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Impact of 5G on Automotive Industry

With the emerging 5G mobile technology, we'll be going to see huge changes in different industries, including the Automotive Industry. Experts around the globe have said that this industry will be affected specifically. The increase in the realization of autonomous vehicles to be used commonly is causing the need for 5G in the Automotive world to be in huge demand. Huge Automobile manufacturers are testing their autonomous vehicles around the world. The arrival of 5G technology will give a boost to those vehicular deployments and bring about huge disruption in the industry.

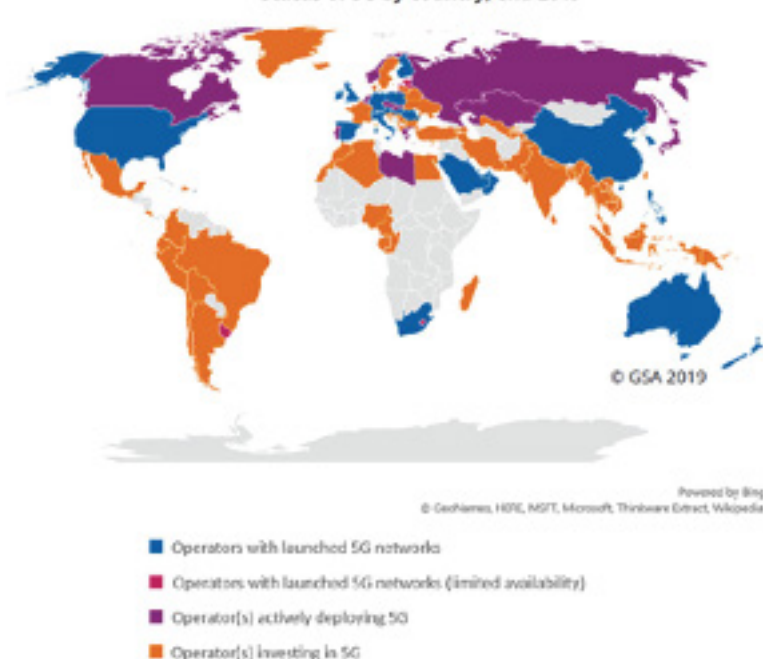
How the networks will evolve?

Over the past few decades, the wireless data network has transformed steadily and there has been an introduction of several crucial technologies such as 4G, which has allowed enough facilities for real-time sharing of information and location. The evolving technology has enabled many different companies based on automobile use, such as Cab Services. But still, there is a need for even faster and human comparable speeds to evolve the reflexes offered by different technologies. It is 5G that comes to evolution and can offer extraordinary features.

With 5G, users get to witness better coverage areas of mobile networks, greater network capacities, very low latencies, and insanely fast network speeds. There are already different companies working for the availability of 5G networks or have made it available to the people.

With networks growing rapidly and 5G being made available to the users, autonomous vehicles and embedded connectivity are coming closer to being common. And due to the coming of 5G, it is believed that by 2023, Automotive Industry would be the largest market opportunity for 5G representatives covering almost 53% of the Industry and causing a disruption of about 70% in the specifics of the industry too.

