

# AUTONOMOUS VEHICLE



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## 1.1. Introduction

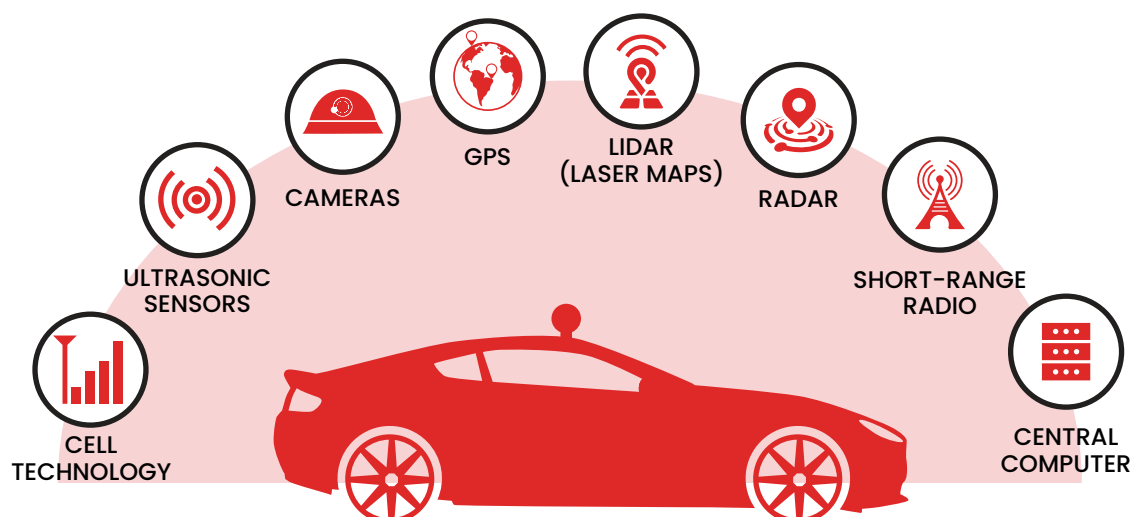
Autonomous Vehicle or a self-driving vehicle is a next-generation driving technique that eliminates partially or fully human interaction to run a vehicle.

### Key features

- AVs are able to recognize traffic signals and other signs like stops or pedestrians on the road as well as other types of vehicles like cars, trucks, etc.
- Different vehicle speeds, momentum, lane change, passing should be determined by the AV.
- AV must be equipped with an Advanced Driver Assistance System (ADAS) along with Crash Avoidance System (CAS) to become safe and secure.
- The surrounding environment should be aware of the AVs to avoid any traffic, accident, or crash type of incidents.
- Also, with surrounding, inside of passenger state like the fatal, sleepy or emotional state should determine to avoid any kind of mishap on the road.

### How it works

- Multiple sensors, processors, machine learning systems, and algorithms work simultaneously to provide driverless vehicle functionality.
- The basic design of the operation of AVs is “sense-plan-act” which creates a map of their surrounding environment.
- AVs are equipped with multiple sensors, cameras, radars, etc. to capture data of surroundings, and based on data, the software will analyze the best course of scenarios to act like acceleration, lane change, or overtaking.



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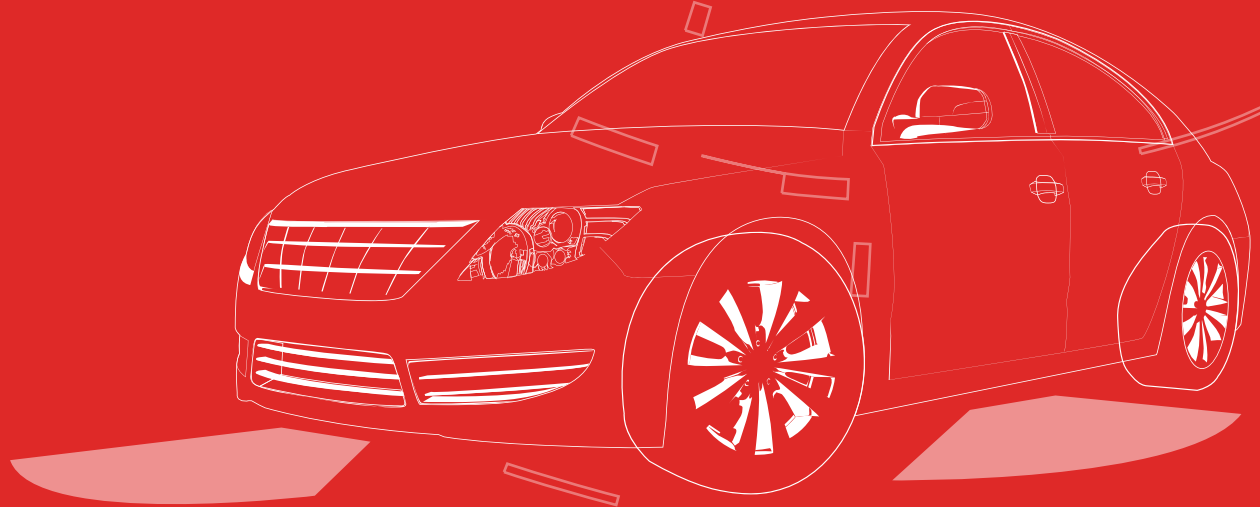
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# Technology Analysis



