



UiTM@Media **2016**

Karya Inovasi



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BOTS innovation

JUST EXHALE

UiTM students have created a new technique to detect diabetes, writes **Izwan Ismail**

NUR Shima Abdul Aziz, 23, lost her aunt to diabetes a few years ago. Some of her family members are also diabetic.

Knowing that diabetes is very expensive to treat, Shima and two of her varsity mates, Mohd Amin Khusyairi Othman and Nur Alya Ahmad, embarked on research to come up with a better and more affordable solution.

Shima says the diabetic monitoring device, called Ketobetix Personal Healthcare Monitoring System, is designed to detect and monitor diabetes.

The prototype of the device took a year to develop, at a mere cost of RM260.

According to Shima, the team wanted to create not just an affordable solution, but also one that uses a different approach. The conventional way requires one to prick the finger or undergo a urine glucose test. The Ketobetix Personal Healthcare Monitoring System uses a non-invasive method.

"It works by detecting the level of ketone, which is a chemical produced when there is insufficient insulin in the body. To do that, the patient only needs to exhale into the mouthpiece that contains a sensor, which measures acetone concentration in the breath. This method is more convenient than

the conventional one. We interviewed a specialist at HUKM who verified this method," says Shima.

The device also makes use of the Internet of Things (IoT) technology to relay data collected and processed to the doctors and close family members who can view them via their mobile devices or computers anywhere.

There is also a mobile app that comes with the device to help patients and doctors read the data relayed.

"The value of the ketone level is measured in millimoles per litre (mmol/l). The data is then sent to the cloud and is shared to the mobile application through the Internet. The idea is that doctors can monitor the condition of the patients by using database as all the data and details of the patients are stored in the database and cloud. Patients can also view their condition and educate themselves about their condition via the mobile app," says Shima.

The Ketobetix Personal Healthcare Monitoring System has been submitted for the Innovate Malaysia Design Competition 2016.



BERSAMBUNG
DI SEBELAH



*Local innovation:
Shima with the
Ketobetix Personal
Healthcare
Monitoring System
prototype.*

Meanwhile, Associate Professor Ruhani Ab Rahman, who supervised the project, says the device is one of its kind.

"With it, patients and doctors can save time and money. They can communicate with each other easily via their personal devices in real time, and doctors do not need to see the patient every time to monitor their condition," she says.

The challenge for the students now is to develop new and smaller sensors. For the prototype, Arduino sensors are used.

Shima says, the team's next move is to further research about this project by doing experimental works with hospitals so that the device can be improved for commercialisation.

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Naib Canselor

- **Ketua Projek**

Alfina Bakar

- **Pengurus Produksi**

Darus Kasim
Rosly Mahmud

- **Penyelaras Bahan Akhbar**

Firdaus Abd Hanan
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Datin Umminalah Salleh

- **Pembantu**

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Hazizi Jantan
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