Status of 5G by country, end 2019



Source

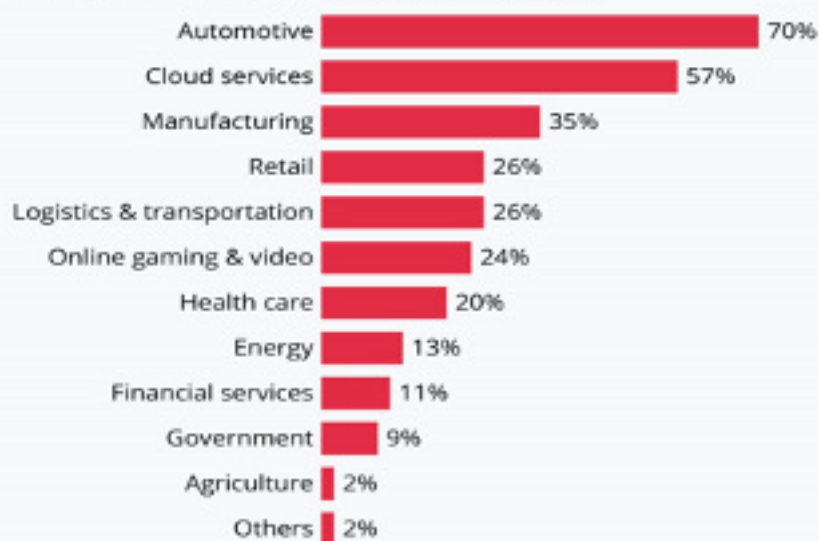
Cruciality of 5G in Vehicles

The expectations with the fifth generation of mobile networks are very high and it is likely to connect almost everything around the world giving ultra-fast access to different types of technology, making it more reliable, and greatly responsive. The networks would allow the users to take advantage of modern technologies such as Artificial Intelligence (AI), Virtual Reality (VR), and most importantly Internet Of Things (IoT).

5G

5G to Disrupt Auto Industry Most

Share of IT executives who think the following industries will be strongly disrupted by 5G



145 global IT executives surveyed May 2019. Multiple answers possible
Source: BPI

Source

Edge Computing & Remote Piloting

One of the most crucial requirements of autonomous vehicles is infrastructure management and it needs the cloud networks to process gigantic amounts of unstructured data along with ensuring privacy protection while collecting data from network nodes. With 5G technology, Edge computing will allow extremely fast response as there will be very low latencies to work on and it would offload computing tasks from the server, allowing it to compute on the mobile data centers while giving location awareness. Along with this, remote piloting is another requirement in cases of the absence of an abled person in the vehicle. Therefore it requires another person to control the vehicle remotely from a simulator. For this to be achieved, 5G is the most crucial thing as it is the only channel that could have the capability to offer highly stable and fast connections. Together, 5G will allow new frontiers in the automobile industry by providing high-quality infotainment and by giving access to remote access as well as edge computing.

Main Advantages of 5G to Automotive Industry

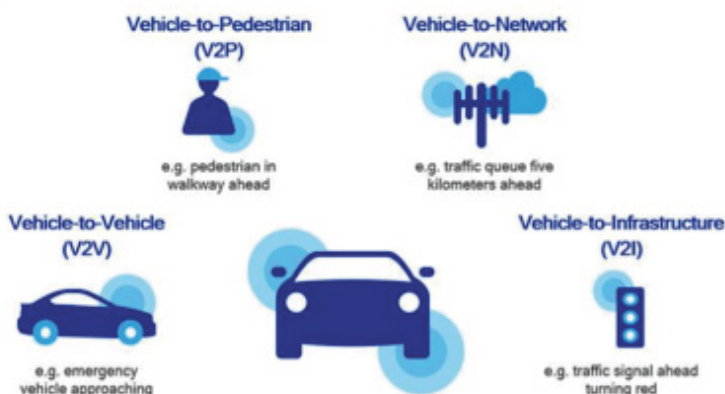
- **Enhanced Safety**

One of the greatest improvements after the deployment of 5G will be the availability of a huge amount of resources and datasets. Those datasets could be used to their best potential and then create a large number of use cases. Since top-notch entertainment is guaranteed with 5G networks but security is also a concern and 5G networks promise to deliver top security too.

With the use of 5G, vehicles will be able to get real-time tactile and visual data at insane speeds, that would allow them to collect data such as road and traffic conditions. It would enable vehicles to improve safety and efficiency while moving on the road. Hence, with 5G people will have a safer drive.

- **Better Vehicular Connectivity**

5G has been one of the most significant subjects when it comes to Automotive connectivity and its benefits are well known. Therefore Automotive is among those industries which can benefit the most from 5G. One of those main benefits includes better vehicular connectivity with other technology. It features several connectivity options such as vehicle-to-vehicle, vehicle-to-network, vehicle-to-pedestrian, and vehicle-to-infrastructure connectivity. With this many options available, 5G will take advantage of these all and make the roads a better place to travel by giving modeled information and roadmaps based on the data from different sources.

