

SIM-Drive Corp announces new 'in-wheel' electric car

April 1 2011, by Bob Yirka



(PhysOrg.com) -- SIM-Drive Corporation, a Japanese consortium based in Kawasaki-shi and comprised of 34 companies and municipalities, has announced that it has developed a functioning electric car based on in-wheel electric motor technology.

Named, the SIM-LEI, (Leading Efficiency In-Wheel [motor](#)), the electric

vehicle (EV) is roughly the same length as a sedan but only as wide as a compact. It sports the same lithium-ion batteries (supplied by Toyota Corp) as most other EVs on the market and can travel over two hundred miles on a charge. What's unique about the SIM-LEI though, of course are the in-line electric wheels.



While traditional cars have their motors under the hood, including most EVs, the SIM-LEI, uses small electric motors mounted in the individual wheel housings behind the tires. These motors then drive the wheels directly, rather than using a drive shaft, which makes them far more efficient than other cars. Until now, in-wheel motors have been thought to lack the power necessary to propel a car in a manner that most are used to. SIM-Drive appears to have overcome this problem however, with new technology (including using outer-rotors and inner stators,

instead of the traditional inner rotors and outer stators) as the SIM-LEI is able to move from 0 to 62 mph in just 4.8 seconds. And because the individual motors can be fitted with sensors, allowing nearly instantaneous reaction to conditions, responsiveness is expected to be better than most cars now on the road. According to the company, the SIM-LEI is capable of traveling 333 km (207 miles) on a single charge.

SIM-Drive engineers also decided to put the batteries and inverters under the floorboards rather than in either trunk, likely because it brings them closer to the in-wheel motors; doing so has the added benefit of allowing far more leg room up front than most are used to with Japanese cars.



SIM-Drive Corporation was formed in 2009 with the intent of pushing forward new technologies in the electric car market. The consortium is affiliated with Keio University and the SIM-LEI will likely be marketed

through consortium members, Mitsubishi and Isuzu. No price has yet been set, though a target date of 2013 has been listed as the time frame for "commercialization" of the vehicle.

Finally, SIM-Drive, in its communiqués, has made it clear to the Japanese public that the vehicle, if successful, shouldn't add any new additional stress on electricity demands (currently an issue with the rolling blackouts due to the Fukushima power plant problems) as its batteries can be charged at night when demand is low.

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