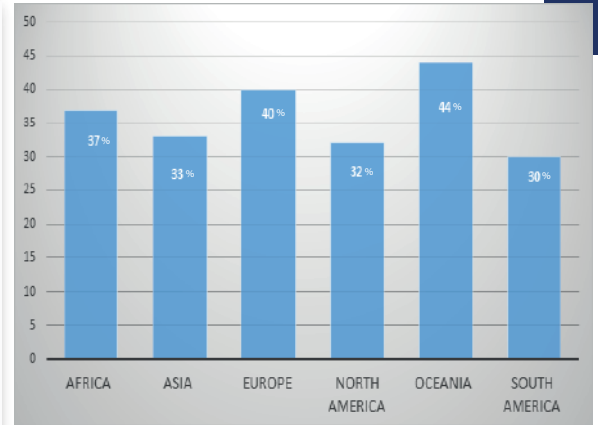


# THE PROBLEM

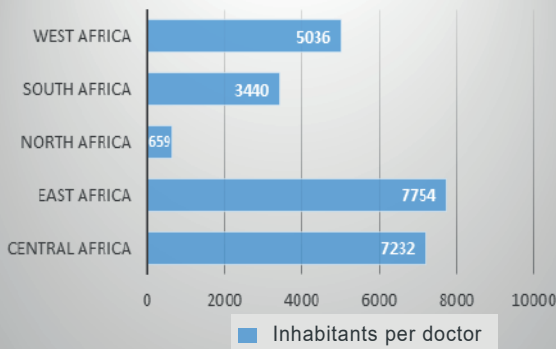
1

Cardiovascular diseases are the world's leading cause of death; they are responsible for some 17.9 million deaths each year, which represent about 31% of the global mortality. According to the WHO, this mortality is set to rise to 23.6 million deaths per year by 2030. In Africa, cardiovascular diseases accounts for around 37% of all deaths. In Asia and North America, these diseases are responsible for respectively 33% and 32% of the global mortality. The most affected region is Europe where they are the source of 40% of deaths. Hypertension and diabetes are the biggest factors of these diseases, which affect even newborns causing around 125,000 deaths among children under five every year.



Distribution of Cardiovascular Diseases Mortality Rate By Continent

## Average population per doctor



The lack of advanced medical equipment and the shortage of cardiologists are two factors that also contribute significantly to the increase of cardiovascular disease-related deaths in developing countries. In Cameroon, for example, there are fewer than 100 cardiologists for over 27 million inhabitants. 87% of people in Cameroon live in rural areas where 90% of cardiologists work and live in major cities, forcing people to travel from villages to cities to receive heart exams, which is harder, slower, riskier and more expensive for patients. This situation seriously compromises the cardiac care, with detrimental consequences.

To meet these challenges, we have developed a solution called the CARDIO-PAD.

# THE SOLUTION

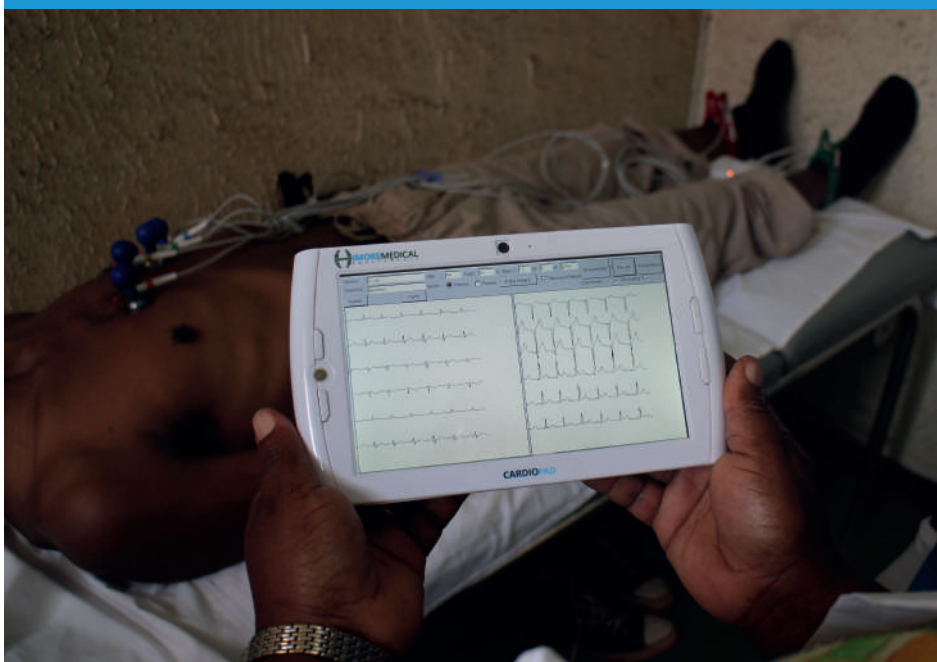
2

The Cardio-Pad is a medical equipment that performs electrocardiogram and telemedicine. The device is mainly composed by a 7-inch touch tablet that records, process and save up to 12 leads of the heart signal coming from the patient. The heart signal is acquired through an ECG cable connected to the tablet and to 10 electrodes fixed on the skin of the patient. The device has a built-in wireless transmitter that allows transferring the patient data and receiving a diagnosis from a remote cardiologist through Wi-Fi or 3G network.



