Headline: Four NUS engineering students successfully modify "electric" motorcycles
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国大四工程学生　成功改装“电”单车

骑着电单车的亨仕与四名学生花了11个月的时间制造出电动引擎组件，方便车主改装电单车。这辆电单车两轮之间的组件就是他们的研究结晶。（唐家鸿摄）

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一群大学生找到省时省力的方法，把汽油驱动的电单车改装成名副其实的“电”单车。

这四名新加坡国立大学工程学院二年级学生制造出了一种现成的电动引擎组件，让车主在短时间内把电单车改装成电动交通工具。

他们是参加国大博学计划（University Scholars Programme）的学生，可通过跨学科学习探讨不同问题的解决方案。学生们通过工程学、化学、经济和环境科学，研制出更具实用性的电动引擎组件。博学计划的导师之一亨仕（Martin Henz）副教授日前，在校园内骑这台电单车，向记者展示它的性能。

国大工程学院副院长林世浚说，这是工程学院学生首次通过国大博学计划这个平台进行学术研究。

他说：“这能让我们的学生能够通过多角度来了解决问题，进行对社会有贡献的研究。我们会继续鼓励工程学生与其他国大博学计划学生一起进行这些研究。”

小组所设计出的组件包括两个铅酸电池组和电线，适用于多个厂商的电单车。

发动这项计划的张翔平（22岁）说，把汽油驱动电单车或汽车改装成电动引擎驱动的概念并不新，不过改装过程耗时又耗力，需要好几天才能完成的工程。有了这个组件之后，只需要两个人花一天的时间即可完成。

改装后的电动电单车每个月的花费只需约30元，就能行驶1101公里。这比使用汽油驱动的电单车所需的121元来得实惠。

亨仕副教授说，在电动车尚未普及化、拥车证价格又居高不下的情况下，小组的研究能够为电单车骑士提供一个实惠又环保的选择。

他说：“电单车的外壳寿命比引擎更长，改装后的电单车能为车主省下买新车的费用。”

目前，这项计划纯属学术性的计划，尚无商业用途。小组花了近一年的时间，完成这个项目，但他们暂时不能用这台名副其实的“电单车”。

张翔平笑说：“我们花了很多时间来了解电单车的构造，因为我们根本就不会骑电单车，我们没有执照。”

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FOUR NUS ENGINEERING STUDENTS SUCCESSFULLY CONVERT ELECTRIC MOTORCYCLE

By Soon Wei Lun

A group of students have found a way to save both time and effort in converting a motorcycle from petrol to electric propulsion.

Four second-year engineering students from NUS have developed a pre-manufactured mount that allows motorcycle owners to convert their vehicle into an electric mode of transport within a short time.

These students are from the University Scholars Programme, and they tapped on the disciplines of engineering, chemistry, economics and environmental sciences to develop the more practical mount. Associate Professor Martin Henz, one of the lecturers in the programme, rode the modified motorcycle on campus recently to demonstrate its performance to reporters.

Professor Lim Seh Chun, Deputy Dean of the NUS Faculty of Engineering, said that this was the first academic research project that engineering students have conducted through the USP platform.

He said, "Projects like this allow our students to solve problems from multiple perspectives and carry out research that will benefit society. We will continue to encourage engineering students and other USP students to work together on such research projects."

The mount designed by the team comprises two lead acid batteries and electrical wiring, and can be used on the motorcycles made by different manufacturers.

Mr Brian Teo, 22, who initiated the project, said that the concept of modifying petrol-driven motorcycles or cars into electric vehicles is not a new one. However, the conversion takes time and effort, often requiring several days. With this mount, the conversion can be completed within one day by a team of two.

The converted electric bike costs only about $30 per month for 1,101 kilometres of travel. This compares favourably to the $121 per month needed for a petrol-driven equivalent.

Assoc Prof Henz said that the research project by the team can provide an affordable and environmentally-friendly option to motorcyclists, especially as electric vehicles are still uncommon and COE prices remain high.

"The life span of the outer shell of the motorcycle is longer than the engine so the converted motorcycle will be able to help the owner save money on buying a new vehicle," he added.

Currently, the project is purely an academic study and has not been commercialised. The team spent close to a year to complete the project though they currently are unable to use this electric bike.

Mr Brian Teo said with a laugh, "We spent a lot of time understanding the construction of a motorcycle as none of us neither knew how to ride one nor possess a motorcycle licence."