

Decentralised Storages of Cases

Dsoc

Use of Blockchain for Healthcare

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The Problem

- During this pandemic, we learnt that one of the most important tool is information. Who and When?
- The number of cases and information about it, in case of pandemics as this, or epidemics [or any small scale infection that is contagious] is crucial for the people.
- At first, China hid the numbers, and the information about the cases, mostly causing the chaos that is now.
- The database of the cases is kept by individual hospitals or a central authority like the government.

Central
authorities can fudge
number for their
benefit

People won't inform
that they tested
positive

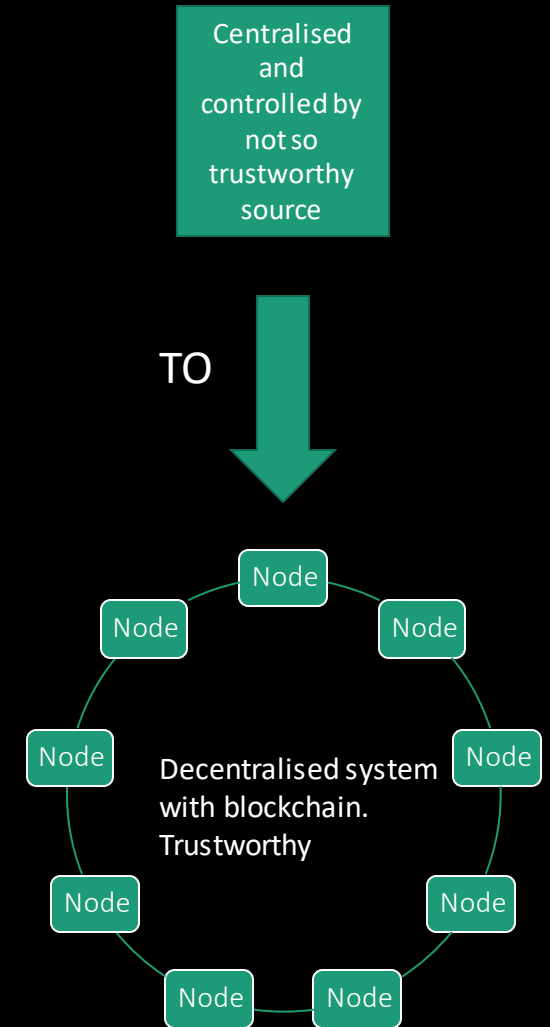
Some countries might
withhold or show
wrong numbers

The Problem

- This results in us finding out about this cases through media and unreliable sources
- The number of cases can be fudged by the central authority for their benefit. Ex; To win elections, or induce fear into people's minds.

