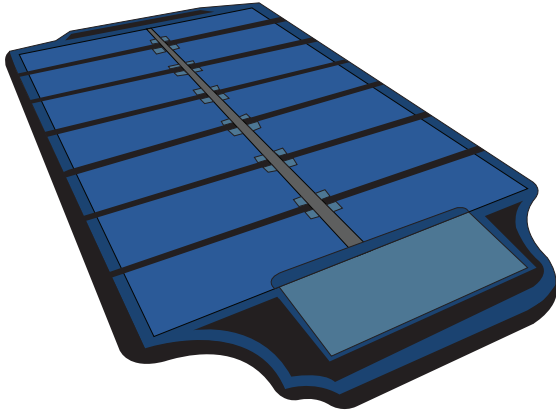


ELECTRIC CAR CHALLENGE



CONCEPT Electric Vehicles (EVs) are vehicles that are either partially or fully powered on electric power. EVs have low running costs as they have less moving parts to maintain.

BACKGROUND

Early electric cars were adopted for use in driving around cities. Some of their main consumers included women who found them useful for shorts trips around town. One of the first practical electrical cars was created by British inventor, Thomas Parker, in 1884. Another famous example of early electric cars was The Flocken Elektrowagen, which was produced in Germany in 1888. Ultimately, poor conditions of roads outside of cities made EVs difficult to use, despite the growing charging capabilities in 1910 as a result of widespread city electrification.

Electric cars, or EVs for short, work through the use of an electric motor instead of an internal combustion engine, like gasoline-powered cars. In most cases, EVs make use of a large traction battery pack to power the motor. This battery pack is charged by being plugged into a specially designed charging station or outlet at the users' home. As EVs run on electricity, they have no exhaust and do not contain parts like the fuel pump, fuel line, carburetor, and fuel tank, which are needed in gasoline-powered cars.

REAL WORLD CONNECTIONS

Because the average EV traction battery only carries enough charge for 250 miles of driving, charging stations must first be installed along highways, interstates, and in midwestern cities to connect the larger cities on the coasts. This infrastructure will encourage adoption of EVs.

This is taking place in the midwest, where the governors of Illinois, Indiana, Michigan, Minnesota and Wisconsin are working together to build a new network for charging EVs. The bipartisan plan, REV Midwest, aims to improve the region's economy while also reducing toxic emissions from cars and trucks. Their hope is that it will create jobs, improve health, and attract private investment and federal funding.



APPLICATION

There are around 20 EV manufacturers in the world, with the top being:

TESLA
BMW GROUP
MERCEDES-BENZ
GEELY
GM
VOLKSWAGEN GROUP
BYD

Tesla was founded in 2003 and is Texas-based, though they have begun creating “Gigafactories” to produce traction batteries in Nevada, New York, and China. Tesla’s vehicle lineup includes their recently released Semi and Cybertruck along with their Model S, Model X, Model 3, and Model Y. The Tesla Model S and Model 3 are sedans, whereas Model X is a full-size SUV, and Model Y is a crossover SUV. Tesla dominates the EV market with the Model 3 being the best-selling electric car in the world and the Model S as the longest-range electric car. Tesla is famous for its technology including excellent specifications, development of autonomous driving technology, and its network.

Make sure it measures up



EXAMPLES

TRACTION BATTERY: Instead of using gasoline, EVs rely on a large Traction Battery to power most components, allowing it to drive.

AUXILIARY BATTERY: In most EVs, the battery provides electricity for start-up and vehicle accessories such as interior lights and dashboard.

CHARGE PORT: In order to recharge the traction battery, the charge port allows the EV to be connected to an external power supply.

ELECTRIC TRACTION MOTOR: The Electric Traction Motor converts electricity into rotational force to power the wheels. Some EVs recoup lost energy by using regeneration functions inside each wheel.

ELECTRICAL TRANSMISSION: This device transfers mechanical power from the traction motor to drive the wheels.

