General

Wheelchairs with adjustable motorised kit for the elderly

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Two Universiti Malaysia Pahang (UMP) lecturers had come up with an adjustable motorised kit for wheelchair that would provide better mobility for the elderlies and handicapped.

The lecturers, Dr. Mohamad Heerwan Peeie, 32, from Faculty of Mechanical and Automotive Engineering Technology and Dr. Syafiq Fauzi Kamarulzaman, 33, from Faculty of Computing were concerned with the difficulties faced by the elderlies in Mahmudah Care Centre, Semenyih when they moved around using the normal wheelchair.

As such, they came up with the idea for a motorised kit that could be fixed to a wheelchair, allowing the user to have control and move freely.

This would help reduce the burden of staff or caretakers in the centre as well.

Dr. Mohamad Heerwan said the freedom to move around on their own could help boost their confidence and uplift their spirit, and the centre would be a more cheerful place for them.

On the product, Dr. Mohamad Heerwan said it was made based on the standard wheelchair design available in the market.

“The electrical motor module, battery and control is specially designed so it can be fixed to any type of wheel chair. The module can be adjusted based on the height and size of the wheelchair.

“The module only needs two hours of charging and can be used up to eight hours. The battery has safety features such as a safety lock while the speed can be adjusted.

“The control system can also be adjusted based on the user’s hand, be it left or right. It can used by the handicapped too so they can manoeuvre the wheelchair more easily.

“The motor inside the kit can withstand up to 100 kg of a person’s weight and climb a steep of 20 degrees with ease,” he added.

Dr. Syafiq also said the research conducted for this project was aimed at providing better mobility for senior citizens and the handicapped so they could go on with their daily routines with less difficulty.

“It would facilitate the caretakers as well,” he added.

“As a result of this cooperation with Mahmudah Care Centre, the residents can now move more freely while the staff can work better and more efficiently,” he said.

As for Mahmudah Care Centre Manager, Sazali Mohidein, he lauded the collaboration formed with the university as it had greatly helped them because the centre was short of staff to help residents go

to the surau, the dining area or do light exercises.

Dr. Mohamad Heerwan and Dr. Syafiq Fauzi were Fellows of the Automotive Engineering Centre (AEC).

Work on the research started after Dr. Mohamad Heerwan received a grant for the project, which began in 2017, and following several prototypes, a design for the commercial market was created.

They also received support from the UMP's Department of Research and Innovation which awarded them the university commercialisation grant.

The cost is estimated at RM2,500 and the product, which received a silver medal at Malaysia Technology Expo (MTE) 2019, is expected to hit the market by early of next year.

Dr. Syafiq also said in the future, they planned to introduce element of Internet of Things (IoT) in the kit that could monitor the user's condition.

"We plan to introduce biometric features that can gauge the person's breathing, heart rate and body temperature and that these readings can be monitored online and recorded to help detect any symptoms of ailment," he added.

He also welcomed contributions from the public for the centre.

"The contributions will not only help with the centre's daily essentials but also help to develop technology that can make the centre a better place for the residents and improve their lifestyle.

"If the needs of a centre can be connected to the right platform of solution, quality and important innovation can be made.

"It is also suggested that more match-making initiatives between the research products of UMP lecturers and welfare centres be made using the crowd funding platform," he said.

Dr. Mohamad Heerwan and Dr. Syafiq Fauzi were researchers with more than five years of experience when pursuing their studies in Japan.

Dr. Mohamad Heerwan's expertise is in automotive especially in electrical vehicle, control system and robotic.

Dr. Syafiq Fauzi's expertise is in electronic and computer science. He is now involved in a research involving Artificial Intelligence (AI), IoT hardware system and robotic.

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