A Cambridge start-up has developed a low-cost next-generation wearable heart and cardiovascular function monitor which uses AI to diagnose heart rhythms and regulatory abnormalities at real time. The company, Cambridge Heartwear, is based at the HUB, a newly opened innovation centre at the University of Cambridge.  

In collaboration with Professor Roberto Cipolla (former MIT researcher and Royal Society University Research Fellow) and Rameen Shakur (one of the company’s co-founders), the team has used AI to create a device that is small enough to wear under your shirt, and yet powerful enough to diagnose heart rhythms that are critical for stroke prevention. The device, which Shakur likens to a ‘wearable Holter monitor’, can be continuously monitored for up to 24 hours and can detect heart rhythms that could lead to a stroke. Shakur believes that this device could potentially save the lives of millions of people who are at risk of stroke, as well as providing many stroke survivors with a new way to monitor their heart function.  

Stroke is the leading cause of death among people aged 40 to 79 and affects in excess of one million people across the UK. According to national and international data, more than 80% of people who either die or are left with severe neurological deficits following a stroke had an irregular heartbeat as the underlying cause. However, irregular heartbeat is often diagnosed only after a person has had a stroke.

Cambridge Heartwear is a Cambridge-based start-up, founded by Rameen Shakur and Roberto Cipolla. Shakur has a background in medical technology and AI, and previously worked as a consultant in the cardiovascular field. He is also a co-founder of Cambridge Science Park and a member of the Board of Governors at Addenbrooke’s Hospital. Cipolla is a world leader in computer vision and real-world capability. The Royal College of Art was also helped in the ergonomic design of the device. Heartsense will cost  

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