## 2.1. Technology Segmentation

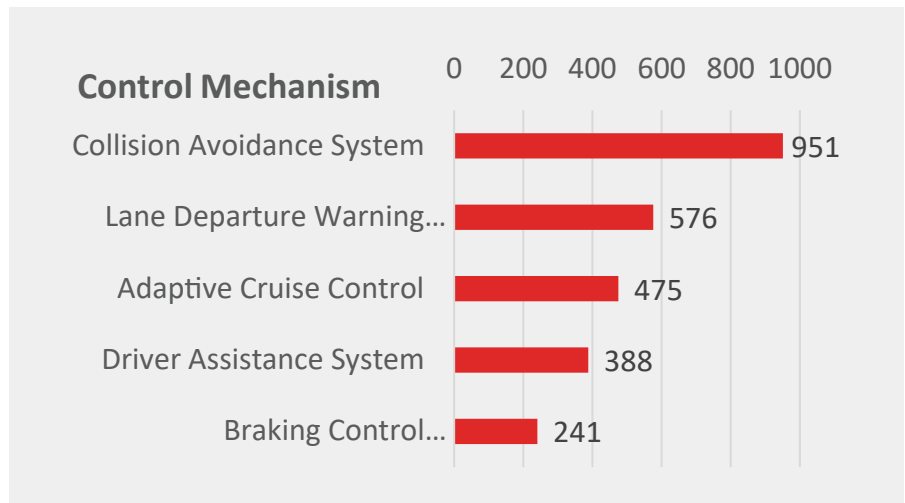
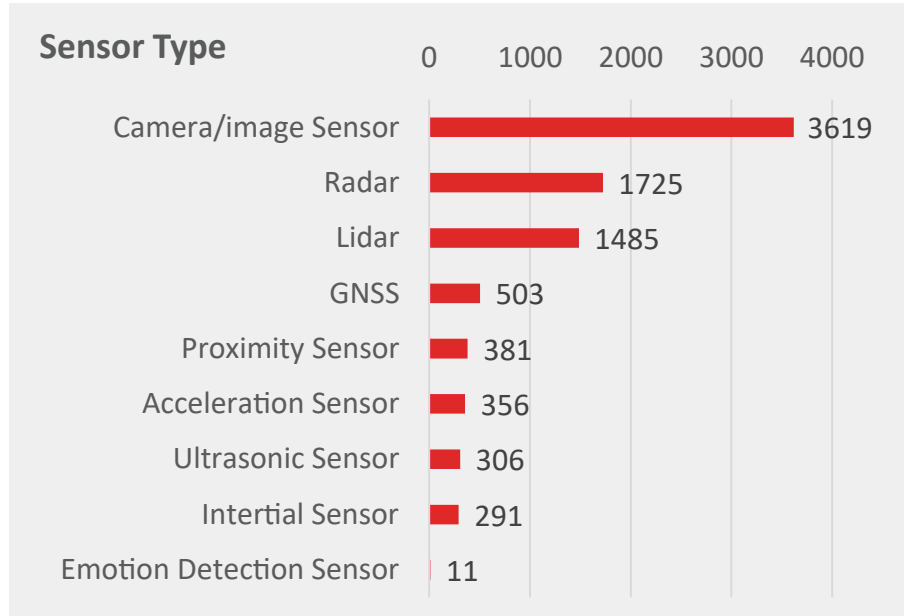
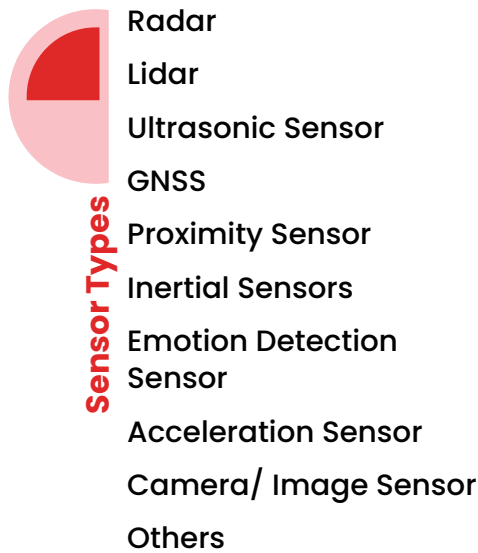


