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PEKAN REVIEW
e-newsletter

Bridging Universiti Malaysia Pahang to the world community

PhyMill is created to aid therapists and paediatric patients to u treatment

Translation by: DR. ROZAIMI ABU SAMAH, FACULTY OF CHEMICAL AND PROCESS ENGINEERING TE

The sympathy towards children who face difficulties in controlling their bodies' position and activation d better known as cerebral palsy, inspired a group of Universiti Malaysia Pahang (UMP) researchers to deve aid patients in training their walking movements.

According to the project leader, who is also a lecturer at the Faculty of Mechanical and Automotive Engine

Hisham Mohd Adib, PhyMill is an automatic exercise device to train walking movements for patients underg

“PhyMill is also designed specially to help therapists rehabilitate patients during physiotherapy sessions, extremities or lower body parts.

“Until now, most rehab products require care and management by the therapists.

“The existing rehab devices are also manual, with most of them obtained from overseas at incredibly high p

“The development of this product was achieved with help and advice from a physiotherapy expert in Kuant Narimah Daud.

“The fusion of ideas between physiotherapy experts and researchers greatly simplified the creation of Phy to fulfil the patients’ needs,” he said in the PhyMill handing-over ceremony for use by the centre on the 17 J

He further added that its small size allows portability according to the patient’s needs and requirements.

“PhyMill has three modes of usage; the first mode can control the patient's movements walking forwards an

“This movement is controlled fully automatically simply by pressing the allocated button. Speed control is a the speed according to the rehabilitation level specified by the therapist.

“Meanwhile, the second mode is the automatic height adjustment. PhyMill lets patients set the level of the h

“The third more is a special screen to catch the patients’ attention and to avoid boredom while undergoing a

“PhyMill can also be used by children as young as 4–7 years old and can support up to 30 kg,” he said.

He hopes that this product can be a pioneer in the field of medical rehabilitation in Malaysia, aside from reaching their goal towards ‘zero lifelong treatment’ for all patients.

As a researcher, there are plans to improve the current prototype, especially from an aesthetic and function

“By adding a few more specialised functions such as remote control and illuminating the patient’s legs, w towards patients’ active movement treatment.

“I also intend to commercialise this product to make it more accessible for paediatric physiotherapy experts

“However, cooperation from the industry or either government or private institutions is very much nee centres,” he said.

This product has received recognitions at research displays, winning a silver medal at the Creation, Inno (CITREX 2019) and also in the International Festival of Innovation in Green Technology (i-FINOG 2019).

PhyMill was developed fully by Tim Rehab under the Human Engineering Group (HEG) from the Faculty Technology, assisted by Dr. Nurul Shahida Shalahim, Idris Mat Sahat, Dr. Zakri Ghazalli, Dr. Muham Integrated Design Project (IDP), namely Afiq Ikmal Zahir, Ahmad Hijran Nasaruddin, Muhammad Shazzuan

AGRISOFT to boost production for farmers and

Concern with problems often faced by farmers or breeders in monitoring and regulating their crops or liv
Pahang (UMP) researcher to come up with a system called IoT-Enabled Farmer Digital Expert System @ A

The system is developed to help overcome losses due to damages in crops or livestock caused by ecologi
earlier.

According to Lead Researcher and Director of Industrial Centre of Excellence (ICoE) for Electrical and El
Dr. Fahmi Samsuri, he came up with the idea after seeing most farmers and breeders in Malaysia still rel
based system, when working on their land or breeding livestock.

“This can cause them to incur high losses unless the ecological factors can be identified sooner with preve
thus saving their yields and harvests which can be sold to customers.

“By using modern technology, it can help increase their production and reduce dependency on manual labo

“For example, in Europe and the USA, modern technology have been used in the agriculture and lives
among the world’s biggest crop and aquaculture producers,” he said.

On AGRISOFT, Professor Ir. Ts. Dr. Fahmi explained that readings related to the ecological elements suc
soil or water, oxygen concentration, the murkiness of the water, electrical conductivity of the water and a
water could be obtained from sensors installed in the system.

“After the readings are obtained, the system will record the data and make recommendations on the
overcome problems arising from changes that occur in the parameters.

“For example, the suitable pH range for planting crops is between pH level 6 and 8, and the reading showe

“The system will then send the information to the user through telephone with suggestions on the right mea
level to the precise level by increasing fertilisers containing sulphur, iron and aluminium into the soil,” he sa

He added that the system demonstrated the most suitable way in assisting farmers or breeders to grow
palm trees and modern crops planted using the hydroponic method.

It was also suitable for rearing fish or prawns in cages, he said.

“The system operates by collecting data from sensors placed around the area where crops are planted or
be taken by the minute or on hourly and daily basis, depending on the condition or needs of the crops or liv

“If something happens, the sensor will detect the changes and send a warning signal to the main contro wired or wireless broadband connections.

“The main control computer system will then process the information, send messages and recommend system or SMS in mobile phones.

“All the communications are made through the Internet and this will allow the user to get notifications from a

Professor Ir. Ts. Dr. Fahmi also said research on the system began in 2015 and was developed in stages w year while the second stage was completed in 2019.

“Works are now being conducted to complete the third stage of the research,” he added.

Professor Ir. Ts. Dr. Fahmi said he planned to develop a holistic system that combined wireless Internet tec

The third level of the research involves developing an online application system (mobile apps) and users ca livestock by using the mobile apps installed in their mobile phones.

All the data and information are stored in the iCloud database which is accessible from any location and a and controlled at the touch at the fingertips.

The Perak-born researcher planned to expand the system in other industries such as in rearing of dairy ani

He hoped that the system could be developed to help small-time farmers and breeders to optimise their p technology.

Professor Ir. Ts. Dr. Fahmi also expressed his gratitude for the cooperation and support from UMP Evaluation Fund/Lab2Market Seed Fund for the research grant he received amounting to RM80,000.

For those who are interested in having the system, a complete set cost between RM1,500 to RM3,000 - number of sensors required.

AGRISOFT has won medals and received credits in various national and international conferences and Creation, Innovation, Technology and Research Exposition (CITREX) in 2016 and 2019, a gold medal a 2016, a silver medal at the Institute of Higher Learning Invention Expo and Conference (PECIPTA) 20 Invention, Innovation and Technology Exhibition (ITEX 2019).

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enquiries or contributions of arti

Editor
Publication Unit
Corporate Communication Divis
Office of the Vice-Chancellor
Universiti Malaysia Pahang, 2660
Pahang Darul Makmur
Tel. : 09-424 5057
Fax : 09-424 5055
e-Mail : safriza@ump.edu.my

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