Automotive Biometric Identification Market Assessment, By Type [Hardware, Software], By Technology [Fingerprint Scan, Voice Recognition, Facial Recognition, Others], By Vehicle Type [Passenger Car, Commercial Vehicle], By Application [Vehicle Security System, Driver Safety System, Advanced Steering and Infotainment, Others], By Region, Opportunities and Forecast, 2017-2031F

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Report description:

Global automotive biometric identification market is projected to witness a CAGR of 15.22% during the forecast period 2024-2031, growing from USD 1.55 billion in 2023 to USD 4.82 billion in 2031. Vehicle biometrics are mostly used for enhanced security features in passenger and commercial vehicles. Automotive biometrics is the process by which customers' unique biological features, such as fingerprints and facial recognition, are used for security features such as keyless door opening, surveillance, and even keyless ignition. This technology can detect driver health by measuring weariness, sleepiness, and other indicators, allowing drivers to avoid potential accidents. In-vehicle biometrics can provide a more personalized driving experience by recognizing the driver and automatically adjusting features such as maps, temperature, and driving position accordingly. As public ride-hailing businesses face more scrutiny over passenger security, biometrics are becoming increasingly important in ensuring consumer safety. Using biometrics to assure safety and awareness during automated driving is expected to accelerate market growth.
The automotive biometric identification market is being driven by a number of factors, including advances in biometric technology, increased worries about vehicle theft and unauthorized use, and a growing demand for seamless and convenient identification systems in modern vehicles. Biometric technology has the potential to transform the automotive industry as it will introduce new applications, such as driver monitoring, biometric payments, and health monitoring features to ensure the well-being of the driver. As automakers prioritize safety, security, and user experience, biometric technology will play an increasingly important role in molding the future of the automotive industry.
For instance, in September 2023, Mercedes-Benz Group AG partnered with Mastercard International Incorporated to enable in-car

payments using fingerprint sensors at over 3,600 service stations in Germany. This marks the first time the company has integrated a Mastercard on File for Commerce Platforms technology into its vehicles as biometric payment options are gaining popularity among consumers.

Increased Demand for Vehicle Security and Anti-theft Measures to Drive Market Growth

Accuracy of biological characteristics such as fingerprint scans and facial and voice recognition improve safety and privacy, which is a major reason driving the growth of the automotive biometric identification market. Furthermore, as access is provided based on the owner's identification, hackers have difficulty obtaining the passwords. These traits are nearly impossible to replicate, significantly reducing unauthorized access and vehicle theft. Furthermore, biometric automobile systems are simpler and faster to operate. These biometrics are used in various ways in the automotive industry, including access control for entering a car using biometric scanners and enabling customizable vehicle features for users to pull playlists or call personal contacts. Automakers are recognizing the potential of biometric identification systems and incorporating the technology into vehicles for added convenience and security.

For instance, in January 2024, Continental AG launched the Face Authentication Display, a two-stage access control system that uses biometric user recognition. Based on advanced camera technology, the system is discreetly placed on the B-pillar and behind the driver's display console. The vehicle can open and start when a registered user is detected.

Integration of Advanced Features Fuel the Automotive Biometric Identification Market Growth

As automobiles become more technologically advanced, the use of biometric identification systems expands beyond security and personalization. These systems are becoming more integrated with other car components, such as ignition systems, driver assistance technologies, and infotainment systems. Furthermore, biometric identification allows vehicles to recognize authorized drivers as they approach, automatically altering settings based on individual preferences. Biometric technologies improve driver comfort and convenience by effortlessly adjusting to their preferences, instilling a sense of ownership and commitment to the vehicle. This function is extremely useful for keeping control over vehicle access and is used in shared mobility, services, and commercial fleets.

For instance, in March 2024, Nissan Motor launched the 2025 Infiniti QX80, a luxury passenger car model, featuring innovative biometric cooling technology, which uses an infrared sensor in the vehicle's headliner to detect if the passenger is too warm and quickly adjust the car's airflow to provide a cool breeze to the passengers sitting behind.

