Supply Chain of Covid19 Vaccination Process Based On Blockchain

INTERNATIONAL BLOCKCHAIN OLYMPIAD(BCOLBD 2021)

Team Information

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Supply Chain is the movement of

Information

Product

Funds

Blockchain

A continuous updated record of who holds what

A shared single source of truth

Do we need Blockchain?

Can a traditional database technology meet our demand?

Should more than one participant be able to update the data?

Do all the updaters trust each other?

Would all the participants trust the third party?

Do we need to keep the data private?

Problem & solution

- ➢ Drug traceability
- ➢ Ensure Vaccine Integrity (Tamper-proof, Contamination, Theft)
- ➢ Authorization power (no other can block, change without access)
- ➢ Transportation (temperature controlled)
- ➢ A need of trust and security (Transection of supplier, order, invoice and shipment)
- ➢ Prioritization & Allocation (scheduling)
- ➢ Syndicate, Bottleneck Overview, Expired Stock, Overstocking and Damaged stock
- ➢ Fully transparent distribution process and safety.

Problem & solution

➢ Feedback patient data management

➢ Vaccination training

➢ We can find that's is going on a particular age group, fixed location

➢ Give motivation to those who don't believe that vaccine works

➢ Quality expired vaccine use

➢ Over head cost less, no charge for transection(frictional cost less)

➢ Prevent fraud and data theft

➢ Future improvement research

➢ Preparation for next pandemic

Market & Partners

Vaccine distribution contract

Shot term:
Our potential buyer is our government

Long term:
Vaccine Manufacturer

Competitor

Big pharmaceutical company

IT Firm

Project Methodology

Patent Holder

Manufacturer

Invention of Vaccine and Sent for mass Production

1:

- Patent holders name
- Country
- Qualification

- Organization name
- Manufacturing Country
- Manufacturing And Expiring date of vaccine
- Batch no of each vaccine

Project Methodology

2: **Mass Production and sent for shipment**

- Hand over date
- Shipping company name
- Date of hand over
- Packing temperature
- Quantity of vaccine

- Transportation date
- Vaccines temperature(continuously updated)
- Tentative delivery date

Project Methodology

4: Handing over to the Government for Verification

- Delivery date
- Delivered Quantity Check
- Temperature check

- Accepting vaccine
- Checking Quantity
- Packing temperature
- Received date

Project Methodology

Government   Storage

5: Storing Vaccines under the supervision of the Government

- Allocating Storage place
- Hand over date for storage

- Storing Date
- Shipping company name
- Date of hand over
- Packing temperature
- Quantity of vaccine
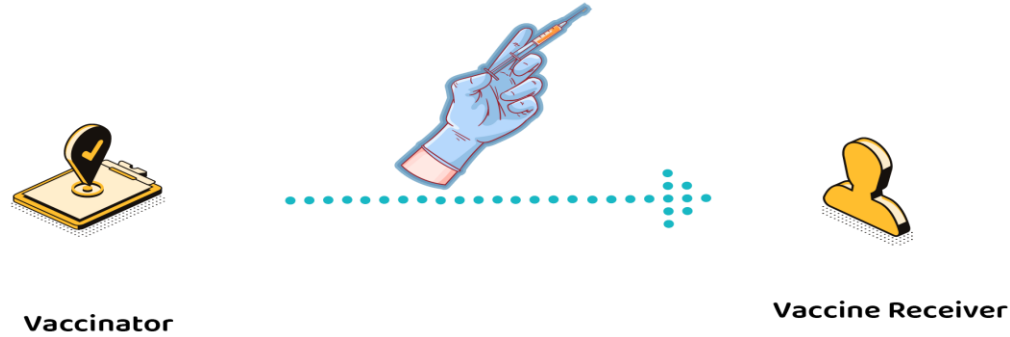
Project Methodology

6: **Distributing Vaccine for Vaccination**

- Received date
- Vaccines Quantity
- Storing Temperature

- Received Date
- Received Quantity
- Temperature of vaccine

Project Methodology

Vaccinator

Vaccine Receiver

7: **Push Vaccine**

- Vaccinators Name
- Vaccinators Qualification
- Checking Vaccine receivers Priority.
- Name of vaccine receiver
- Date of vaccinating