Image Sensors and Radar are widely used Sensor types in Autonomous Vehicle technology which are further utilized in vehicle control like collision avoidance systems, Lane departure warnings, etc. The key application of both the technologies is in Self-driving vehicles and Driver-less logistics distribution.

As the level of automation increases, the control mechanism needs to get more advance to provide safety and assistance with the help of sensors.

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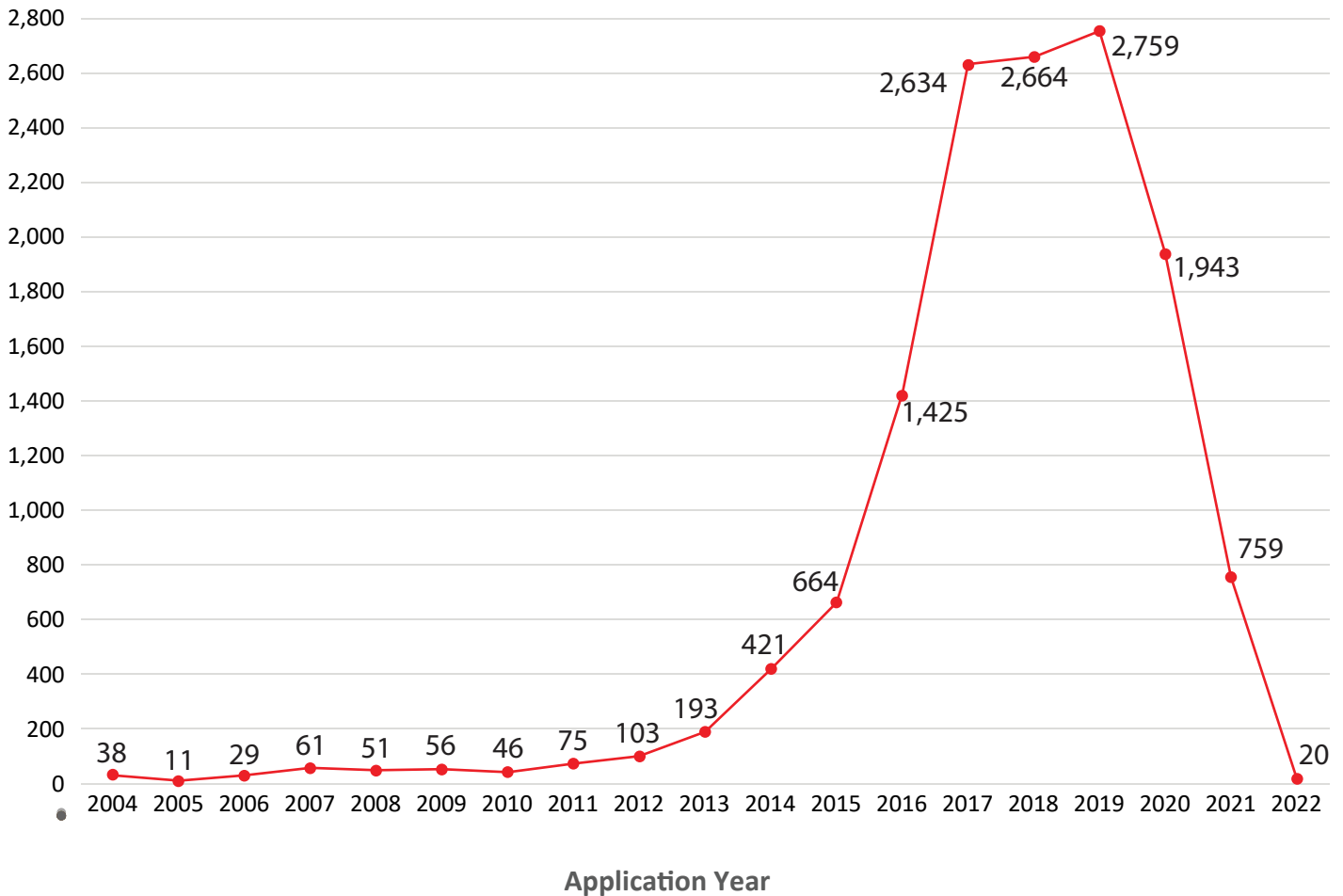
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# Insights



## 3.1. Application Count per Year



As the following chart shows, the year wise patenting activity indicates inconsistent filings with gradual overall increase throughout. In the last 5 years, the application filling is drastically increase in various sub-technologies area of AV like security, central chip processor, tracking and navigation system, and many more.

