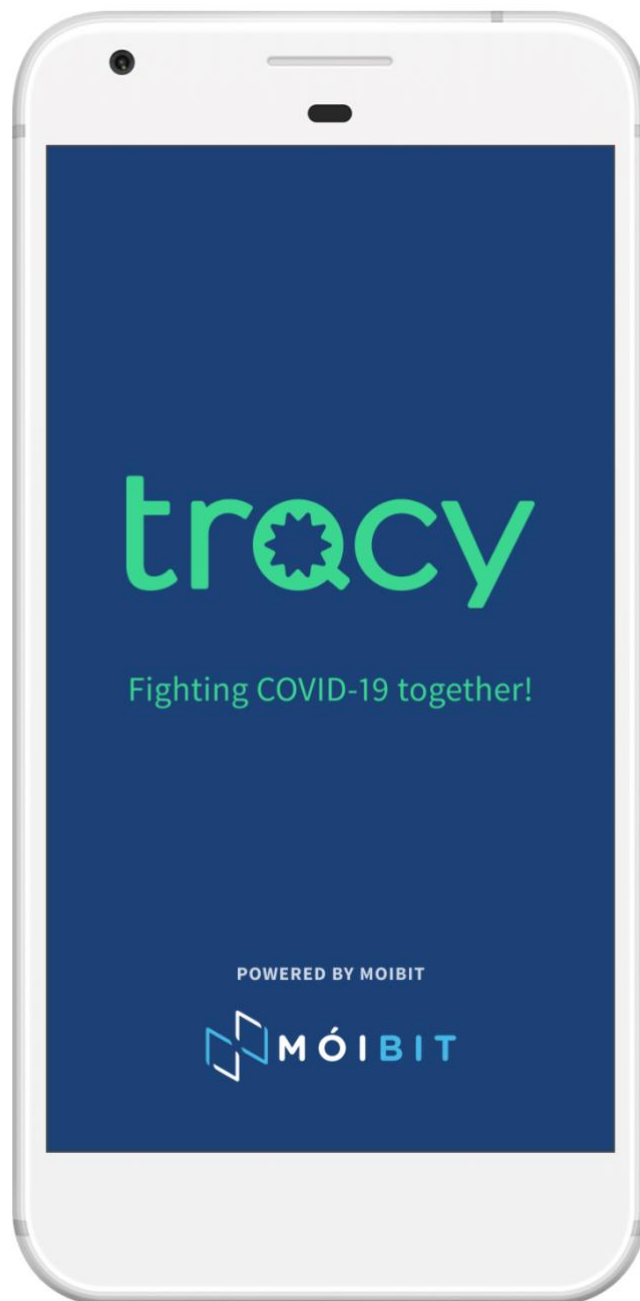


# TRACY App – powered by MoiBit

*Fighting COVID-19 together!*

<https://www.GetTracy.app>

**Authors:** Anantha Krishnan, Ganesh Prasad Kumble, Karthik Balasubramanian



A privacy-first user-driven socio-technology initiative anchored by [Aicumen Technologies Inc.](#)

**[WORKING DRAFT]**

## Abstract

This document proposes a new way of mitigating the coronavirus COVID-19 outbreak with the help of MoiBit™, AI and other decentralized technologies such as Blockchain and Zero-Knowledge interactions.

