, retail, networking, medical, transportation, energy & power, oil & gas, and aerospace & defense industries.

ADLINK was named 2018 Edge Computing Company of the Year, is a Premier Member of the Intel® Internet of Things Solutions Alliance, has strategic partnerships with NVIDIA and Google to bring AI to the Edge, is a proud contributor to the #AccessibleOlli "Autonomous for All" program, and is active in several standards organizations and interoperability initiatives, including Eclipse IoT, ROS-Industrial Consortium for Robotics, PCI Industrial Computer Manufacturers Group (PICMG), Standardization Group for Embedded Technologies (SGeT), Open Fog Consortium, European Telecommunications Standards Institute (ETSI), Open Compute Project (OCP), and Open Group Future Airbone Capability Environment (FACE) Consortium.

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