

UMP to have on-campus driverless bus developed by in-house researchers



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Universiti Malaysia Pahang board of directors chairman Tan Sri Abdul Aziz Abdul Rahman (standing fifth from left) and UMP acting Vice-Chancellor's Professor Dato' Dr. Yuserrie Zainuddin (sixth from right) with the team of researchers in front of the self-driving SCAV bus. - Pic courtesy of UMP.

KUANTAN: Universiti Malaysia Pahang (UMP) students are set for a futuristic ride once the shuttle buses in the Pekan campus go driverless by the end of this year.

Tapping into their expertise in the engineering and technology field, a team of UMP researchers are in the midst of developing a smart bus with a computerised system to ferry students around the campus without a driver (self-driving).

The Smart Campus Autonomous Vehicle (SCAV), which will emerge as the first of its kind to be designed by local expertise is equipped with built-in sensors to prevent collisions, smart technology and on-campus traffic information will move on the road along with other vehicles.

UMP's Faculty of Manufacturing and Mechatronics Engineering Technology (FTKPM) Head of Programme (Mechatronics Engineering) Dr Muhammad Aizzat Zakaria, who specialises in self-driving car technology engineering (autonomous vehicle), said the development process has moved into the final stages.

"About 80 per cent has been completed and the focus is now on the high-specification algorithms and technology in the bus. A series of test runs will be conducted before it can be fully operational as a facility for campus residents by the end of this year," he said during a briefing session on SCAV with UMP's board of directors chairman Tan Sri Abdul Aziz Abdul Rahman.

Meanwhile, FTKPM lecturer Dr Mohamad Heerwan Peeie said the bus adopted the concept as a "vehicle for the future" that contributes to environmental sustainability and improves the public transport system within the campus..

"The bus will go through a mapping process to get information on the surroundings during its journey. The information will be sent to a computerised system to identify the position of the self-driving bus.

"Several types of sensors are utilised including the light detection and ranging (LIDAR), inertial measurement unit (IMU) and cameras to obtain real time information about the environment of these self-driving bus routes," he said.

Mohamad Heerwan said the researchers will develop a more detailed software and conduct more studies to allow the vehicle's system to ensure stability during extreme conditions.

"Anticipating complex situations is vital in the development of self-driving buses. It is important to ensure a smooth journey with the passengers onboard," he said.

Also present were UMP acting Vice-Chancellor's Professor Datuk D. Yuserrie Zainuddin and Deputy Vice-Chancellor (Research and Innovation), Professor Dr Kamal Zuhairi Zamli.

Meanwhile Abdul Aziz said UMP has many talented researchers in various fields of engineering, and the current ongoing research could emerge as a flagship project for UMP.

"The outcome of the collaborations, the range of expertise and trust of the university's management has inspired UMP's researchers to develop a level four self-driving bus in

a limited area (on campus).. I hope researchers will publish the research findings in the autonomous vehicle field for general reference.

"To date, I am satisfied with SCAV's progress, which has involved the participation of postgraduate students by giving them the opportunity to conduct research and practical training. They were involved since day one to develop the bus," he said, adding UMP had set up an Autonomous Vehicle laboratory under the Centre for Automotive Engineering (AEC) for building and development works.

He said the ability of the team of researchers proves that the technology can be explored by researchers in Malaysia towards producing world-class autopilot technology.

Led by UMP's Industry Innovation dean Associate Professor Dr Abdul Adam Abdullah, the SCAV is jointly developed by researchers from FTKPM, Faculty of Mechanical and Automotive Engineering Technology, Faculty of Electrical and Electronic Engineering Technology, and Faculty of Computing and College of Engineering .