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Pedestrian Detection Systems Market– Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Video, Infrared, Hybrid, Other Types), By Component (Sensor, Camera, Radar, Others), By Region & Competition, 2020-2030F

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Abstracts

Market Overview

The Global Pedestrian Detection Systems Market was valued at USD 8.75 Billion in 2024 and is expected to reach USD 18.80 Billion by 2030, growing at a CAGR of 13.60% during the forecast period. The market is expanding rapidly due to increasing emphasis on vehicle safety and the integration of advanced driver-assistance systems (ADAS). A surge in road accidents, particularly those involving pedestrians, has heightened the demand for technologies that can mitigate collision risks. Pedestrian detection systems utilize radar, lidar, and computer vision to identify pedestrians and alert drivers or autonomously engage braking mechanisms. The rise in connected vehicle sales, such as Hyundai’s record of 185,000 units in 2023—a 24% increase from 2022—highlights consumer preference for advanced safety and connectivity. Governments and manufacturers are also implementing regulatory and design enhancements to improve pedestrian safety. The widespread implementation of such systems supports the industry's shift toward autonomous driving, public health improvement, and safer urban mobility.

Key Market Drivers

Increasing Road Safety Concerns

The surge in pedestrian-related road accidents has intensified efforts to improve vehicle

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safety systems. Pedestrian detection technologies are vital in addressing these safety concerns by delivering timely alerts and enabling automatic braking to prevent collisions. As global awareness of road safety grows, regulatory bodies are enforcing stricter vehicle safety mandates, prompting manufacturers to integrate pedestrian detection capabilities. These systems have become essential to achieving reduced accident rates and aligning with public safety goals. With rising fatalities and the growing emphasis on reducing human error, autonomous vehicle adoption is gaining momentum, offering a potential 90% reduction in crash-related deaths and economic savings of up to $190 billion annually. As part of this broader shift, pedestrian detection is playing a pivotal role in enhancing the safety and appeal of modern vehicles.

Key Market Challenges

High System Costs

The adoption of pedestrian detection systems is challenged by their high implementation costs. Incorporating advanced sensors such as lidar, radar, and high-resolution cameras, along with the supporting hardware and software, significantly raises production expenses. Sophisticated algorithms required for accurate detection add further complexity and cost. These financial burdens are particularly limiting for manufacturers targeting cost-sensitive markets or producing lower-end models. While future advancements and economies of scale may help reduce prices, the current cost structure remains a barrier to widespread adoption, especially in developing economies and budget vehicle segments.

Key Market Trends

Advancement in Artificial Intelligence (AI) for Pedestrian Detection

Artificial Intelligence is transforming pedestrian detection systems by enhancing their ability to accurately recognize and respond to real-world scenarios. Deep learning and neural networks enable these systems to distinguish between pedestrians, cyclists, and other obstacles across diverse environments. AI improves real-time decision-making, adaptability, and detection accuracy, leading to safer driving outcomes. As vehicle automation advances, AI integration is becoming more critical, allowing systems to evolve through environmental learning and continuous improvement. The growing role of AI ensures that pedestrian detection technology remains central to the future of intelligent transportation systems.

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Key Market Players

Mobileye

Aptiv PLC

Robert Bosch GmbH

Continental AG

DENSO Corporation

Valeo SA

Panasonic Corporation

ZF Friedrichshafen AG

Teledyne FLIR LLC

Magna International Inc.

Report Scope:

In this report, the global Pedestrian Detection Systems Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Pedestrian Detection Systems Market, By Type:

Video

Infrared

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Hybrid

Other Types

Pedestrian Detection Systems Market, By Component:

Sensor

Camera

Radar

Others

Pedestrian Detection Systems Market, By Region:

North America

United States

Canada

Mexico

Europe & CIS

Germany

France

U.K.

Spain

Italy

Asia-Pacific

China

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Japan

India

Australia

South Korea

Middle East & Africa

South Africa

Saudi Arabia

UAE

Turkey

South America

Brazil

Argentina

Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the global Pedestrian Detection Systems Market.

Available Customizations:

Global Pedestrian Detection Systems Market report with the given market data, TechSci Research offers customizations according to the company's specific needs. The following customization options are available for the report:

Company Information

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Detailed analysis and profiling of additional market players (up to five).

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