# Automated Vehicles will Reduce Traffic Congestion

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Introduction

Automated vehicles on the road will improve congestion through inter-vehicle communication, the mitigation of human error on vehicles, and better pathfinding and GPS systems that avoid extreme congestion.

Intervehicle Communication

Intervehicle communication is the fundamental process that pushes the idea of automated vehicles forward. Congestion often occurs when there is a volume of vehicles that exceeds the road’s maximum. In some cases, traffic almost stops and comes to a halt due to drivers applying brakes constantly to adjust for the inflow and volume of vehicles. However, with automated vehicles, the cars can maintain a constant speed and distance from the next car. The idea, more commonly referred to as Platooning vehicles, can maximize flow and is achievable with automated vehicles (U.S. Department of Transportation, 2017). These factors allow for a smoother flow of traffic and a decrease in congestion due to the cars being able to move (Bayen, 2021).

Human Error Mitigation

Human error is a big factor that slows down the streets (Green, n.d.). With constantly changing factors like construction, changes in location, or unfamiliar areas, humans are bombarded with constant and changing stimuli and get distracted. With the implementation of automated vehicles, the lapses in human judgement can be automated and replaced to improve the flow and reduce congestion. A study done at Cambridge found that automated vehicles surpassed human drivers when an unexpected stimulus was placed in front of them. This improved the traffic flow by up to 45% (University of Cambridge, 2019). With these results, it can be clearly shown that there is a reduction in congestion via removing human senses and implementing of automated vehicles.

Integration of GPS systems

Another way of decreasing congestion with automated vehicles is the further use and implementation of GPS systems. Currently, humans have access to such systems as humans and use it as a means of traveling. However, this technology can be further improved by automatic vehicles and their ability to transmit information. The cars could connect themselves to satellites and be able to know which have regions of high congestion and low congestion. This provides the opportunity for Avs to manage congestion via flow management and allows for roads to remain effective by managing the volume. A study of this was done in the Netherlands on regions of high traffic flow with high foot and bike accessibility. The simulation found that delay

in traffic was reduced when there were 25% or more automated vehicles on the road (Overtooma, 2020). Through this model, there is observed value in regions of high density for automated vehicles.

Conclusion

As technology across the world improves, automated vehicles are becoming more and more realistic in the near future. These changes aren’t negative in a sense of congestion and may improve the traffic flow in all regions. Inter vehicles communication, the mitigation of human error, and the further integration of GPS systems all seem to improve traffic flows and further human flourishment.

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