Technology In Transportation

[Name of the Writer]

[Name of the Institution]

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**Introduction**

Internal combustion engine dominated the domain of transport. However, now the world is witnessing a boom in the production of electric vehicles. Electric vehicles are gaining popularity in both developed and developing transportation markets. Wide-scale adoption of electric vehicles could provide notable changes for populations. These changes, to begin with, could help the economies move away from petroleum. Hence, electric vehicles would play a major part in abating the looming global environmental crisis by reducing carbon emissions. There are different types of electric vehicles. For instance, ground electric vehicles, rail-borne electric vehicles, and seaborne electric vehicles. Ground vehicles also include electric trucks.

**Discussion**

**Electric Trucks**

A truck that runs on lithium-ion batteries instead of the conventional internal combustion engine is referred to as electric truck (Morozov et.al,2018). Conventional trucks dominated the truck industry for than a century. However, with technological advancements, electric trucks are rapidly catching up with conventional trucks. Soon, conventional trucks would be a thing of past. The primary reason electric trucks are preferred is that they generate absolutely no pollution (Morozov et.al,2018). The cost that goes into running an electric truck is far less when compared to conventional trucks. Additionally, the maintenance cost of electric trucks is also lower than in conventional trucks. However, there is a flip side to this picture. Electric trucks are heavier as compared to conventional trucks. Additionally, lithium-ion batteries have far less energy density in comparison to conventional trucks (Morozov et.al,2018). As a result, frequent charging is required when traveling over long distances. This results in long delays.

**Types of Electric Trucks**

There are various types of electric trucks serving various industries. They include general electric trucks, electric pickup trucks, semi-trailers, and tractors. Additionally, garbage trucks and mining trucks have also been transformed into electric trucks.

**Big Players in Market**

There are many companies currently producing sophisticated electric trucks to lure buyers. Some of the biggest companies producing electric trucks at large scale are Tesla, Volvo, and Volkswagen.

**Working of Electric Trucks**

All electric trucks have an electric motor in place of the diesel engine (Kumar & Revankar, 2017). The electric motor uses heavy-duty lithium-ion batteries that generate enough power to make to a truck to move (Kumar & Revankar, 2017). As the electric motor is charge through a charger, there is no fuel tank. Additionally, there is no exhaust in electric trucks because of zero carbon emissions (Kumar & Revankar, 2017).

**Components of Electric Trucks**

The most important component in an electric truck is obviously an electric motor (Young et.al, 2013). The lithium-ion batteries are the next most important component of the electric trucks (Young et.al, 2013). Additionally, there is a charge port located near the electric motor. The charge port lets the battery to get charged from the outside power supply. A DC/DC converter converts high voltage DC current to low voltage DC current. An electric traction motor consumes the energy stored in the lithium-ion batteries to move the truck (Young et.al, 2013). An onboard monitor keeps a check on various indicators of the battery (Young et.al, 2013). These indicators include voltage, current, and temperature. A cooling system ensures proper cooling of the batteries in order to prevent any unforeseen accident.

**Advantages of Electric Trucks**

The advantages of Electric trucks are numerous. They are energy efficient, emit lesser gases, helps to move towards a sustainable environment, improve public health, and produce economic growth. Additionally, electric trucks are pushing competitors for innovation. As a result, electric vehicles will become more and more affordable in the coming future.

**Electric Trucks are Energy Efficient**

According to various studies conducted internationally, Electric trucks are 75% more energy efficient in comparison to conventional trucks (Fiori, Ahn & Rakha, 2016). Conventional trucks are only 25% energy efficient, making them less attractive. As electric trucks have fewer parts for the energy to go through, a very small percentage of electricity is lost (Fiori, Ahn & Rakha, 2016). Another reason for the electric trucks to be energy efficient is that they use the principle of regenerative braking (Fiori, Ahn & Rakha, 2016). Regenerative breaking allows electric trucks to recharge batteries whenever the brake pedal is pushed (Fiori, Ahn & Rakha, 2016). In conventional trucks, pushing the brake pedal created heat due to friction. On the contrary, electric trucks recover a small chunk of energy lost by braking.

**Curbing Greenhouse Emissions**

With global climate portraying a grim environmental picture, there was a dire need for curbing greenhouse gases that exacerbate the global climate (Notter et.al, 2019). Considering the dreadful environmental indicators, big auto manufacturers initiated the production of electric vehicles. The idea behind the production of an electric vehicle was to curb greenhouse gases that exacerbate the climate of the earth (Notter et.al, 2019). With more and more electric trucks making it to the roads every day, air pollution is on a decline in major urban cities. Electric trucks are promoting sustainable development, an important initiative by the United Nations. Even though electricity is used to charge the batteries in electric trucks, it still contributes lesser than the petroleum in worsening the environment (Notter et.al, 2019).

**Promoting a sustainable environment**

It would be safer to conclude that electric trucks are cleaner and far safer for the environment when compared to conventional trucks. Electric trucks consume electricity instead of fuel. Additionally, no exhaust or sound is produced from the tailpipe, making them far quite compared to conventional trucks.

**Improvement in Public Health**

Electric vehicles in general and electric trucks, in particular, produce less harmful gases as compared to conventional trucks (Requia et.al, 2018). As a result air and noise pollution is on the decline (Requia et.al, 2018). Due to air pollution, large numbers of citizens were suffering from acute respiratory diseases (Requia et.al, 2018). These diseases incurred heavy financial burden on the citizens.

**Conclusion**

 With significant technological advancements, electric trucks would only become more affordable. As a result of this, a culture of innovation will prosper and the economy of the country will reap its benefits.

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