

Fault Detection and Classification Market To Cross USD 10.15 Billion at 9.2% CAGR By 2031 - Report By SNS Insider

Fault Detection and Classification Market Size, Share, Growth Drivers and Regional Analysis, Global Forecast 2024 - 2031

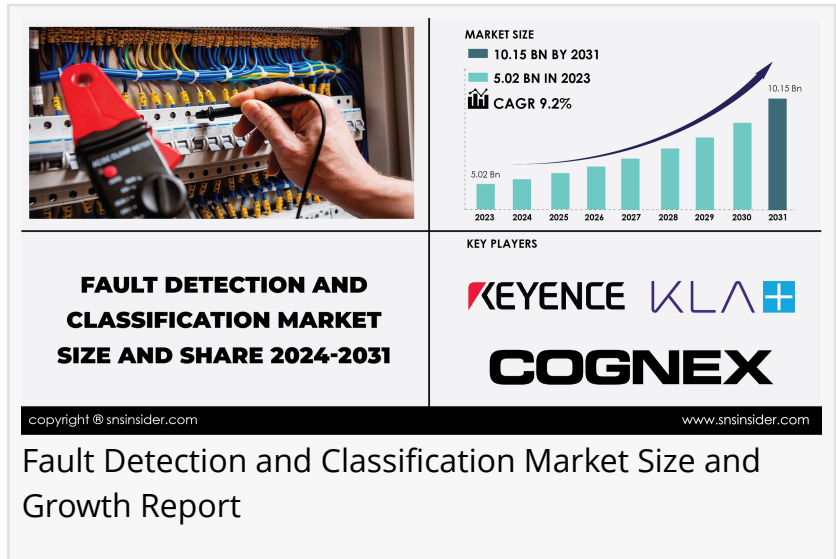
AUSTIN, TEXAS, UNITED STATES, June 20, 2024 /EINPresswire.com/ -- The fault detection and classification market is driven by the growing complexity of manufacturing processes and the increasing demand for efficiency and productivity.

As industries integrate more complex systems and technologies like IoT and AI, the need for robust fault detection solutions becomes ever greater. This trend shows no signs of slowing down and is likely to keep the market expanding for years to come. A major restraint on the FDC system market is the dearth of skilled professionals in manufacturing. While automation with FDC and machine vision systems can address the shortage of personnel in repetitive tasks it creates a new demand for workers with specialized skillsets. For instance operating and interpreting data from FDC systems or collaborating with robots equipped with machine vision requires a different skillset compared to traditional manufacturing jobs. Example is the getting older workforce in countries like China and Japan coupled with a growing youth population straining education systems creates a challenge. There are more open jobs than workers but many lack the necessary skills. In manufacturing for example 26% of workers globally are underqualified.

The SNS Insider report estimates the Fault Detection and Classification Market size at USD 5.02 billion in 2023, CAGR of 9.2% to reach USD 10.15 billion by 2031.

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KEY PLAYERS:



Fault Detection and Classification Market Size and Growth Report

- Keyence Corporation (Japan)
- Cognex Corporation (US)
- KLA Corporation (US)
- Teledyne Technologies (US)
- OMRON Corporation (Japan)
- Microsoft (US)
- Tokyo Electron Limited (Japan)
- Siemens (Germany)
- Amazon Web Services Inc. (US)
- Synopsys Inc. (US)

The market for fault detection and classification FDC systems is poised for significant growth driven by the increasing complexity of systems across industries. As technology advances traditional methods of monitoring and diagnosing complex systems are becoming inadequate. FDC systems which leverage a combination of sensors, data analytics and machine learning, offer real-time monitoring rapid fault identification and informed decision-making. This translates to enhanced operational efficiency improved safety and a competitive edge for companies that embrace these solutions.

FDC systems are expected to see the most rapid growth in the automotive sector, driven by the increasing complexity of modern vehicles.

The automotive industry is expected to be the dominant user of fault detection and classification (FDC) systems with a projected growth rate exceeding all other sectors. This demand is fueled by several factors. Increasingly complex vehicles require more sophisticated monitoring to ensure safety and performance. Stringent safety regulations and the demand for improved fuel efficiency further drive the need for FDC systems. These systems offer a proactive approach to catching problems early in the manufacturing process reducing recalls and enhancing brand reputation. This translates to a projected 32% share of the FDC market revenue for the automotive segment in the coming years driven by the steady growth in car sales. FDC systems monitor various vehicle components enabling real-time detection of faults and leading to faster repairs and reduced downtime ultimately optimizing vehicle performance.

Recent Developments

-In March 2024, FLIR released a new Si2 series of acoustic imaging cameras (Si2-Pro, Si2-LD, and Si2-PD) to target leak detection (air, gas) and mechanical problems in manufacturing, electrical, and utility industries. These cameras boast better performance in identifying issues from afar, with higher sensitivity and more accurate classification.

-In March 2023, Samsung SDS is using AI to help transportation companies spot problems in vehicles and infrastructure faster, making travel safer and more efficient.

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The Asia Pacific region is expected to be the leader in FDC system adoption due to the fast-growing industries in Asia especially car making and electronics are driving the need for FDC systems. These systems help factories keep quality high and production running smoothly. The Asia Pacific region is expected to be a powerhouse in the FDC market contributing a significant 39% to global growth. This dominance is driven by APAC's manufacturing, automotive, electronics, and energy sectors. As these industries expand rapidly, the need to maintain efficiency and reliability is paramount. APAC's focus on Industry 4.0 practices, with automation and data analytics, makes FDC solutions even more attractive.

Key Takeaways

- Complex machinery demands smarter monitoring, and FDC systems are poised for big growth as they deliver real-time insights for improved efficiency and safety.
- Cars are leading the charge in FDC adoption due to complex designs, safety concerns, and the push for better fuel efficiency.
- AI-based FDC systems go beyond human capabilities by continuously learning and adapting to identify new types of defects ensuring consistent quality across a wide range of products.

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