The device runs on a quad core 1.2 ghz cpu with 1 GB ram and 8G memory use to save data relative to ECG exams, patients, and diagnosis.

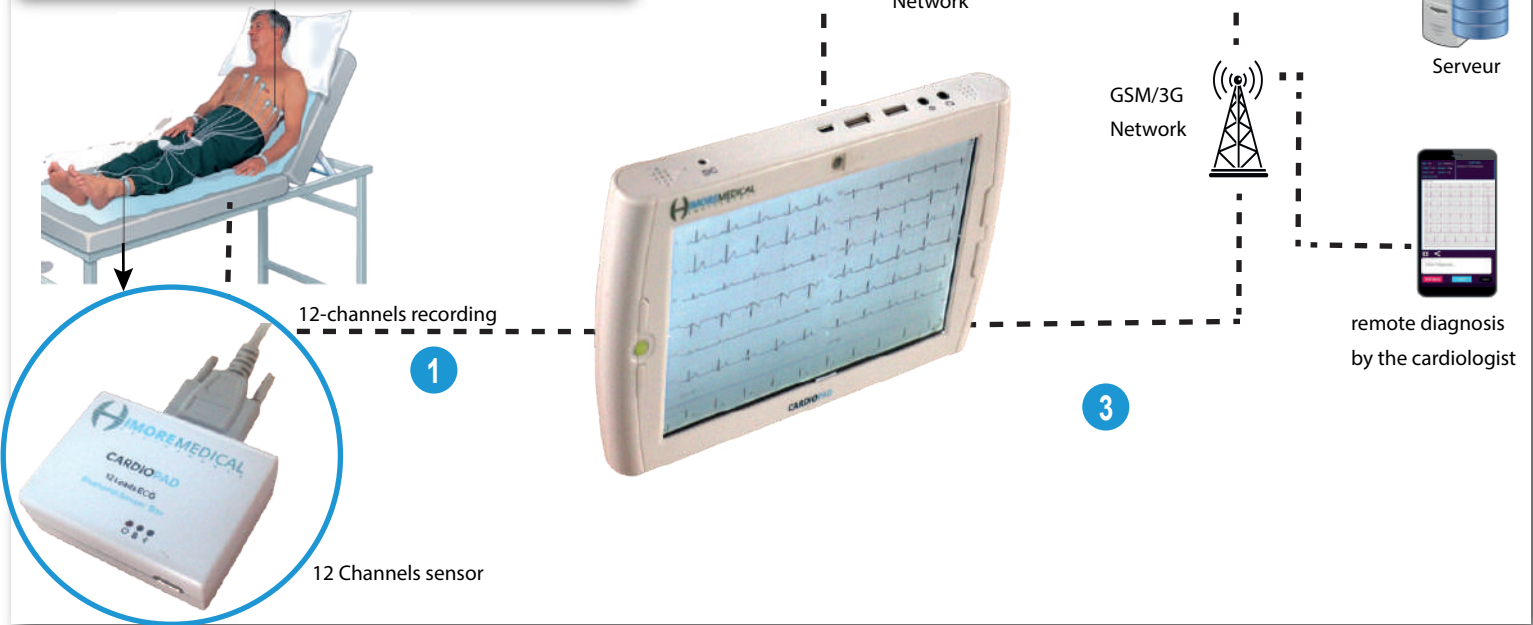
It can print using conventional inkjet or laser printers through its USB ports without installing any drivers. With a sampling rate of 1000 hz the device senses the signal with good quality that allows automatic heart detection and waves analysis. It works with three types of sensors – adult sensor, sport belt sensor and baby sensor.



