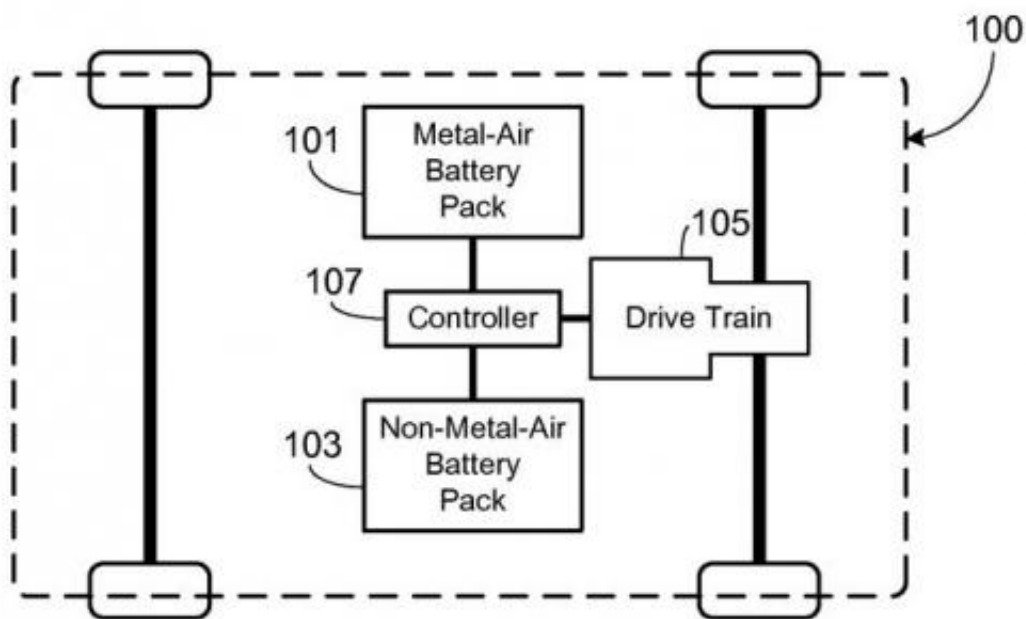


Tesla patent describes hybrid battery pack system for EVs

September 23 2013, by Nancy Owano



Credit: US PTO

(Phys.org) —A Tesla Motors patent application filed earlier this year shows the company's interest in a hybrid battery pack using lithium ion and metal-air batteries. The patent is titled "Electric Vehicle Extended Range Hybrid Battery Pack System." With a publication date of July this year, the patent describes a battery pack that would make use of a standard lithium ion battery along with a metal-air battery pack. Such a system could spur adoption of electric cars, based on the premise that one car, fitted with combined battery types, may ease concerns about

how far one can expect to travel on a single charge. The patent application focuses on a hybrid battery pack that could ease those concerns and support Tesla's future success.

The patent applicant, Tesla Motors of Palo Alto, states that this is a "method of extending driving range of an electric vehicle." The invention that Tesla has in mind "provides a power source comprised of a first battery pack (e.g., a non-metal-air battery pack) and a second battery pack (e.g., a metal-air battery pack), wherein the second battery pack is only used as required by the state-of-charge (SOC) of the first battery pack or as a result of the user selecting an extended range mode of operation."

Interpretive reports on the patent this week note that this could be a system that makes use of two different types of batteries to make sure an electric car could provide greater range at a reasonable cost. The [lithium-ion battery](#) would carry performance most of the time while the metal-air pack would serve the car for long-distance trips. The metal-air batteries would be an especially suitable choice for Tesla to deploy for longer-distance driving because of cost. Metal-air batteries would be cheaper to produce and in turn Tesla could afford to keep the car prices down when turning out long-range EVs.

According to the patent filing, "a metal-air cell is a type of battery that utilizes the same [energy storage](#) principles as a more conventional cell such as a lithium ion, nickel metal hydride, nickel cadmium, or other cell type. Unlike such conventional cells, however, a metal-air cell utilizes oxygen as one of the electrodes, typically passing the oxygen through a porous metal electrode."

The patent filing has most auto industry watchers asking the same question, is Tesla likely to offer this hybrid [battery pack](#) solution any time soon? Tesla and Panasonic have a relationship for batteries; in

2011, Panasonic and Tesla Motors finalized a supply agreement for automotive-grade lithium-ion battery cells. Under the agreement, Panasonic would deliver lithium-ion battery cells for 80,000 Tesla vehicles over the next four years.

According to a report in Benzinga, Trip Chowdhry, managing director of equity research at Global Equities Research, said he did not think that Panasonic or Samsung could be a leader in the metal-air battery [production]. He told Benzinga he thought "there could be some [other](#) players, [but] we don't know who it is."

More information: [Patent application #20130187591](#)

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