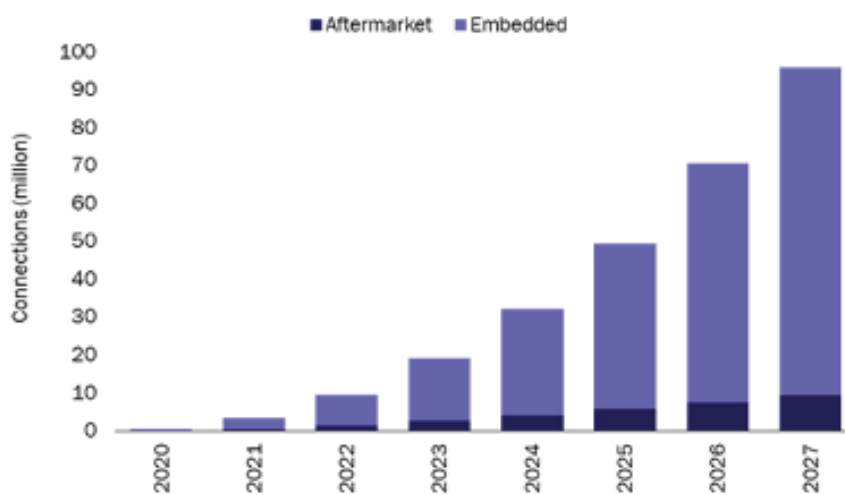


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- **Rural Facilitation**

When deployed to its full potential, 5G will enable automobile industries to tackle geographical challenges, specifically in rural areas. It will help the Automotive industry to set a great difference in the vehicular lifestyle in rural areas. People who don't have access to high-speed internet and better transportation would be facilitated with 5G services including the embedded edge computing. It could also be done to the facility of the people that Automotive technologies are made available for them and control the transmission of data to the earliest availability of the internet.

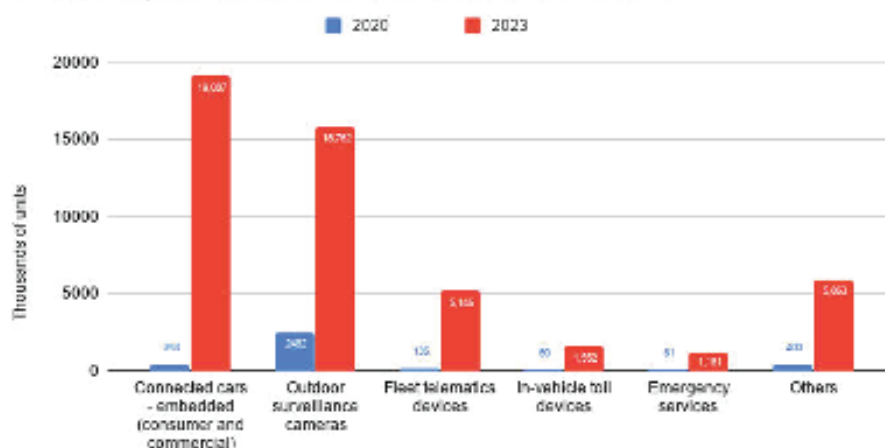
With its development going on to the full potential 5G is all set to change the Automotive world and change how things work. May it be driverless cars, autonomous vehicles, or even remote-controlled cars, with 5G it could all be done without thinking about any aspect that could cause dysfunction. 5G has got it all, high speeds, low latency, higher bandwidth, and much more to offer. Along with the network development, it is assumed that vehicular development will also continue and companies would start to integrate embedded connectivity solutions in their vehicles.



Source

Besides this, the Automotive world isn't limited to cars other vehicles, it also includes other technologies involved in the same industry. Hence, 5G would benefit those systems too, such as surveillance, toll-devices, emergency services, etc. and it is expected that by the year 2023 there would be a drastic increase in the number of connected devices across the Automotive industry, and 5G would act as the foundation to all of them.

5G IoT Endpoint Installed Base, Worldwide, 2020 and 2023



Source

Also, assumptions reveal that by the year 2028 the number of 5G connected vehicles would increase up a gigantic 94% of the current amount in the world. It is also expected that the implementation of smart technology in common vehicles would allow people to have a much safer approach to travel and automobile.

Conclusion

With the introduction of 5G, automobile manufacturers would have to face new challenges and it would be required of them to solve plenty of major issues being faced in autonomous driving. It would certainly improve the safety of vehicles in poor weather conditions and would enhance the capabilities of individual vehicles to provide improved driving experiences based on their specifications. Hence, the automotive industry should understand the potential of 5G technology and take advantage of the upcoming technology to its best, in a way creating safer, more efficient, and comparatively reliable vehicular technology.



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