Our modern age is considered an electric/electronic age, powered by powerful electronic gadgets and electricity. Batteries form the backbone of this electronic age. Unless there’s a vibrant and dependable storing system, all the electricity that’s produced is of no use. Batteries provided the main source of electricity even before the development of electric generators and grids around the end of the 19th century. Like many other inventions and discoveries, batteries were also developed accidentally by ‘Luigi Galvani’ and ‘Alessandro Volta’. A battery is a device consisting of one or more electrochemical cells that convert stored electrical chemical energy into electrical energy. In a traditional battery, there are three important parts-Anode, Cathode, and a Salt bridge. The anode is the part where the electrolyte loses electrons (oxidizes), while the cathode is the part, where the electrolyte gains electrons (reduces). Charge balance must be maintained, hence to facilitate this we have the salt bridge. As the anode loses electrons, negative ions (anions) from the salt bridge, or other electrolytes if barrier used, travel to another solution, and positive ions (cations) travel to the cathode.

The “**Voltaic Pile**”, the first-ever made battery, was invented by Alessandro Volta in 1800. The Voltaic Pile was very popular and made possible many things such as the first electrolysis of water. Soon it became the basis of the unit for voltage. Later in 1836, John Daniell invented the Daniell Cell, and thereafter many different iterations of batteries were created by the scientific community. In recent years, the leading battery technology is Lithium-ion technology. First, Lithium-ion batteries were sold in 1970. These batteries have made significant progress in recent years. Li-ion batteries acquire high energy density, which makes them best suitable for the current era. As of now much of the research is going on in this field. An electric vehicle battery is used to power the electric motors. The Lithium-ion battery is a type of rechargeable battery used in electric vehicles and a number of portable electronics. A crucial aspect of the e-mobility ecosystem is, of course, the electric vehicle itself. And the industries in this subject of research are growing day by day. Electric vehicles are environmentally friendly vehicles, by running on electricity, they ensure that the vehicles do not release poisonous gases into the atmosphere, in the form of exhaust. In a way, electric cars are capable of combating the problem of global warming and that’s why electric cars are the future, and each year we’ve seen automakers add more EVs to their lineup.

But we should also keep in mind that with, electric vehicles and Lithium-ion batteries we are not completely eradicating the problem of global warming. We are just pushing it one step back as the sources of production of electricity (like coal, hydel, etc) are still causing a lot of environmental pollution.

Therefore, the scientific community is not treating Lithium-ion batteries as the final frontier and they are still searching for more options. As of now, heavy research is going on the concept of superconductors and carbon nano-tube batteries. These are right now treated as the next frontier in battery technology evolution.