StethoECG

Combining digital stethoscope and ECG provides easier and smarter heart monitoring.

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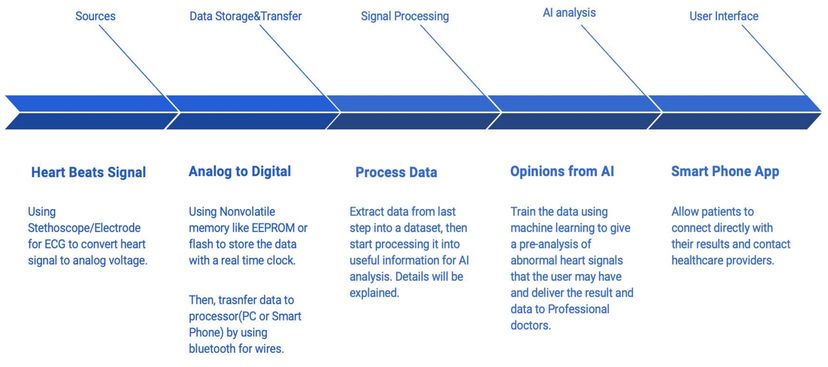
Background

Imagine being able to determine if you were having a heart attack or similar issue in a matter of minutes with an easy-to-use, wearable device. Imagine being able to ease the worry that an undetected heart attack may cause irreversible damage to you or a loved one before you decide to go to the hospital. Imagine if millions of lives could be saved just by making a small change in how people are able to detect heart disease and regularly examine their heart health. In the US, heart disease is the leading cause of death with one in every four having some factor related to the heart. Regular examination is thus crucial to catching heart problems while they can still be treated, especially for patients with chronic issues. A precise and easy to use heart monitoring device to self-check is in demand, from which our product comes into being

Introduction

Our StethoECG is a multi-functional system including a heart signal detecting device, signal analysis software, and a telecommunication platform between clinicians and patients. Detection device can collect ECG and heart sound signal, transferring data to processor(PC or Smart Phone) by using bluetooth for wires. Our smartphone app, in addition to providing an interactive and clear user interface, will provide comprehensive analysis using machine learning and AI. Results and analysis will be stored into a personal file for each patient. In addition, a platform will be built for real-time communication between doctors and patients, which can help with remote healthcare.



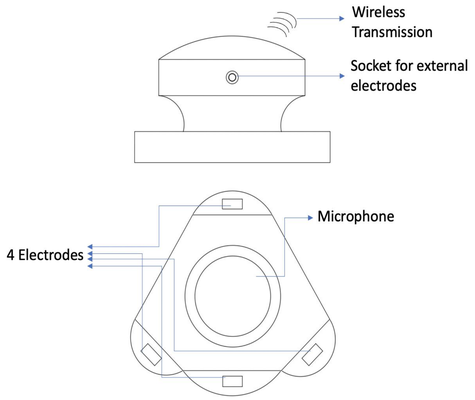
Signal Visualization
Easy to read Heart Sound and ECG signal

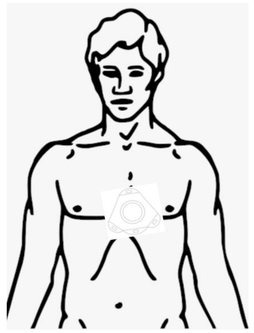
AI Technology
Identify abnormality and predict diagnosis

Personal Medical File
Store patient's exam history and medical information

Remote Medicine
Video talk with professional clinicians

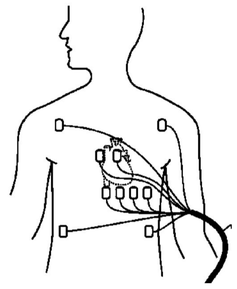
Design





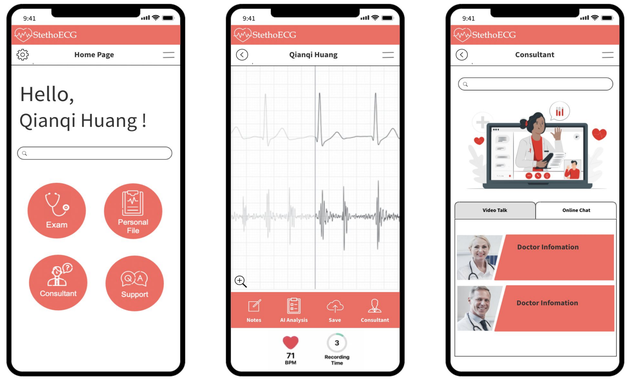
Simple Mode with 2 leads

External Electrodes



Precise Measurement Mode with 12 leads

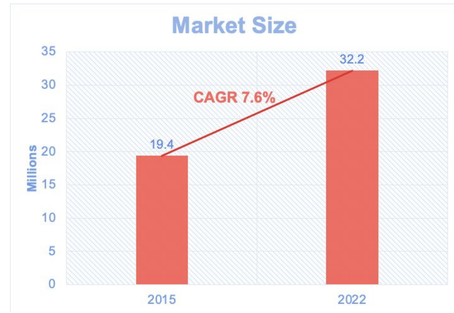
In order to satisfy different requirements from users, we decided to make our product fit different scenarios with different modes. In simple mode, users can just hold the device and stick it on the left chest like a sticker. It is easy to carry with customers if they have requirements on immediately test. We also designed a precise mode, that will connect 10 external leads with the socket, giving the customer a much more comprehensive result and report to let them see their heart health.



Smart Phone App UI design sample

Market Survey

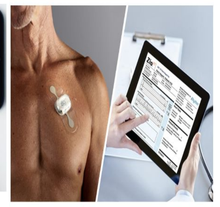
The cardiac monitoring & cardiac rhythm management devices market size was valued at $19.397 billion in 2015 and is expected to reach $32.216 billion by 2022, growing at a Compound Annual Growth Rate (CAGR) of 7.6%. It is a stably increasing market.



Competitors

AliveCor

iRhythm



Alivecor - No stethoscope function, 6 lead is 50% more expensive than our product, You have to pay a monthly fee to unlock premium features

iRhythm – No stethoscope function with only 1 lead. Data stored on the device and mail-in for results. It is not good for any analysis in a timely manner and also very expensive (about $350 with medicare)

Financial Plan

Total Operating Costs Year 1	$63,431
Total Operating Costs Year 2	$132,310
Total Regulatory Costs Year 1	$85,000
Total Regulatory Costs Year 2	$35,000
Total Salary Costs Year 1	$340,000
Total Salary Costs Year 2	$340,000
Total Costs	**$987,741**

Future

We will start to design our software. including signal preprocessing, machine learning algorithm for abnormal signal identification, communicative platform.

We plan to finish our first edition product and try to get investment.

We will submit our patent application and apply for reimbursement codes.

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