

BME Student Wins Bronze Award in ASM Technology Competition 2019

Miss CHAN In Lam Tina, who is our final year BME undergraduate student, won a Bronze Award of the ASM Technology Award 2019 with her outstanding and innovative project named “A Wireless Implantable Intraocular Continuous Glucose Monitor Using Near Field Communication”.

The ASM Technology Award is a yearly event organised by the ASM Technology Limited. It is the fifth year of the award and the purpose of which is to promote excellence in technology. This year, five universities were invited and two final year projects were nominated by each university to join the award.

The winning project is supervised by Dr. Marten BRELÉN and his research team. “Dr. Marten BRELÉN and his research team has guided me throughout the whole project and provided me all the support and engagement. Moreover, the courses offered in the BME programme had equipped me better with skills and knowledge to overcome challenges in the project. I could not have joint this competition without being supported and nominated by the CUHK.” Tina said.



Here is the brief introduction of the project:

Diabetes Mellitus (DM) is a chronic disease caused by insufficient insulin production or a resistance of the body to use insulin. It is an incurable condition with fatal complications which can be minimized by closely monitoring and managing blood glucose levels. Current glucose monitoring systems have several drawbacks which can be overcome by implanting a wireless glucose sensor inside an eye. Several experiments were performed in the project to provide the proof-of-concept for a wireless implantable intraocular sensor using near field communication.

The project started with a clinical trial to correlate the glucose concentration in aqueous humor and blood from diabetic patients. Thereafter, a wireless glucometer with a customized NFC antenna was built and validated. Finally, an Android app was developed for communication between the glucometer and a smart phone.



The results has convincingly demonstrated the proof-of-concept of implanting a glucose sensor in an eye. Further investigation would be required to test the biocompatibility and dynamic properties on long term glucose sensing in an eye. The ultimate goal of this project is to change the way glucose levels are monitored in diabetic patients by making it more convenient and easier for them to manage their disease. The improved monitoring will allow better glucose control, which will prolong the life of patients and reduce the burden of their disease.

News was posted on Faculty of Engineering's website as well:

<https://www.erg.cuhk.edu.hk/erg/node/1874>