



Electric Vehicles

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History:

- Electric vehicles predate internal combustion engines
- Using the invention of the battery (1800) and the continuously rotating motor the first model of an electric vehicle was made in 1828
- In 1881 improvements to the lead battery that made it possible to mass produce is what made the electric vehicle a practical form of transportation
- Golden age of electric vehicles were from 1880 - 1900
- In 1899 the electric car outsold both the steam and internal combustion engines and was the first vehicle to break the 100 km/h speed barrier at 105.88 km/h
- In 1909 Henry Ford's model T took control of the market though electric vehicles hit a peak of 30,000 units in the United States in 1912
- Any companies left that made electric cars went out of business in 1929 at the start of the Great Depression

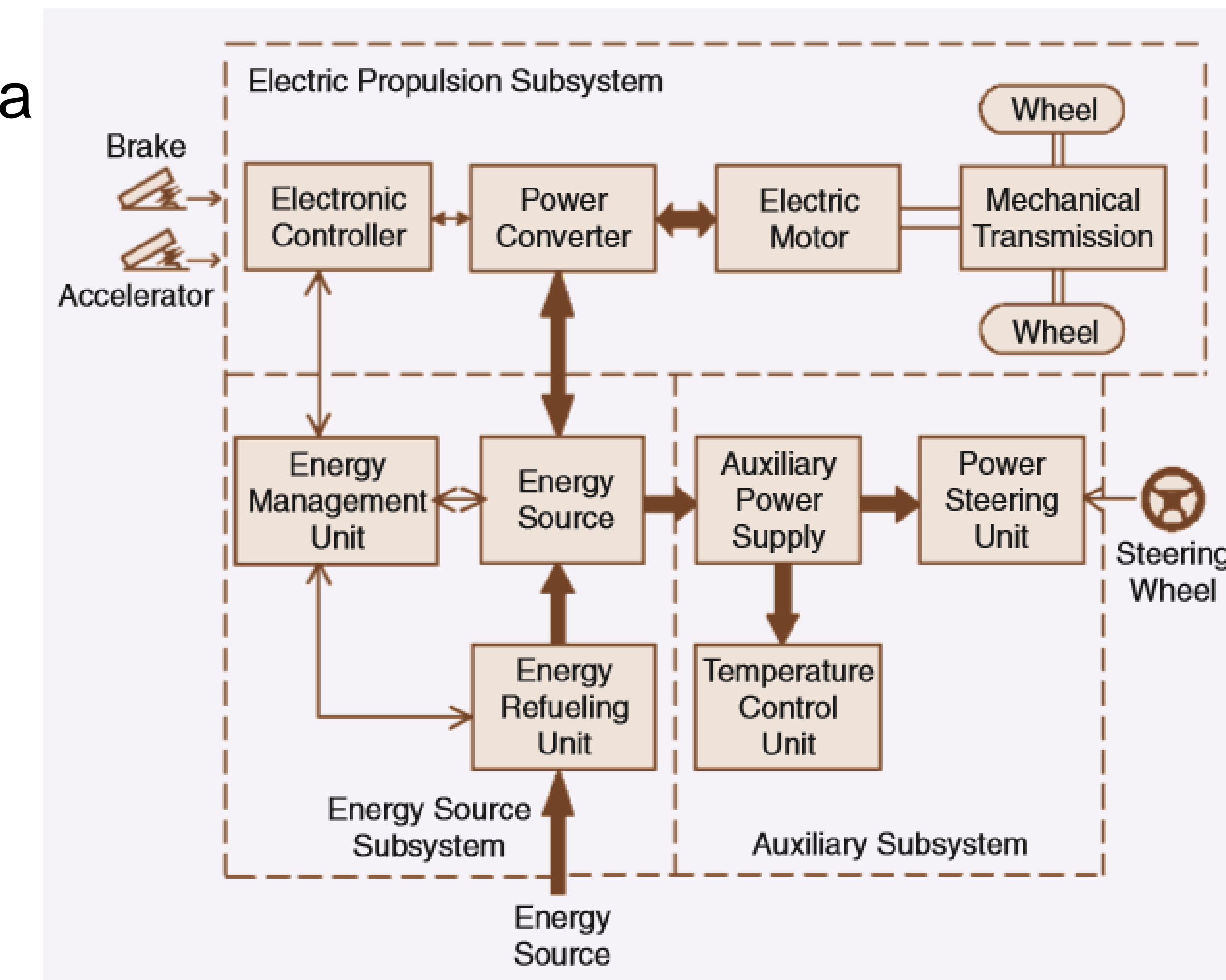


Picture: La Jamais Contente

Fully Electric:

- A battery is charged off grid electricity which runs a electric motor to turn the wheels
- Challenges include high initial cost, long charge times, reduced driving distance, and less cargo space

Figure: Electric Vehicle Propulsion System



Hybrid:

- Uses both an electric battery and internal combustion engine in either series or parallel.
- In series the internal combustion engine charges the electric battery.
- In parallel both can power the wheels independently or together.
- Increases the efficiency of both power sources by combining them.

Future Developments:

- One major draw back to the electric vehicle has always been its limited range when compared to traditionally powered vehicles. One way Tesla is working to solve this issue is by installing rapid charging station networks in city's like Palo Alto California.
- Tesla has also announced its plan to build a 5 billion dollar "Giga factory" for battery production.
- Even though electric cars are seen as largely environmentally friendly the processes use in creating the lithium ion batteries that most electric vehicles use have the potential to create very harmful byproducts.
- Another major concern that has developed is battery degradation. A process where over time the battery is not able to hold its maximum charge and reduces the total range of travel

