VYVO™ Labs

PROJECT CEASE LAUNCH OVERVIEW

COVID-19 EARLY ALERT SYSTEM EXPERIMENT

May 20th, 2020 v1.0

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Vyvo Labs is the Silicon Valley based quantified-self research center of Vyvo Technology Corp. It is open to partnership with experts within its areas of interest, to help build a better world by driving development of innovative products and services.

In May 2020, VYVO Labs launched its first public project, an international research project to better understand the early signs and spread of influenza, with specific focus on the novel coronavirus SARS-CoV-2, called COVID-19. The objective of this project called Project CEASE (or **C**OVID-19 **E**arly **A**lert **S**ystem **E**xperiment) is to identify bio-parameters that can be used to provide early stage infection detection of COVID-19 and also to track the development and spread of the virus worldwide.

Project CEASE draws its findings from data collection from worldwide participants wearing Life Sensing Technology™. This data, which includes the wearer's vital sign data, is detected using state-of-the-art bio-sensors. It is uploaded in near real-time using IoT to a decentralized, connected AI Cloud platform. Users from different countries participate in the study by wearing any VYVO smartwatch.

Project CEASE participants agree to provide their data which is automatically gathered 24 hours a day (with a short interruption for recharging every 4-5 days), together with the wearer's COVID-19 status, as determined by the rapid COVID-19 antibody test kit* provided. These test kits are manufacturer by biotech companies whose test kits meet approved local country requirements.

The participant reports their COVID-19 status manually via the device app, VYVO Smart App which works on Android and iOS platforms. VYVO Labs uses this data and the infection status feedback from the participants to train its machine learning algorithm which has been specifically designed to discover possible data patterns that indicate a probable COVID-19 presence and likely infection event.

VYVO Labs is in early stage collaborative discussions with a number of partners and expert centers in China, Ireland, Italy, Switzerland, UK and USA.

Project CEASE will be conducted in 3 phases, following this current set-up and initialization phase:

COVID-19 Data Collection Phase, where it is expected that at least 25,000 VYVO smartwatch wearers from all over the world will contribute their data. These Project CEASE participants will provided with an approved COVID-19 test kit* and a simple protocol to follow.

AI Algorithm Training Phase
The second phase is where our Artificial Intelligence algorithms are trained using the large and growing volume of continuously updated wearer bio-data and their overall health and infection status feedback, to identify possible data patterns that indicate the presence of the infection at different stages of its progression and to generate a probable COVID-19 prediction result.

CEASE Validation Phase
The final phase is where the algorithm is applied to the existing and new participants whose influenza status is unknown. As with all VYVO smartwatch wearers, their data is uploaded using IoT and analyzed continuously using AI. If a high probability of an influenza infection event is detected using their data, they will receive an influenza Early Alert notification and they will be requested to confirm their infection status by using the influenza Test Kit provided*.

Illustration of a COVID-19 Antibody Test Kit is similar to the kit that will be provided to Project CEASE participants upon request.*

The rapid antibody test kits provided for Project CEASE validation are manufactured by approved biotech companies that meet with local country requirements, and international guidelines for diagnostic tests and their performance.

Once Project CEASE is opened on the vyvolabs.com portal, VYVO Labs will enroll users that agree to participate in Project CEASE. VYVO will provide them with a COVID-19 Test Kit and a simple protocol to follow so they can join Phase 1 of Project CEASE. All participants are required to wear a Vyvo smartwatch. The data gathered by your VYVO smartwatch depends on the model. For example, VYVO Watch Lite has sensors that enable SpO2 measurement and subsequentVYVO models will have continuous real-time temperature monitoring capability.

New Project CEASE partners

VYVO Labs understands that partnership opens up new ideas and can often lead to more effective solutions, quicker. Consequently, VYVO Labs invites suitable partners such as professional researchers, healthcare providers, government bodies, hospitals, universities and commercial partners to apply to join Project CEASE at www.vyvolabs.com.

Once launched, this online Partner Portal will provide an enrollment area for new partners to join Project CEASE. In the meantime, if you are interested in participating as a professional partner, please email **cease@vyvolabs.com**.

Approved partners will obtain access to a secure area of the portal either directly of via a secured API combined with blockchain data validation. In this secure area, partners can inspect or download the full suite or selected anonymized wearer bio-data, which, depending on the partner's level of authorization, may include wearer historical data, real-time data and timestamped COVID-19 infection status.

A more complete list of data is available via API. The data gathered depends on the VYVO smartwatch model, and the list of data gathered includes:

- Timestamp
- Patient Age, gender, race, country, and additional assessment data
- Resting Heart Rate
- Resting Breath Rate
- Activity Heart Rate
- Continuous Heart Rate Variability
- manual scheduled SpO2, and continuous SpO2 during sleep
- Continuous skin temperature measurement
- Ambient temperature
- Sleep Analysis
- HRV Interpretation for Fatigue
- ECG trace
- Blood Pressure
- Additional information entered manually on a periodic basis by the users.
- Passive GPS information. This information can be used for tracking purpose in order to identify possible spread of the infection by the patient through they previous movements and available on special authorization to the Government entities and only prior to previous or post approval and consent of the user and approved by VYVO Labs Scientific Board.

Security, Privacy & Data Protection

All Project CEASE participants individually grant their permission for VYVO Labs and partner's to access and use their data. Our partners can access data through blockchain validation and SSL Secure API communication protocol. Partner enrollment and data access is not automatic as it requires partner due diligence and approval by VYVO Labs' Scientific Board.

Project CEASE Schedule

Although Project CEASE is a priority #1 project, it will still take time to organize correctly. Phase 1 is expected to be fully completed 4-6 months from portal launch. Upon completion, it is expected that Project CEASE will have a minimum of 25,000 participants worldwide and that the majority of them will have undertaken a t least one of the COVID-19 tests provided, to determine their status.

Upon launch of Phase 1, it will be possible to obtain API access to the data. Blockchain validation tools will be available from the day one of Phase 1, and researchers and partners will be informed on the number of users and tests undertaken.

Phase 2 will start during Phase 1, when enough data has been gathered to allow VYVO Labs and its partners to start training the Machine Learning algorithm using the Neural Network approach.

The Partner Portal will also provide an interactive Map to visualize participants location on a geographic map in anonymized format, together with an indication of the extent of Covid-19 virus in that region, their body and ambient temperature levels and other key indicators to assist with an intuitive visual analysis mode.

Phase 3 of the project will commence when a valid and acceptable level of prediction is performed by the AI algorithms and will involve both the existing users that are already using suitable VYVO smartwatches and new participants that have just started to use VYVO smartwatches. These new participants will benefit from the COVID-19 Early Alert System which will is intended to be incorporated in all the new VYVO devices and apps.

Papers, Publications and Research Grants

VYVO Labs supports the publication of the results of Project CEASE and, together with its scientific partners and approval of its Scientific Board, it will select valid findings that it will promote for peer review.

Subject to terms and conditions relating to data protection, acknowledgement of common work, recognition of effort and where the activity is consistent with the mission and vision of VYVO and its community, VYVO Labs is willing to provide travel grant funding for presenters at academic or professional conferences. In addition, VYVO Labs will also consider bursaries in the form of product discounts or research grants to support appropriate research activities.

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