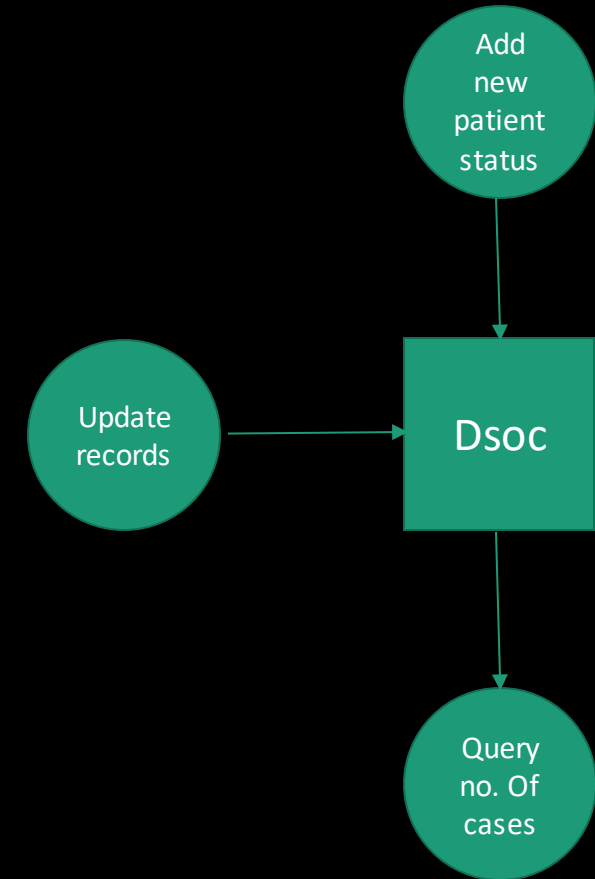
The Solution

- In order to solve this problem, we bring the database of the cases from centralized storage to decentralized using Blockchain.
- All the cases must be updated to the blockchain by the hospital immediately. This results in this information being, clean, concise and secure
- We can be sure about the number of cases, and we can retrieve and access data of people who have it, thus helping in keeping us safe.



Our product

- Dsoc provides a page for hospitals and healthcare institutes to register themselves properly [verification would be done to check if that institute is legal and viable]
- And keeps a record of cases in a decentralized way.
- They can add a new record, or update an existing record.
- Can query records based on region, id.
- The number of cases can be viewed easily.



Why Blockchain

- By using blockchain here, we ensure two things

Security

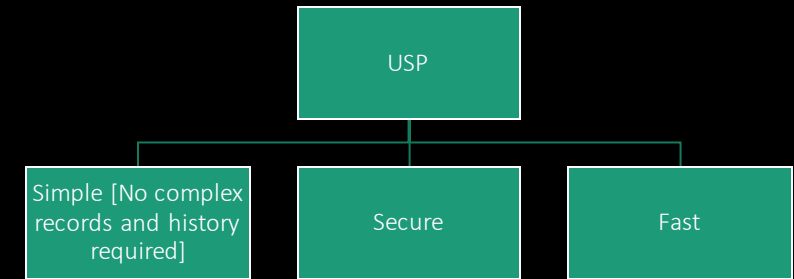
1. Security
2. Accessibility

Accessibilty

- The number of cases cannot be changed or hidden.
- And information about everyone who is positive/negative is available to the public and organizations, who can use this data to keep themselves safe

Implementation

- Implementation of patient records and such has been done by many Blockchain companies.
- But our USP[Unique Selling Point] is that we are function specific and very simple. That is this cannot be used for general purposes. This system has only one job. To keep track of the cases. It does not require too many details from the patient and no complex previous medical history
- Just plain simple, name, id, hospital id.
- Even though it's simple, it's fast and secure.

