IR Camera - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 100 pages | Mordor Intelligence

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Report description:

The IR Camera Market size is estimated at USD 9.22 billion in 2024, and is expected to reach USD 13.43 billion by 2029, growing at a CAGR of 7.82% during the forecast period (2024-2029).

Key Highlights
-With the increasing demand for advanced driver assistance systems (ADAS) in the future and investments in autonomous cars, IR cameras are expected to witness significant adoption in vehicles. There is a greater need for surveillance across various applications, including those related to the military and defense, energy, and commercial spaces. Solar energy is becoming increasingly popular, with energy use playing a critical role in the worldwide strategy to manage natural resources. Good security is essential because solar power is gaining popularity and because solar panels are an expensive and delicate commodity.
-An increasing need for continual and rigorous surveillance in the military is likely to provide an opportunity through these solutions for the use of the government. Governments worldwide have already deployed drone cameras in large numbers, covering around 100 kilometers of area.
-Industry 4.0 fueled the development of technologies like robots playing a crucial role in industrial automation, with many core operations in industries being managed by robots. InGaAs cameras offer new applications, such as vision-guided robotics and automated butchering. These vision-guided robots are a combination of IR imagers that finds and picks random parts in a bin, and then a camera analyses the orientation of each part and places them on the conveyor belt.
-Short wavelength infrared, or SWIR, is gaining popularity in end-user sectors like consumer and automotive, but it will need more technological advancement to become reasonably priced. ADAS and AV will use different technologies utilizing infrared wavelengths. These technologies offer complimentary information types to provide redundancy and boost system reliability. The increasing demand for camera-based convenience features, especially in several vehicles, is expected to fuel the demand for IR cameras in the automotive industry.

-COVID-19 impacted the market significantly. The supply chain experienced a considerable disruption owing to COVID-19 being declared a pandemic. Since manufacturing activity was low, companies were tempted to eliminate maintenance, resulting in high prices. Post-pandemic, the increasing adoption of IR cameras by most end-user industries positively impacted the markets' growth.

IR Camera Market Trends

Cooled Detectors to Hold Significant Market Share

- The most sensitive IR cameras, with only tiny variations in scene temperature, use cooled detectors. Due to blackbody physics, they provide images with high thermal contrast, especially in the spectrum's mid-wave infrared (MWIR) portion. Compared to uncooled IR cameras, the enhanced thermal difference makes it easier to identify targets.
- The ability of cooled IR cameras to effectively perform spectrum filtering to reveal features and take measurements that would otherwise be impossible with an uncooled thermal camera is one of the key factors influencing their adoption. IR cameras with cooled detectors offer better image quality. IR cameras with cooled detector types have many advantages over thermal imaging cameras with uncooled detector types.
- Advanced developments in cooled IR detector technology have led to the rapid growth of various IR remote sensing instruments like hyperspectral remote sensing, space imaging & surveillance, and environmental applications. Due to the high sensitivity of cryogenically cooled detectors, IR systems have been developed for imaging various spectral bands with wavelengths up to 25 ?m. In the financial year 2022, the export value of defense equipment from India reached 128.2 billion Indian rupees, the highest during the presented period, thus driving the demand for IR cameras in the military and defense industry.
- With the advancing technologies, companies have been developing new and innovative ways to launch new IR cameras. For instance, in April 2022, Teledyne FLIR introduced the RS6780 long-range radiometric IR camera, designed for range tracking, target signature, outdoor testing, and science applications in all conditions. The RS6780 enables precision long-range measurement and tracking applications by combining a full-feature, radiometric IR camera sealed within an IP65-rated enclosure to protect it from the elements. Such developments and innovations by significant players are driving the demand for IR cameras.

North America to Witness Significant Growth

- IR imaging is a boon to the armed forces, primarily the army, navy, and air force, because of its day-night working capability and ability to perform well in all weather conditions. The army and navy use IR cameras for border surveillance and law enforcement. They are also used in ship collision avoidance and guidance systems in the naval sector.
- In the aviation industry, they have significantly mitigated the risks of flying in low light and night conditions. Aviation also uses them to identify, locate, and target enemy forces. Recently, it has also been incorporated into civil aviation for aircraft health monitoring.
- Government initiatives, such as Advanced Manufacturing Partnership, which has been undertaken to make the industry, various universities, and the federal government invest in emerging automation technologies, will increase the production of machine vision systems.
- For instance, in May 2022, Teledyne FLIR Defense delivered thermal imaging systems to US Army. The FWS-I system is a battery-operated thermal imaging system that can be mounted on different individual weapon systems to offer soldiers infrared imagery in all weather and lighting conditions. The system will also enable the soldiers to see through fog, dust, and smoke. The company will manufacture the FWS-I units at facilities in Billerica, Massachusetts, and Goleta, California.

IR Camera Industry Overview

The IR camera market is highly competitive in nature. The high expense on research and development, partnerships, and acquisitions are the prime growth strategies adopted by the companies in the region to sustain the intense competition. Key players in the market are FLIR Systems Inc., SPI Infrared, Opgal Optronics Industries Ltd., Raytheon Company, Seek Thermal, Inc., Fluke Corporation, Testo AG, HGH-Infrared, Teledyne Dalsa, DRS Technologies Inc., InfraTec GmbH, and many more.

In November 2022, Teledyne Flir announced a partnership with RealWear, Vancouver, WA, a developer of assisted reality wearable solutions, as its latest Thermal by Flir collaborator. The partners launched the first fully hands-free, voice-controlled thermal camera module. Thermal by FLIR is a cooperative product development and marketing program that supports OEMs to create innovative products based on Flir's thermal camera modules.

In September 2022, Raytheon Company collaborated with Northrop Grumman. The companies are working on a DARPA program to create neuromorphic IR camera technologies. DARPA has selected two companies to work on a program to produce new event-based IR camera technologies that transmit essential data in visual environments. Raytheon and Northrop Grumman each received contracts for Phase 2 of the FENCE (Fast Event-based Neuromorphic Camera and Electronics) program, with USD 16.27 million and USD 8.71 million awards, respectively.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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