

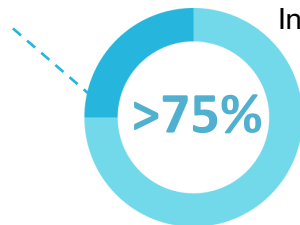


## WHY IS DIAGNOSING CARDIAC DISEASE IMPORTANT?

Heart conditions affect millions of people around the world every year. Cardiac disease is the leading cause of death for both men and women. Modern hospitals have the technology to detect those diseases, but the devices are pricey, physically big and require professionals to deal with diagnostic signals.

High Income Countries

Low & Middle  
Income Countries



17.9 mil. cases / year



## FUTURE DEVELOPMENTS

- FPGAs are a type of hardware that can be completely changed by downloading a bitstream file. This means that our device could be easily updated by simply connecting to the internet whenever there is an update. This means that new features, such as the classification of multiple diseases or improvements of the network leading to lower power consumption or accuracy improvement can be easily applied to the device.
- It would be possible to detect abrupt changes in ECG (i.e. Heart Attack) and automatically contact the emergency services.



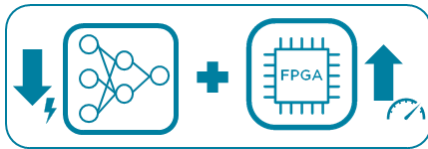
## NEUROCARDIOGRAM

arm

Imperial College  
London

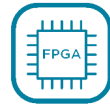
## WHAT IS NEUROCARDIOGRAM?

Neurocardiogram is a portable device that acquires the use of Deep Neural Networks (DNN) to perform 24/7 real-time ECG diagnosis. Neurocardiogram does not require advanced medical knowledge. The user is notified when abnormalities are detected and advised to visit a doctor.



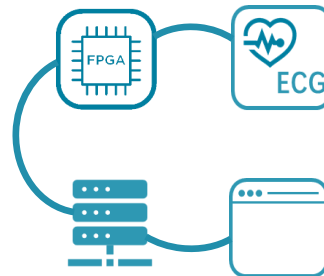
The classification model has an overall accuracy higher than 95%. Using a Field Programmable Gate Array (FPGA) allows for faster and more power efficient processing than a CPU.

The increased amount of data provided by 24/7 monitoring can provide more meaningful data to doctors.



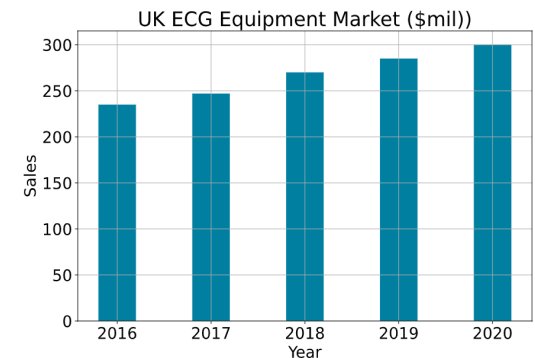
## HOW IS IT DONE?

- Quartus Prime, developed by Intel, supports the hardware design.
- A highly accurate designed model is deployed on to a Field Programmable Gate Array (FPGA), which works as one of the backend parts.
- Your electrocardiogram signal is detected from our sensor and then transferred to and analysed on our FPGA. A bridge is built between the FPGA and the user interface, where your electrocardiogram and the detection result can be seen from our designed webpage.



## COST AND MARKET

Neurocardiogram is one of the firsts to introduce accurate detection for a very affordable price. This makes it more accessible for the less developed countries around the world, which report most of the deaths from cardiac conditions each year.



There are competitors that provide long period recording of ECG data, but none of them offer real-time offline processing. Our product can identify heart disease at its start, rather than waiting for the patient to experience symptoms.

### FIND US ON