# APPLICATIONS

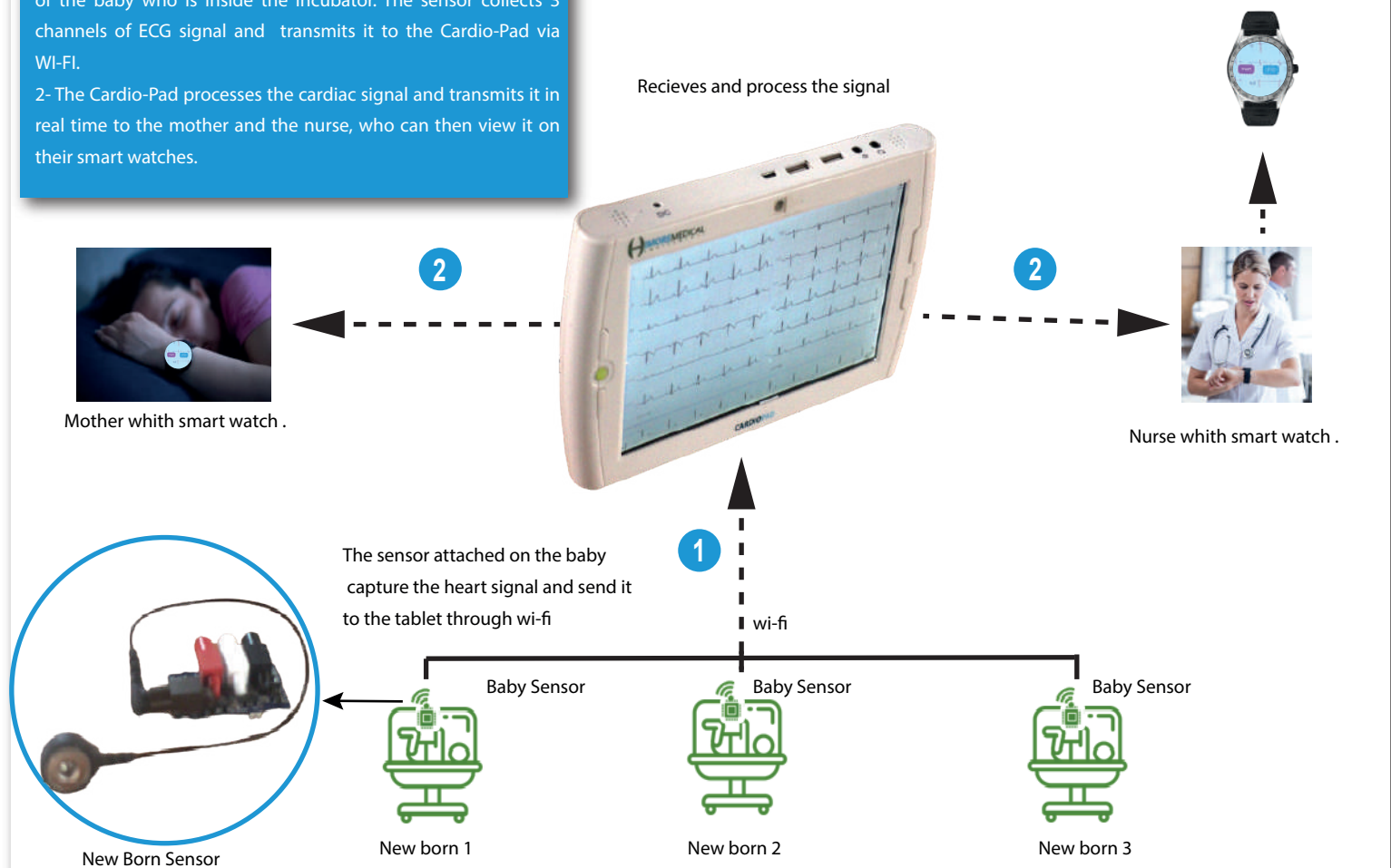
## ● Cardiac Exam And Real time Monitoring

- 1- A nurse fixes the 10 electrodes of the ECG cable on the skin of the patient. The cable is connected to the tablet via a sensor box that allows the cardiopad to record 12-channels of the heart signal.
- 2 - 6 electrodes of the wearable sensor are fixed on the chest of the athlete , the sensor senses a 3 channels ECG signal that is then transferred to the tablet via wifi.
- 3 - The tablet transmits ECG data via GSM to the cardiologist, for a remote interpretation that can be performed using a mobile application.



## ● Mother And child Health

- 1- A nurse attaches 3 electrodes of the new born sensor on the skin of the baby who is inside the incubator. The sensor collects 3 channels of ECG signal and transmits it to the Cardio-Pad via WI-FI.
- 2- The Cardio-Pad processes the cardiac signal and transmits it in real time to the mother and the nurse, who can then view it on their smart watches.



