Believe it or not, driverless cars are not a recent invention despite the push to incorporate this technology into the modern vehicle. The concept was first introduced in the Futurama exhibit at the 1939 World's Fair in New York City. General Motors offered a display that reflected what they though their vision of the world would be in the next two decades. It included an automated highway system which would guide driverless vehicles to their destination.

General Motors would eventually build a working vehicle in 1958 after providing an electric model that was guided by radio-controlled electromagnetic fields for their '39 exhibit. This idea was improved upon about 20 years later when Japanese automakers realized that they could use camera systems to relay data to an onboard computer that would process images of the road and create responses. This vehicle had a maximum speed of 20mph, which didn't make it very practical. As the industry worked on this issue, German manufacturers came up with a system that could safely drive at 56mph.

Although we do not have robotic vehicles or driverless cars filling our roadways as of yet, the modern car does contain numerous autonomous features that make driving easier and safer than ever before. Some models offer assisted parking or braking systems that activate automatically if they sense an issue. Vehicles can sense lane position and make adjustments there as well.

List of the Pros of Driverless Cars:

1. This technology would likely reduce the number of accidents that occur on roadways.
When we are riding along in a driverless car, then what happens on the road is no longer subject to the numerous bad behaviors that human drivers exhibit as they attempt to reach their destination. Over 80% of automobile crashes are as a result of human error. If computers are in more control, then there could be fewer road rage incidents, insurance costs that are associated with damage, and several other benefits that could potentially help to reduce overall driving times.

2. It would help individuals with disabilities to have more independence.
Although vehicles can receive modifications that make it possible for some people with disabilities to have movement independence, driverless cars would make this possible for many more people. That means there could be less dependence on the public transportation systems that can sometimes offer unpredictable schedules. There would be less of a need to rely on others to get around, which means more people would have additional mobility without requiring significant lifestyle changes to make it happen.

3. Driverless cars could work with higher speed limits.
As human populations move toward the use of driverless cars, it may become possible to raise the speed limit that vehicles can drive on extended trips. The computers would calculate the operations of the automobile to ensure the occupants remain safe. That means passengers could take care of other needs while the vehicle does the work of transportation without compromising the safety of the people who are on the roadways.

4. It could reduce the amount of fuel that we consume for transportation needs.
Computers would make it possible for driverless cars to maximize the fuel economy of every trip in multiple ways. Platooning would allow for the vehicles to draft with one another to reduce the effort that the engines would need to work while on the road. Real-time updates to driving conditions could help automobiles avoid high-traffic areas, places where weather disruptions are possible, and other potential hazards in the road. Because these vehicles would likely communicate with each other while on the roadway, they could ensure that everyone reaps these rewards of this advantage while still providing a higher level of safety.

5. Driverless vehicles could reduce commute times.
Because a driverless car would likely communicate with the other vehicles around it and the roadway, it would know where to maximize speed and movement to ensure the quickest possible commute. Other automobiles would react when a vehicle needed to exist a highway, for example, preventing the need to force oneself into lanes, cutoff drivers, or miss an exit. Vehicles could travel in bumper-to-bumper platoons while automatically merging to accommodate oncoming traffic. Although this benefit would eventually be limited by the available infrastructure in each city, this option would make it a lot easier for workers to commute every day.

6. It would help people become independent even though they hate driving.

There are plenty of people out there who find driving to be an enjoyable exercise, even if there is the occasional person who cuts them off or creates the potential for an accident. The time spent in a vehicle is not always an enjoyable experience. Even people who don't like the idea of driving could spend the time in the vehicle watching television, shopping online, or catching up on some work. You could hop into your car, place an order for groceries that you could pick up, and then have them ready by the time you reached your destination.

7. Self-driving cars could reduce the number of automobile thefts.

We are already using biometric technologies that can recognize fingerprints and faces to use as our passwords for our devices. This technology could also apply to self-driving cars that only respond when programmed passengers enter the vehicle. These automobiles are self-aware on some level thanks to this potential advantage, which means it would refuse to start or immediate shut down if someone else tried to use it. Alarm systems could even alert law enforcement automatically when an individual would try to remove parts from the vehicle. Owl cameras help to provide a level of security that could be incorporated into future driverless technologies already. It features dual HD AI smart cameras that access and send video through a 4G LTE connection. You have a 14-day encrypted video history that stores images based on movement detected in the vehicle. You can access information in real-time as well through your smartphone with views from anywhere, with alerts to crashes, dents, and break-ins.

8. It would allow drivers to continue traveling despite distractions or fatigue.

Even if our driverless cars become more of a hybrid system than something that is 100% automated, we could still use this technology to support a reduction in distracted or fatigued driving incidents. Drivers who are intoxicated could still use their vehicles to make it home because it would be the computer driving instead of the human with the reduced perception window and reaction time. If you got tired during a trip, you could place the vehicle into an automated mode and catch a quick nap without stopping. Because this technology wouldn't forget about driving rules, miss a stop sign in a new community, or weave in and out of traffic like an intoxicated driver would, the potential for fewer accidents is significantly reduced by taking advantage of this option.

List of the Cons of Driverless Cars

1. The human factor may never be completely eliminated from driving.
Even if you owned and operated a self-driving car that could provide you with every advantage listed here, you would still need to know how to operate the vehicle in emergency situations. All drivers would likely need to go through an education course to learn how the technology works, how to use it to their advantage, and what it would take to disengage the self-driving mode. You would also be required to maintain the vehicle properly (oil changes, tire rotation, etc.) to ensure that it remains safe to use.