Please note that the trend for the year 2020 & 2021 might not be complete as it may take 18 months for a patent application to be published.

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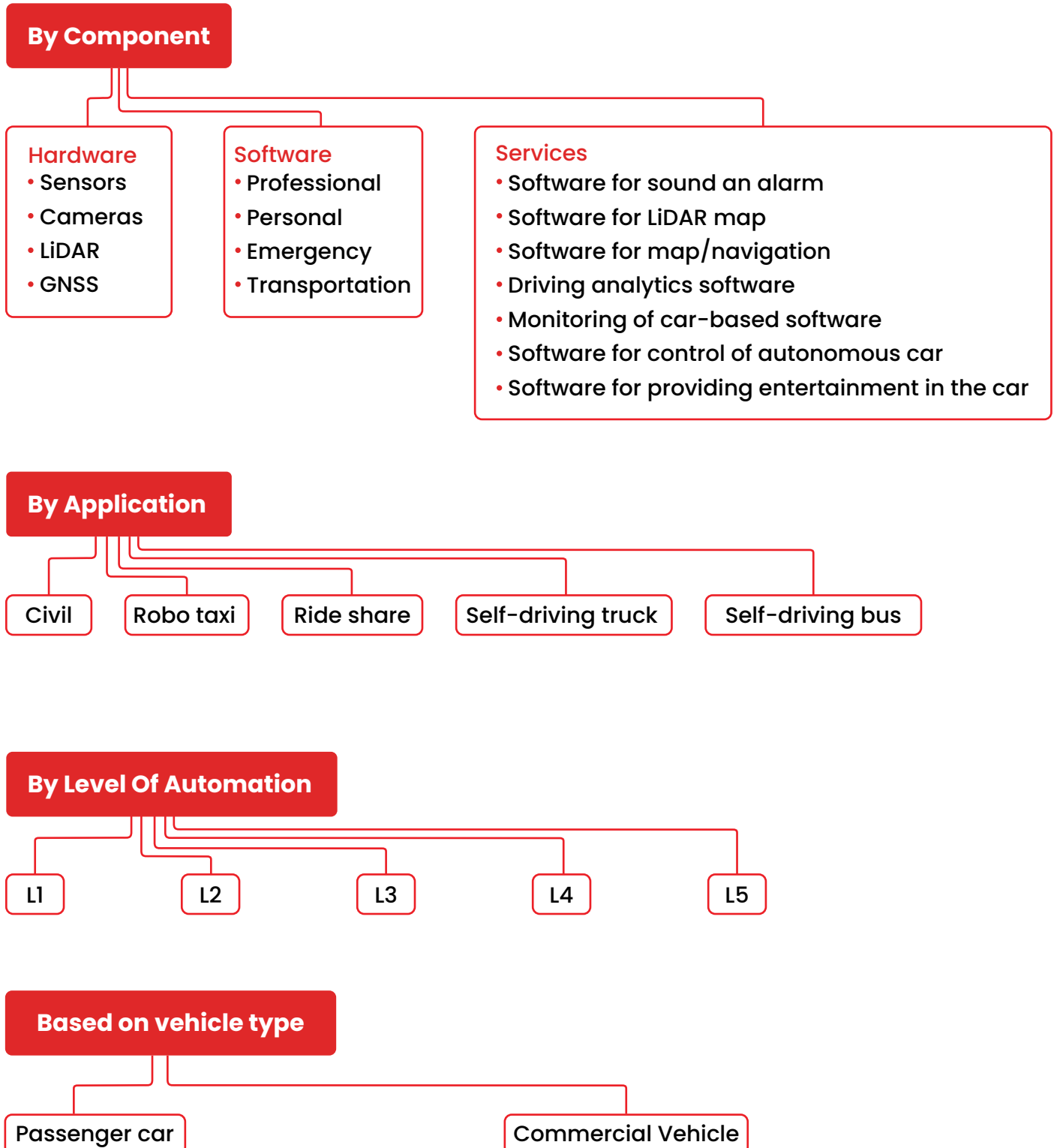
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## 4.1. Market Segmentation Overview



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