City spinout develops revolutionary ophthalmic device

February 17 2015, by George Wigmore

A low cost eye-scanning instrument developed by Structured Eye Limited could transform the detection of eye diseases in the developing world as well on Western High Streets.

Launched following generous investment from the Chariot Partnership, the team behind the invention aims to translate the laboratory device into a packaged prototype, conduct further clinical evaluation and commercialise the instrument.

Speaking about the spinout, Dr Stephen Gruppetta, a lecturer from the Centre for Applied Vision Research at City University London who developed the device, said: "Following support from the Chariot Partnership and successful completion of the original proof-of-concept we have now set up a company with the plan of translating and testing the device both in the UK and also in India.

"The motivation behind this project is to fill the technology gap in retinal imaging that exists between inexpensive basic ophthalmoscopes and high-end, predominantly hospital-based, devices. Due to our device's low cost and high accuracy, we hope it will make a significant difference to the detection of eye diseases worldwide."

Sight loss is often preventable if the eye disease responsible is detected at an early stage. However, initially diseases can have little or no noticeable effect on vision and patients only report symptoms when the disease has advanced to the stage that irreversible sight loss has already begun. As a result images obtained of the retina should ideally be of sufficiently high quality to enable abnormal changes to be identified before symptoms begin.

Originally developed as part of a proof of concept study funded by EPSRC that finished in 2014, the device - known as a Structured Illumination Ophthalmoscope - can obtain a high resolution three-dimensional image of the retina at the back of the eye using a simple and inexpensive optical set up.

Unlike other existing 3D retinal imaging techniques, the device developed by Dr Gruppetta makes a simple and low-cost device possible using techniques originally developed in microscopy, including widely available standard light sources and detectors. It also does not require the lateral scanning mechanisms, which make other technologies complex and expensive, without affecting the accuracy of the device.

Dr David Kelly, Managing Partner of Chariot Partnership, said: "Our not-for-profit clinical partners in India set us the challenge to find a low-cost, portable device for the early, pre-symptomatic detection of chronic open-angle glaucoma. We reviewed cutting edge research from across the globe and came to Dr Gruppetta on the basis that we believed his work offered the best chance of addressing this pressing clinical need.

We are excited to be working together to put Steve's research into action."

Dr Carol Daniel, Head of Technology Transfer and Commercialisation in the Enterprise Office at City University London, said: "This is a fantastic opportunity for City to make an impact by turning leading edge research into a commercial venture. I look forward to working with Dr David Kelly of Chariot and Dr Steve Gruppetta to make this spin out company a success."

Provided by City University London