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‘Blood lab’ inside a mobile phone could detect cancer

Plans to design a smart phone app that can detect leukaemia will be among the innovations presented by Northumbria University researchers at the Centre for Life this weekend.

Worawut Srisukham, a PhD student at Northumbria University, Newcastle, is in the early stages of an ‘e-health technology’ project aimed at developing a mobile phone app that can examine blood sample images and diagnose cancer.

It would work by taking a magnified image of a blood slide via a microscopic lens attached to the smart phone, which the app would then be able to screen for evidence of leukaemia – a blood cancer.

Worawut will present his idea at Maker Faire UK at Newcastle's Centre for Life on 26 and 27 April. Fellow Northumbria colleagues will also exhibit, including demonstrations of 3D printing, targeted drug delivery and an app that helps research the effect of the Himalayan Balsam plant on British bees.

Northumbria University is a main sponsor of Maker Faire UK. Billed as the greatest show-and-tell on Earth, it is a two-day celebration across the spectrum of science, engineering, art, performance and craft. A family-friendly gathering of tech enthusiasts, crafters, hobbyists, engineers, artists and more, the event aims to inspire and enthuse people of all ages.

Once created, Worawut's smart phone app could be used for initial diagnosis of people living in remote rural areas in developing countries, enabling rural doctors to analyse blood samples and refer patients to the city hospitals for treatment or further investigation.

Worawut said: "Creating a phone app that can perform this screening role would be a low cost and efficient solution to detect leukaemia in remote and resource-poor regions."

In 2012, approximately 352,000 children and adults around the world developed some form of leukaemia with a similar number dying from the cancer. Once his project is complete, Worawut hopes it will help to prevent unnecessary deaths from the disease caused by delayed diagnosis and treatment due to poverty or living in remote areas far away from large hospitals and laboratories.

Professor Stephen Todryk, Chair of Immunology at Northumbria University, is one of Worawut's PhD supervisors. He said: "Worawut's work will marry advanced and popular technologies to help combat an important disease – blood cancer. Through such improved diagnosis many lives may be saved."

Worawut added: "Our aim is to use the high-performance and technology of smart phones to help in health care. Doctors working in remote areas could use the technology to screen patients in their community and refer those

with an abnormal result to the larger medical facilities.”

More than 300 Makers will exhibit their work during the international event in front of an anticipated audience in excess of 10,000. Highlights of Maker Faire UK include RoboHand, a huge hydraulically-powered robotic hand able to crush small cars in its grip, and Roboknit – a life-sized humanoid knitting robot.

Linda Conlon, Chief Executive of the Centre for Life, which organises and runs Maker Faire UK, said: “Maker Faire is a celebration of science in all its forms and everyone will find it inspirational. It’s imaginative and creative, and a truly innovative way to engage with science, technology and engineering – the ideal platform to show young people how exciting it is and how it can help open up a whole world of rewarding careers. We’re thrilled that Northumbria University is involved not only as main sponsors of the event but as Makers too, showcasing some of their exciting research projects.”

For further details or to purchase tickets in advance, visit www.MakerFaireUK.com.

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