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BETTER ENERGY DESIGN





Even if you don't believe it, the electric vehicle has more than 200 years of history.

After various changes and evolutions in technology, these vehicles are considered to be the big step towards more sustainable and environmentally friendly mobility. But is this really the case today?

Any interest that arose in electric cars was due to several factors. One of them was individual transport. We had the railway at the end of the 18th century, but this type of passenger transport was still governed by the use of horse-drawn carriages. This managed to arouse the curiosity of engineers and industrialists of the time, who saw a possible great revolution in industry if a type of electric transport model could be achieved.

In 1828 came the creation of the world's first electric motor. This prompted the idea of a traditional carriage, but powered by electricity. And it was achieved by the Scottish chemist Robert Anderson: a carriage powered by electric cells.

In 1859, the French scientist Expenses Planté invented rechargeable lead-acid batteries, thus solving the drawback and limitation of this carriage: it had to be connected to a network. Later, the capacity of these "batteries" was increased. A tricycle powered by an electric motor appeared in Paris.

The first electric car is built in Germany in 1888. The automotive world closes the 19th century with a historic milestone: the 100 km/h speed barrier is broken.



Electric cars began to attract the attention of the upper classes. They were noiseless and emitted no odour or fumes, and their range was more than sufficient to cover daily activities. In an article in the New York Times in 1911, they were described as the cars of the future.

Unfortunately, combustion cars overtook them on the right. They had an automatic starter, production lines had been set up and this reduced the cost of the final price by a large percentage, oil reserves were discovered and there were poor technical conditions.

But they finally re-emerged after the oil crisis of the 1960s.

After many models, Tesla picks up the baton and manages to launch the Roadster: a range of more than 300 kilometres. All current electric cars use similar technology to Tesla's, and the increased performance of these lithium batteries encouraged several brands to launch new environmentally sustainable models.

But what is happening with electric cars today?



As users, we have encountered several drawbacks: their high price and autonomy. Let's take a look at the current market:

Example calculation with indicative data based on a comparison between the purchase of a Peugeot e-208 (including battery and assistance) and the equivalent 130 hp petrol 208.

Depending on the model, they are between 5,000 and 15,000 euros more expensive.

From a manufacturing point of view, is there really anything to justify this outlay? Only the batteries.

Datos del coche eléctrico	
Precio	23.000 €
Consumo (kWh/100km)	13
Alquiler mensual batería (si procede)	
Instalación punto de carga	360 €
Precio electricidad estimado (kWh)	0,10 €
Datos del vehículo de gasolina (o gasoil) equivalente	
Precio	17.000 €
Consumo (l/100km)	7
Precio combustible estimado (l)	1,30 €

The aim is to develop an affordable alternative available to the majority at an affordable price, right? What if the batteries were not part of the vehicle structure? **Removable and rechargeable batteries.**



The objective we are pursuing is to bring the user a more affordable electric car and solve the problem of autonomy. With these removable and rechargeable batteries, we would be able to solve these major drawbacks.

We could arrive at an "electrolinera" and exchange the depleted batteries for others that are already charged and get back on the road, in less than ten minutes. We don't have to wait for them to charge!

The gas station model would be very similar to the current model we already have on all roads. It would simply exchange fossil fuel storage for energy storage.

We could make a simile with the traditional butane bottles: *a battery distribution truck*. From a larger platform, we would have the batteries being charged and this would be in charge of distributing them to the different distribution points, our new electric stations! It would take away any discharged batteries and leave the charged ones, which would be immediately available to users.





As an aid to charging the batteries at the distribution points, solar panels consisting of photovoltaic cells can be found on the roof. Thus converting sunlight into electricity in the form of direct current and charging some of the batteries on a small scale. The only thing left to do then is to set up a space to store them.

Thanks to this type of infrastructure, we could manage to conserve the infrastructure already in use and thus avoid cost overruns.

of new "petrol stations" and the loss of employment that this could cause.

This idea becomes disruptive, as we are completely changing the concept of the electric car, which is composed of storage. We no longer have a car that is made up of batteries, but a car that can store and exchange batteries depending on our need.

*Does this completely break with the idea of the electric car? **No, it only enhances it.***

But we also have to take into account the next big problem: reaching an agreement between all manufacturers and producing a single battery model. We firmly believe that, for the sake of the general welfare, we must achieve 100% electric mobility and that the major companies must be responsible and reach an agreement and thus achieve this great objective.

We must also continue to promote research into the recovery of copper and lithium from batteries. To achieve a life cycle that is as circular as possible, without generating the large amounts of waste that are currently being generated.

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