- Name of Vaccine receiver
- Age
- Qualification
- Address
- NID no

Project Methodology

Vaccine Receiver

8: Vaccine receiver's Feedback

Feedback

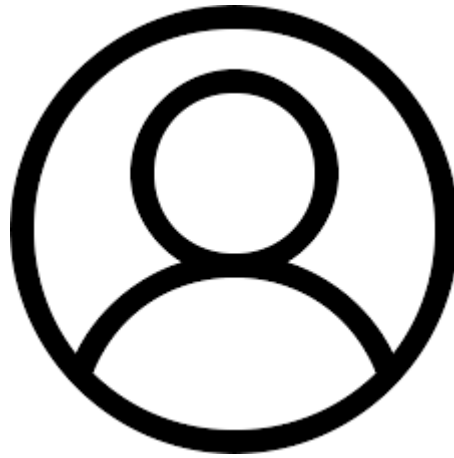- Submit feedback After Receiving(i.e feeling good or bad)

Governance

AUTHORITY

- Authentication of vaccine receiver and vaccine provider to enroll the system.
- Verification of the delivered vaccine and confirm the deal.
- Setting priority list of vaccine receiver according to their quota.(i.e Freedom Fighter)

Governance

Vaccine Receiver

- Giving authentic feedback on vaccination(i.e feeling bad or having any side effect)

Our Implementation

- ✓ Registration
- ✓ Inputting Vaccine Data
- ✓ Vaccination Handover
- ✓ Mass Production
- ✓ Send for Shipment
- ✓ Transportation temp update
- ✓ Vaccine Receiver & Provider Authentication
- ✓ Prioritization
- ✓ Vaccination Info
- ✓ Vaccination Process

Prototype

⅀ SC-C19

BACK

Register as Vaccine Receiver

Name

Age

REGISTRATION AS

Profile Photo URL

Quota

None ⌄

✓ **Vaccine Receiver**   ✓ **Vaccine Provider**

NID Number

Set Vaccine

BACK

Vaccine Name

Astrazeneca

Dose Limit

2

Temperature Sign

Negative

Lowest Temperature

Highest Temperature

Handover

Manufacturer ID

0

Vaccine ID

1

Confirm

VACCINE MANUFACTURER

Mass Production

Vaccine Name

Astrazeneca

Quantity

2000

Date

25

2

20

2021

Confirm

SC-C19

BACK

Condition Check

Temperature Sign

Negative

Temperature

75

Humidity

40

Check

SC-C19

Name: Rahim

ID: 1434543413412

Quota: Elder age-60-up

Review

Accept	⌄

Accept
Reject

Submit

SC-C19

PROVIDER REVIEW

Review

BACK

View Information

Name: Popular

LicenseNo: 67432254

Review

Accept	⌄
Accept	
Reject	

Submit

≡ SC-C19

SET VACCINATION PRIORITY

Set Priority

◆ 0

Set Priority

AMOUNT + GAS FEE

◆ 0.013656

❓ Localhost 8545

🔵 Authority → 🔴 0xe056...7E11

http://127.0.0.1:5501

CONTRACT INTERACTION

◆ 0

DETAILS   DATA

GAS FEE   ◆ 0.013656

No Conversion Rate Available

Gas Price (GWEI) ⓘ   Gas Limit ⓘ

20   682785

AMOUNT + GAS FEE

TOTAL   ◆ 0.013656

No Conversion Rate Available

Reject   Confirm

SC-C19

BACK

Feedback after vaccination is completed.

Vaccine ID

Feedback

Your Reaction ∨

Your Reaction
Not Satisfied
Partially Satisfied
Satisfied
Highly Satisfied
Extreamly Satisfied

SC-C19

Vaccination Info

BACK

View Information

Name: Rahman

Vaccine Taken: false

Vaccine Name: None

Dose Number: 0

Priority: 9

Vaccinated By: None

SC-C19

VACCINE PROVIDER

Push Vaccine

BACK

Vaccine ID

1

Vaccine Receiver ID

2

Vaccine Name

Astrazeneca

Date

| 20 | 2 | 2021 |

Submit

Any Question?