Increased Demand for Connected Vehicles to Drive Market Growth

The growth of the Internet of Things (IoT), Artificial Intelligence (AI), and machine learning has added demand for connected vehicles that can communicate relatively seamlessly with other devices, networks, and infrastructure. Biometric identification fits well into such connected technologies as it can be easily incorporated into connected car ecosystems. Moreover, biometric data can be exchanged with other devices, such as smartphones and tablets, allowing drivers a more holistic and integrated experience. This increases convenience and helps to create a safer and more efficient driving environment.

For instance, in January 2024, Qualcomm Incorporated partnered with Salesforce, Inc. to develop a biometrics-enabled smart vehicle system. The system will connect the Snapdragon Digital Chassis by Qualcomm to Salesforce Automotive Cloud to provide in-car occupants with relevant recommendations for services and biometric authentication for payments to enhance travel experiences.

Fingerprint Scan Technology to Dominate the Market Share

Fingerprint scan technology, known for its ease of use and high level of security, has dominated and is projected to maintain a leading position in the automotive biometric identification market. Fingerprint recognition technology has advanced dramatically in recent years as mobile devices and biometric systems have become more prevalent. It is mostly utilized for security and access control purposes. This has led to tremendous technological advancements, such as in-display solutions. The growing use of fingerprint sensors in consumer devices is projected to create new opportunities for their usage in the automotive industry. As the cost of fingerprint sensors falls, it becomes more affordable for manufacturers to include them in modern vehicles without considerably increasing the vehicle's cost.

For instance, in October 2024, Infineon Technologies AG and Rheinmetall Dermalog SensorTec GmbH launched advanced biometric identification tools for road safety, including fingerprint and facial recognition systems. Infineon's fingerprint sensor ICs, the CYFP10020A00 and CYFP10020S00, enable secure driver authentication for personalizing settings and authorizing payments.

These sensors are designed for automotive use, meeting AEC-Q100 reliability standards and offering precise recognition in extreme temperatures. The technology enhances vehicle security and is integrated with encryption and advanced algorithms for secure communication.

North America to Dominate Automotive Biometric Identification Market Share

North America dominates the share of the global automotive biometric identification market. It is attributed to rising disposable income in the region, increased customer adaptation to technologically advanced products, and a growth in demand for luxury and connected vehicles throughout the region. Furthermore, strict safety standards and the presence of major car manufacturers and technology companies are projected to drive demand for automotive biometric identification systems. Major cities such as Detroit, Silicon Valley, and Toronto are leading the way in innovation, with an emphasis on incorporating biometric features into vehicles to improve security, convenience, and personalized driving experiences. Additionally, rising customer concerns about driver authentication due to fast-increasing vehicle theft in North America are driving the region's adoption of biometric identity systems.

For instance, in March 2024, a United States-based automaker, Ford Motor Company, filed a patent for a facial recognition entry system for modern vehicles. The system uses a camera to scan the driver's face and verify their identity. In case of failure, a backup authentication method is included, allowing users to access their vehicle using a secret code.

Future Market Scenario (2024 – 2031F)

- As autonomous cars become increasingly prevalent with the growth in technology, the use of facial recognition to integrate safety and convenience will gain significance.
- As biometric data becomes integral to vehicle access and operation, automakers and technology providers are expected to prioritize robust data protection measures to build trust with customers and regulatory agencies.
- Insurance companies will encourage the adoption of biometric solutions in the automotive industry by partnering with biometric technology providers and manufacturers. Incentives such as lower premiums, deductible discounts, and special offers can be offered to policyholders.

Key Players Landscape and Outlook

The automobile biometric identification market is characterized by continuous innovation, with major players competing to exceed one another in terms of security, convenience, and advanced features. The market outlook is positive due to the rising demand for high-quality sensors, connected cars, and self-driving vehicles. Collaborations and emerging technologies are expected to drive competition in this fast-paced market.

In July 2023, Fingerprint Cards AB partnered with a top automotive supplier to enhance its iris recognition technology for seamless integration into Driver Monitoring Systems (DMS). The deal will integrate Fingerprints' iris authentication software into existing DMSs and promote it to automotive OEMs as an add-on feature.

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