## ? WHY IS DIAGNOSING CARDIAC DISEASE IMPORTANT?

Heart conditions effect millions of people and is the leading cause of death around the world every year. Heart diseases (i.e. Arrythmia, Heart failure etc.) do not show any symptoms at early stages and do not affect daily life. However, they will gradually deteriorate with the lack of attention. Thus, it is essential for people to monitor heart conditions in an easy approach.

High Income Countries

Low & Middle Income Countries

>75%

17.9 mil. cases / year
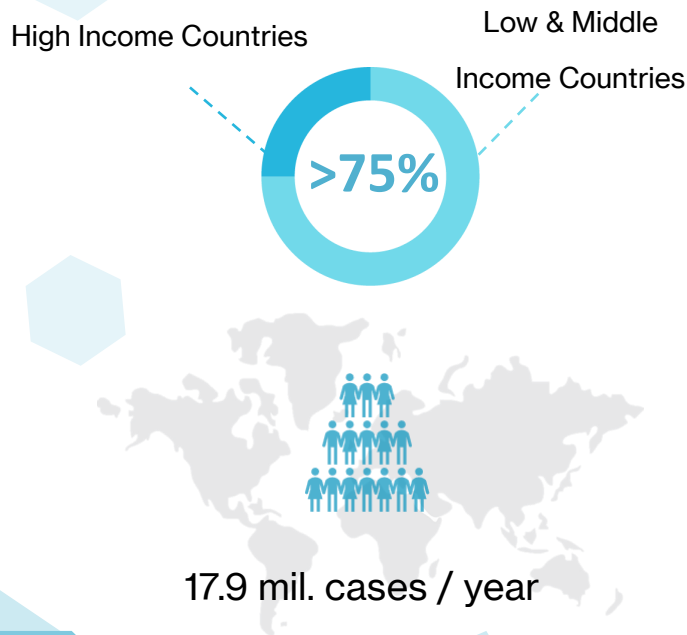
FUTURE DEVELOPMENTS

- FPGAs are a type of hardware that can be completely changed by downloading a bitstream file, implying that our device could be easily updated by simply connecting to the internet whenever there is an update. 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.

- Detect abrupt changes in ECG (i.e. Heart Attack) and automatically contact the emergency services.

NEUROCARDIOGRAM

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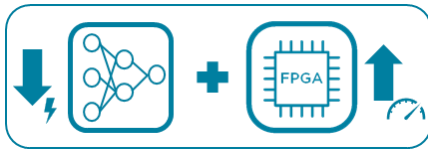
The classification model has an overall accuracy higher than 95%. Using a Field Programmable Gate Array (FPGA) allows for faster and more power efficient processing than a CPU.

The increased amount of data provided by 24/7 remote monitoring can provide auxiliary reference data for future diagnosis .

HOW IS IT DONE?

- Quartus Prime, developed by Intel, supports the dedicated 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 collected from our sensor and then transferred to and analysed on our FPGA. A bridge is built between the FPGA and the user interface.
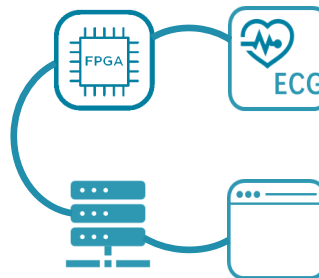
COST AND MARKET

Neurocardiogram is one of the first to introduce accurate detection at an affordable price. This provides high accessibility for less developed countries, who reports most of the deaths from cardiac conditions each year.

UK ECG Equipment Market ($mil))
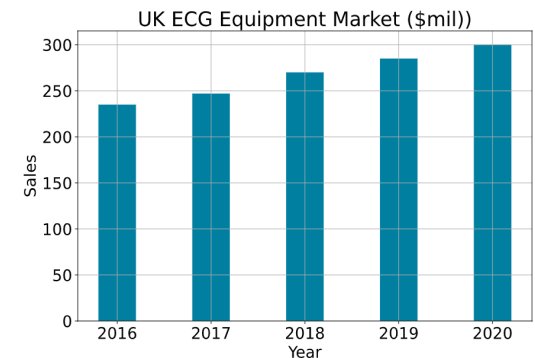
There are competitors that provide long period recordings of ECG data, but none of them offer instant real-time processing. Our product can identify heart disease at its start, rather than waiting for the patient to experience symptoms.