## KEY OF SUCCESS

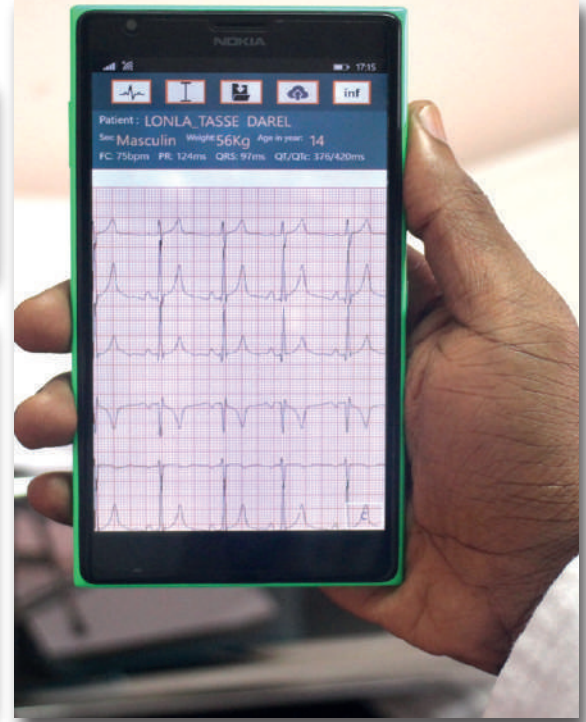
4

### Remote diagnosis/telemedicine

In order to address the problem of shortage of cardiologists, we have developed a mobile application that allows specialists to receive and interpret exams carried out in remote hospitals.

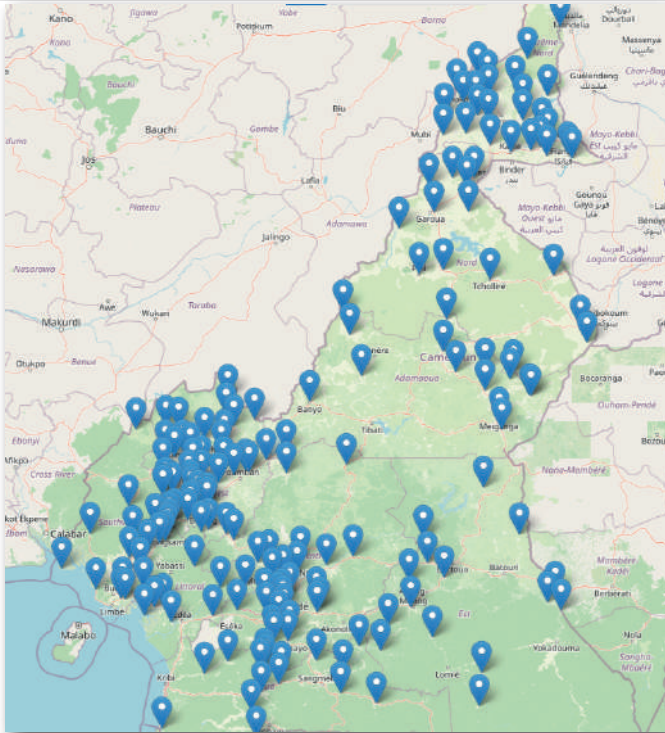
### How does it work?

After performing an electrocardiogram exams using the Cardio-Pad, the nurse transmits the patient's data to a remote cardiologist. The cardiologist receives a notification of a new exam on his phone, and then runs the app. The application will then download and display the data. The specialist select an exam, proceed to interpret, and establish a diagnosis, which is transferred to the remote hospital where the corresponding exam had been carried out. The nurse in the remote hospital receives the diagnosis on the Cardio-Pad, and prints it on paper for the patient or the local doctor.



## PROOF OF THE CONCEPT : 2016 TO 2022

5



After many years of research and development, we begun the sales of the product in a Pilot Country, the Cameroon. The Pilot phase that began in 2016 has been a huge success allowing us to reach currently 325 hospitals located in various regions of Cameroon.

The pilot has been done with the support of many local and international partners who essentially funded the purchase of cardio-pad for the benefit of hospitals located in rural areas.

- The Italian agency for development cooperation
- The ministry of defense of Cameroon.
- The ministry of public health of Cameroon.
- ADDAX petroleum Cameroon

Currently we count more than 155 000 ECG exams that have been performed on patients using the cardio-pad in Cameroon.

## NEXT STEP : TRANSITION TO SCALE

6

The next step is to scale up the project in other countries of Africa and the Middle East by deploying first in Cameroon neighboring countries. This involves acquiring resources in order to produce more devices, and to market the solution in other countries or regions where people face the problem of shortage of cardiologists and where the cardiovascular diseases induced mortality rate is growing. This is the case of countries like RCA, Tchad, Congo, Nigeria, South Africa, Morocco, Libya, Niger, Soudan, Saudi Arabia, Qatar, Syria, Iraq, Brasil, Mexico, Madagascar.

## CONTACT



Villa Onana, Batiment 1,  
Quartier Obobogo,  
Yaoundé, Cameroun



+ 237 242 890 961  
contact@himore-medical.com  
www.himore-medical.com