

How technology can ease the problem of heart disease in developing countries

80% of deaths in developing nations are due to cardiovascular disease. An innovative new network and tablet device could provide better access to proper treatment



In 2009, I was a fourth year computer-science engineering student. I used to spend time at the general hospital of Yaoundé, the capital of Cameroon, because I was curious about computer applications in the medical field.

While I was there I happened to see a television programme showing medical staff performing an electrocardiogram on a heart patient, which made me think about how people in rural Cameroon could gain access to cardiac treatment.

According to the World Health Organisation, [cardiovascular disease kills about 17 million people annually](#) and represents [29% of total mortality](#). This high fatality level can be in part attributed to the

limited number of cardiac specialists available in poor and developing countries, as well as a lack of specialised equipment in many hospitals.

I discovered that there were fewer than 50 cardiologists in Cameroon, serving 19 million people. The consequences of this shortfall are disastrous both medically and economically. Frequently, patients living in rural areas must make long trips on rough roads to reach treatment. This results in greater risk.

I decided to work on a solution that could alleviate this situation. But there were many things that I needed to reach my goals.

I developed a two-pronged solution to address the issues. The first part is a specialist knowledge network called Cardioglob. The purpose of this will be to overcome the shortage of cardiologists in poor countries by harnessing global cardiac expertise and delivering it locally through a portable, mobile-connected device. This apparatus, the Cardio Pad, which is currently being tested, is the other part of the solution.

The Cardio Pad is a medical touch-screen tablet that performs cardiac examinations, computer-assisted diagnosis and medical data transmission over a 3G mobile network. It allows a trained user to perform a heart examination in a rural village and receive diagnosis from a cardiologist working remotely without having to travel to a city.

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The main challenges were acquiring the knowledge and the money. Essentially, I am a computer science engineer and designing an embedded electronic device was not among my core skills. In the engineering school where I studied, there is no professor or expert in embedded electronics. So, I had to learn it on my own – and it was not easy either to acquire the necessary knowledge or to prototype the device. But I overcame this obstacle using the internet.

I started to learn embedded systems and electronics through a free educational programme provided by the Indian Institute of Technology. This program, NPTEL, is a set of free video courses on embedded systems and electronics. Armed with this knowledge, I designed the first Cardio Pad.

In 2011, I entered the Cardio Pad for a global competition in embedded-systems design. As a result, Cameroon became the first country in the region of Central and West Africa to reach the final in this category. Following this, Microsoft sent me all the material I needed to prototype the device.

When I finished the Cardio Pad prototype I had no money to start manufacturing. So I recorded a video demonstration and posted it on YouTube and Facebook. The president of Cameroon heard about my invention and he decided to give me \$30,000 (£18,760).

I created a company located in Cameroon called Himore Medical, and built 20 Cardio Pad devices, which I used to promote the product and demonstrate its capabilities.

These first 20 devices helped us to convince people of its viability and get them involved with the project, and this impetus and publicity helped me win the Rolex Awards for Enterprise 2014 in the category of applied technology.

The next step of the project is to use the money from the Rolex Award to produce more devices and meet the need of the market in Cameroon initially and then later in other countries of the region and the world.

I am motivated by a concern for the health of my fellow beings. It is often difficult to discern what to do. Before taking up an opportunity one must first recognise it, which is not an easy exercise because, very often, opportunities do not look like opportunities. But if there is one thing for certain it is that opportunity is always linked to a challenge. Accepting a challenge or a problem to solve, for me is the best way to seize an opportunity.

By placing ourselves at the service of others, we learn to take the best opportunities in this life.