## Introduction

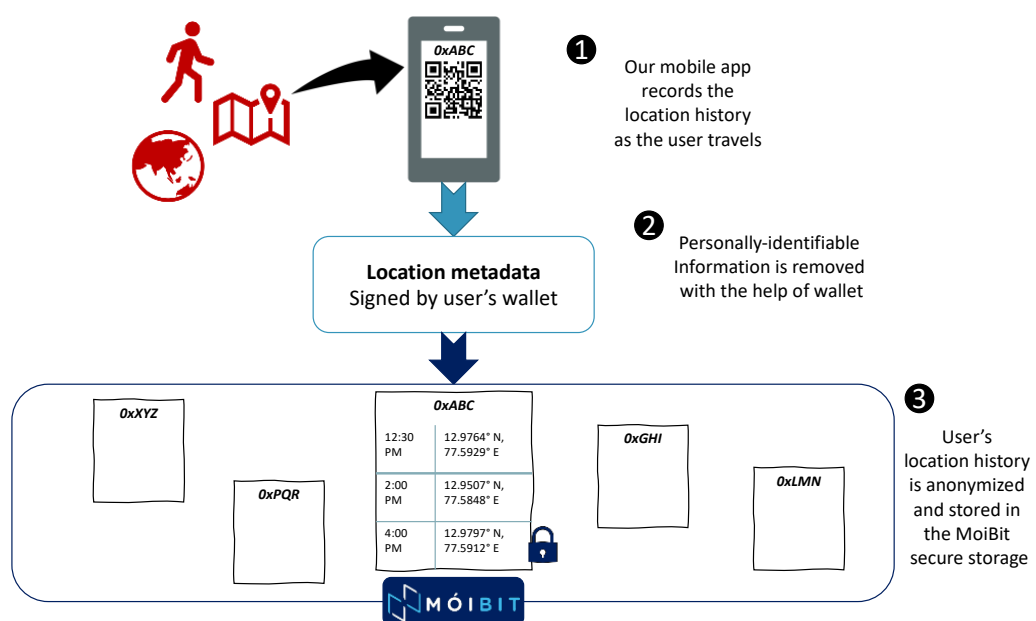
The COVID-19 has rampantly caused an outbreak, infecting around 340,000 people and causing the deaths of more than 15,000 people across the globe. Although more than 98,000 infected people have been reportedly recovered, there could be chances that the virus is looming among others in the society, waiting to lapse the control and measures put by governments and agencies.

We are proposing a mobile app that allows governments, agencies and communities alike to prevent, predict and mitigate current COVID-19 risks in their respective areas. This is possible by asking all the citizens to voluntarily participate in a program which records their location history in an anonymous way. If there are any infected people with a travel or location history originating from a particular place, the other users who were present in the close vicinity will be warned of the incident, to put them on close observation as a precaution.

Tracy addresses privacy concerns by allowing people to safely and confidently share information without compromising privacy. The medical teams / task forces get access to location data that is stripped of PII (Personal Identifier Information) and can apply business rules to intervene in specific cases. There is a data broker service that masks personal information and helps target affected users accurately without compromising privacy.

In the following section, we will learn more about the app, and the technologies used to fight the outbreak.

## Design and Architecture



As shown in the figure above, user will be installing the app and travel as applicable. The app records the geo co-ordinates (latitude-longitude co-ordinates) for each minute. Once the location is recorded, the data is signed in the background by the app. The signed data is stored in MoiBit individually for each user.

### About MoiBit

MoiBit is a personal decentralized secure storage network with the power of immutability and provenance of Blockchain systems. We use MoiBit for storing the geo co-ordinates of all the places visited by the user.

It is notable that MoiBit is not a centralized system. Unlike traditional Relational Database and Distributed Databases systems, data in MoiBit cannot be manipulated. If manipulated, the identifier of the data also changes, thus rendering the effort useless.

MoiBit also serves the purpose of storing the user's data in a pseudonymous way. All the inputs are signed by a wallet before changes are made before writing it to MoiBit.

### About Ethereum

Ethereum is an open source, public, blockchain-based distributed computing platform and operating system featuring smart contract functionality. The zero-knowledge based wallets used in the Tracy app is an Ethereum wallet.

