

ELECTRIC CARS AND THEIR TROUBLES

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Electric cars are an integral part of the modern automobile industry. More and more companies are producing their own electric car models with new features and differences from others. Gas stations are changing: They are being equipped with charging points for electric cars, and new separate charging stations for electric cars appear directly on the road. More and more of them can be seen on the roads of Belarus. A reasonable question arises: will they ever replace their predecessors?

We can look back to the historical origins and the invention of the very first car: What happened to this design now, has it been modernized or disappeared?

Upon analysis, it is possible to notice a similarity between the situation with the predecessors of modern steam-powered cars and cars with internal combustion engines powered by gasoline, diesel, or gas. The steam engine was invented in 1760 by the scientist Denis Papin [1]. These engines were initially used for pumping water, and in 1770, Nicolas-Joseph Cugnot invented the first prototype of a steam-powered locomotive. However, just half a century later, internal combustion engines using hydrogen mixtures were invented, marking the beginning of the era of internal combustion engines. Although steam-powered trains were used for a very long time due to the inertia of such engines and the simplicity of their fuel.

Interestingly, the first electric-powered cars appeared earlier than cars with internal combustion engines, and even earlier than the internal combustion engine itself. In 1828, the inventor of the electric motor, Ányos Jedlik, presented the first miniature model. Thirty years later, Gaston Planté invented the lead-acid battery, which was successfully integrated into the electric vehicles of that time, greatly increasing their power – a kind of revolution in electric vehicles [1].

Let's try to compare electric cars and internal combustion engine (ICE) cars:

Ecology. Let's refer to statistics: According to research by the organization Transport & Environment, the environmental performance of the average electric car in the EU is three times better than that of an internal combustion engine vehicle in terms of harmful emissions into the atmosphere, such as CO₂.

However, the power plants where electric cars are charged mostly generate electricity by burning coal, which is far more harmful than exhaust emissions.

Range. Most mid-priced electric cars can travel 200-300 km on a single charge on highways, which is far inferior to ICE cars. However, more modern and expensive models can travel 600-800 km. For engineers, the issue arises of increasing battery capacity – the larger it is, the heavier the battery becomes, and the more energy is needed.

Costs. Electric cars have long charging times, but it is possible to charge them at home using a regular outlet, which is much more cost-effective than refueling gasoline-powered ICE cars. According to research, the savings amount to a factor of 12.

Speed. Unlike gasoline engines, electric motors are considered more torque, and due to regeneration, they can even return some energy. However, ICE engines are more powerful – cars with ICE accelerate more quickly and achieve higher speeds.

Price. By 2025, electric cars are still noticeably different in price from the internal combustion engine. let's compare the same base model of the Ford focus in 2024 with the 1.6 electric electric motor and the same model with the sport internal combustion engine. An electric car is twice as expensive as its alternative model [2].

Most likely, electric cars will replace ICE cars in the near future, especially for the average consumer, as the environmental issue continues to grow.

References

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