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SINGAPORE: German carmaker BMW has set up a joint research lab with Nanyang Technological University (NTU).

For a start, the Future Mobility Research Lab will look into making longer lasting batteries for green cars.

The lab, located in NTU's Research Techno Plaza, is the carmaker's first joint lab in Southeast Asia.

The two sides are investing S\$5.5 million over three years into the project.

Researchers will test new materials for the next generation of lithium-ion batteries used in electric vehicles, which will be able to charge faster, have greater resistance to heat, are less flammable and have a longer lifespan.

The lab is doing is experimenting with the use of nano-structures such as nanotubes, nanopowders and nanofibres to aid in conducting the flow of lithium ions within a lithium-ion battery when charging and discharging.

Other new materials the university is looking into include lithium-air batteries, where the battery generates energy flow by making use of oxygen molecules while discharging and when recharging, generates oxygen.

This could mean the car can have greater mileage with a shorter charging time.

The lab will also do research on commuting patterns in a mega-city, such as consumer behaviour in multi-modal transportation and car sharing.

One research area is the development of a routing system to strategise and optimise daily commute for a driver.

Such a routing system will take into consideration an individual's driving style and real-time traffic situation as the individual drives and systems that can detect and predict driver behaviour.

Dr Mirjam Storim, coordinator of university cooperations at BMW Group, said: "Singapore is a very important place for us because it has such controlled traffic. We don't have that in Germany, not at all, or in other countries such as China. It is very well-monitored here. This is why we are so interested in it. It's a mega-city - we don't have that in Germany."

Prof Subodh Mhaisalkar, director of the Energy Research Institute at NTU, said: "The ability to fast charge will really enable you to determine your ability to go to a charging station and charge for maybe five, ten to 15 minutes, take a quick break and then continue. Finally the battery material, the nano-structures we use for the batteries will make sure these are reliable and do not pose a risk from overheating prospective or explosion prospective or fire hazard prospective."

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The joint research lab will study ideas that can be implemented into Singapore's urban environment and also mine data which can be useful in other metropolitan areas.

Technologies developed in NTU such as new apps and software programmes for intelligent routing made can also implemented in future BMW car series.

With the joint research partnership, NTU joins seven other universities that are conducting joint research with BMW.

These include the Massachusetts Institute of Technology, Technical University of Munich and Tsinghua University. - CNA/xq

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