### Installation

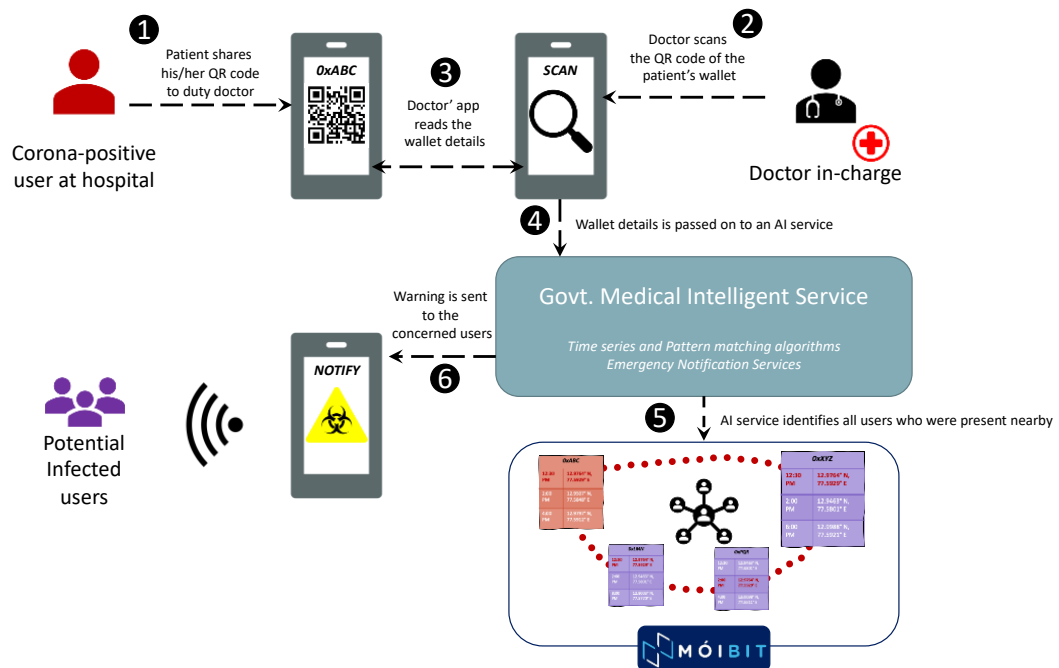
We are planning to launch the App on the Google Play store. Subsequently, there may be a release on the Apple App Store.

1. App is installed. Users are requested to login either through Facebook, Twitter or LinkedIn. Once done, a new wallet is created on the blockchain.
2. The wallet is pseudonymous. Personal Information shall NOT be revealed.
3. Now, the user allows the location access and background refresh access to the App.
4. App can now detect the location co-ordinates for each minute and ready for sign.
5. The geo co-ordinates and metadata are sanitized to remove PI.
6. User's wallet is used in the background to sign the co-ordinates.
7. The anonymized geo co-ordinates are stored in MoiBit.
8. Analytics shall be run by the medical agencies to identify any affected people.
9. If detected, all the users who had a travel history pertaining to the affected areas shall be notified via app.
10. If the user is tested positive in the later stages, they can notify the suitable agencies. The medical agencies can further backtrack other users who were present in the same area at the time of the victim.

Please refer to the Resources section to know more about the progress made in the app development.

## Mitigation and response

Our app shall be ready to address the positive cases and effectively communicate the issue with other community members.



Following is the steps taken by the app to address any infections:

1. Patient confirmed as a COVID-19 positive reports to the isolation ward at the hospital
2. Duty doctor checks if patient is user of the app
3. If patient is user of the app, doctor scans the QR code of the patient's wallet
4. Patient's wallet is searched in MoiBit to get his/her travel history (recorded through Google Maps API)
5. An AI-based model using pattern recognition identifies any other users with overlapping location history at the specified timeframe.
6. If any users are matched, the respective users are identified in an anonymous way and notification is sent out to the users to report to the nearest testing center.

## Resources required

1. 2 React Native developers (Work in progress)
2. Google Maps API access (To read the lat-long co-ordinates)
3. 1-week for app development (Work in progress)
4. A few days for testing, training, and communications