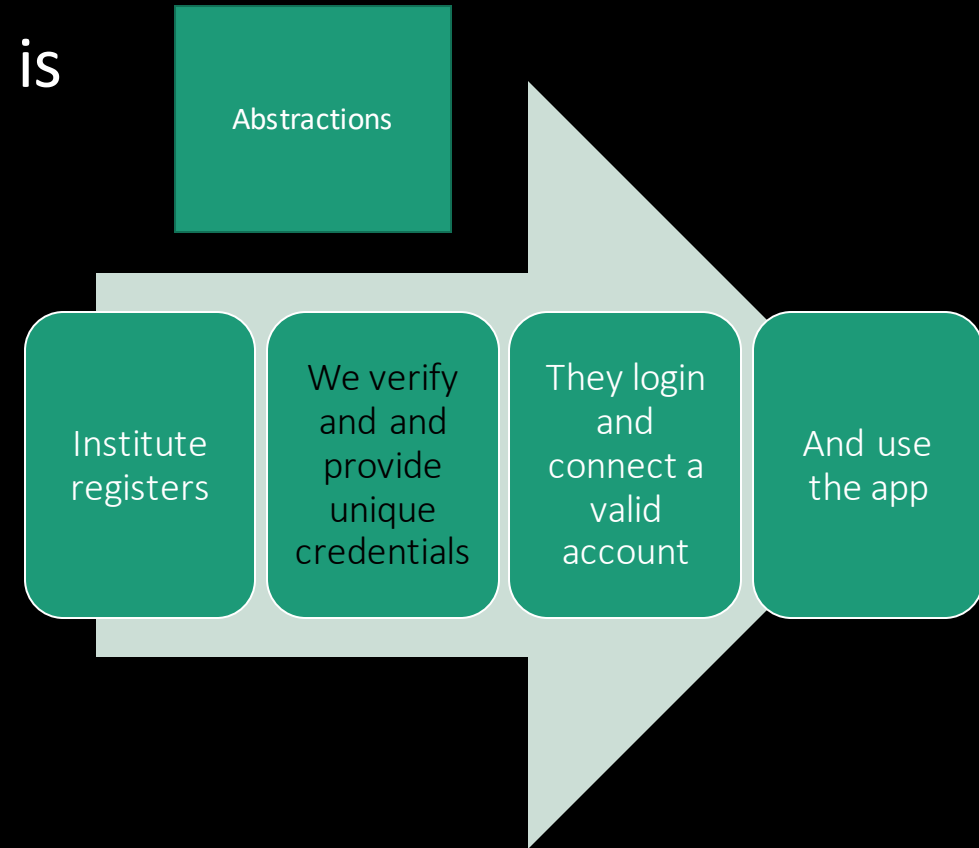


Implementation



- We used node and web3 backend for the web development.
- Ethereum Block chain.
- Solidity and Truffle for Smart contract development.
- ELAETHSC to deploy our Smart contracts.

Some Abstractions

- There are some abstractions in the Dapp.
- The authentication to verify the healthcare is considered to be done beforehand



Implementation [Dapp preview]



Decentralised Storage Of Cases

Blockchain is one of the emerging technologies and rightfully so. It ports a centralized system into a decentralized system which is secure and cannot be messed with. Our team plans to use this beautiful piece of tech to implement innovative solutions into the HealthCare sector. Recently, due to this pandemic, we have seen the healthcare sector struggle at some aspects. And we plan to address that. The idea is build a decentralized application, that keeps track of pandemic/epidemic cases (can also be a infectious disease on a small scale), through the healthcare system. The app itself is simple. All one has to do it, login, add the patient's name and id, and specify if he is being tested positive or negative. The app is *simple and intuitive* to use.

The simple act of having the cases in a decentralised network has a large scale impact. *People around the world can know who is infected and can take care of themselves. And we will have a exact number of cases available.* We don't have to rely on partial news, or politicians trying to scare us, or convince us that things aren't bad. Right now, the information is salvaged from news, govt sources, which are centralised and can be fudged to one's advantage. Our app while being simple, also doesn't allow the leak of important personal data. All it requires is unique id, name, and result. No extra information, no fuss. Simplicity in it's best.

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Prajwal A

Implementation [Dapp preview]

DSOC

localhost:3000

Getting Started Start Parrot OS Community Docs Git CryptPad Privacy Pentest Learn Donate GitHub - danistefanovi...

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Positive Count	1
Active Count	1

Select Patient

abc10000000

Info Report Positive Report Negative

Name: ADitya Hospital Code: abc Pincode: 1000000 Add Patient

Your Account: 0xae74c6e40aca58c0f76b2337b63d083ac0a3dd7

Confirmed transaction
Transaction 4 confirmed! View on Etherscan

Confirmed transaction
Transaction 5 confirmed! View on Etherscan

Parrot Terminal DSOC - Mozilla Firefox

Pro's and Con's

- Pro's: Simple, efficient, no extra information, secure, available to the public
- Con's: Getting all hospitals to use this tech

Additional improvements

- Implementation of DID
- Was not possible because of incomplete documentation and some constraints

Next Steps

- If successful, we'd like to make this more robust
- Plan the deployment
- Expand the dapp
- Cover other areas in healthcare where information which is important to the people is centralized and inaccessible.

Conclusion

- We have created a simple, secure system to store number of cases of Pandemics and epidemics. So that we would better prepared next time.
- Implemented with Ethereum Solidity Smart contracts and Deployed on ELAETHSC

Thank You