2. It places the decisions in the hands of the computer.
There are times when split-second decisions are necessary because of rapidly changing circumstances. What would a driverless car decide to do if it encountered an individual crossing the street? Would it run into that person or decide to take the vehicle off-road, placing the occupants at a higher risk for harm? There are times in our society where we are more comfortable with a human behind the wheel because we have an instinct to find a third alternative that artificial intelligence does not necessary use. Until we can program this feature into computers, the future of this technology will always be in question.

3. There are security issues to consider with driverless cars.
We already have computers operating numerous facets of the driving experience today that are susceptible to hacking. People can access specific control mechanisms in some makes and models to the extent that the driver loses control over their automobile. This disadvantage would rise to a new level with driverless cars. There would need to be new levels of security installed as a firewall around the vehicle to ensure it would not be used in an inappropriate manner. Although we could program computers to stop potentially violent actions, such as a vehicle attack, there would be a risk that terrorists could program a driverless car to engage in such actions without the permission of the owner too.

4. Self-driving cars would collect a lot of personal information.
If you were to use a self-driving car, then the computer would store information about your trip. It could keep records about your destinations, such as the stores you prefer to visit, the restaurants you like, or even how much you're willing to spend on snacks. This data would be a treasure trove of info that marketers would want to use to create individualized advertising. Unless there are privacy protections in place that would prevent automobile manufacturers from selling this data to third parties, this technology could further erode what few protections are already available.

5. There are no legal precedents about accident responsibility with driverless cars.
Although a driverless car system would likely reduce the number of accidents that occur on roadways, they will not completely remove this threat from our transportation grids. In 2018, Uber experienced the first known fatality involving a self-driving vehicle in Tempe, AZ, when their car struck a pedestrian. The driver is looking down at her lap when the accident occurs, with the vehicle stopping at the moment of impact. An evaluation of the system showed that the driverless car detected the pedestrian just 0.9 seconds before impact, giving it 50 feet to stop. The car didn't slow or swerve, impacting the person at 38 mph. This incident grounded the fleet of driverless vehicles until the issue can come to a suitable resolution.

6. Current technologies may prohibit safe use in challenging weather conditions.
There are times when human drivers would still be required to navigate roads that are in poor condition. Snowy roadways where chains are required may not provide enough visual resources for the sensors on the vehicles to operate properly. When there are heavy rains occurring, then serious problems with the laser sensors mounted on the vehicle can occur. That means humans would be responsible for navigating through potentially severe issues, which means there must still be a skill taught for driving even if we fully adapt to this technology.

7. Driverless cars cannot interpret human traffic signals with current technologies.
Our current use of driverless cars operates using a system of cameras, radar, and lidar sensors. This technology makes it possible for the computers of the vehicle to "see" the environment around them, detect traffic, or stop when it encounters an obstacle. There are times when emergency situations require law enforcement, utility workers, firefighters, or other first responders to direct traffic using hand signals. If a driverless car were to encounter such a situation, then it wouldn't know what to do.

8. We must have access to accurate mapping systems for this technology to be successful.
The success that we currently experience with driverless technologies relies on updated GPS systems and mapping that can direct the car to where it is supposed to go. We have all heard stories about how drivers followed instructions from this equipment to turn the wrong way on a one-way street or go into an area where a roadway doesn't exist. In 2012, students from Tokyo who were visiting Australia were following the instructions provided by their GPS and drove themselves right into Moreton Bay as they tried to navigate between two islands along a channel route. A 17-year-old driver in New Jersey made an illegal left turn following the advice of the GPS, leading to a four-car accident. These issues could become more prevalent if we rely on the automated functions of a driverless car.

9. It may create a net loss of jobs in society.
As driverless cars approach the market as a legitimate option, there is a similar threat faced in society for employment that is similar to what artificial intelligence causes in other industries. It is very possible that this technology could slowly put the people who operate transport vehicles for a living out of business. Anyone who drives a tax, delivers food, or even works for Uber could be impacted in negative ways. Driverless trucks could even transport goods across the country without needing someone behind the wheel to guarantee the delivery.

10. The cost of driverless cars is still prohibitive for the average person.
Driverless cars use technologies that cost an average of $100,000 per vehicle as of 2018. Although that price has come down in recent years, that is still a cost which is outside of the realm of ownership possibilities for the average family. We are still several years away from having an auto manufacturing incorporate these options in ways that can help us to be completely hands-free as a society. Until then, we will need to settle for the autonomous features that automakers are slowly infusing into the driving experience for all of us.

11. It wouldn't stop traffic jams.
You are still going to have plenty of vehicles on roadways when using driverless technologies. Highways are only capable of handling a certain amount of traffic. You will still encounter stop-and-go driving conditions in major metropolitan areas even with this option simply because of the number of people who are traveling.

12. Rural communities would likely be the last to receive this benefit.
Like most new technologies that get implemented in the world today, it would be the wealthiest and most populous regions of the world that would receive driverless options first. This process would create a series of hybrid driving scenarios where some vehicles would operate automatically, and others would still provide the traditional user experience. It could take several years for a full implementation in the developed world, while developing countries would likely be decades away from being able to experience the benefits of this technology.

Conclusion:

The pros and cons of driverless vehicles show us that we still have a lot of room to grow with this technology, even as it slowly begins to approach its 100th birthday as a practical idea. New advances in the field of artificial technology provide us with hope that it could become a reality one day. There are also questions about ethics and responsibility to consider when employing this technology on a larger scale than what we have already tried.