Social Reform in Land Acquisition and Ownership Using Blockchain Technology Based Authorization

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ABSTRACT: -

Digitize land and real estate this is our motto to build this project. Because as we all know in India buying and selling of land is a very hectic task and if somehow anyone finds the right property, it's not easy to verify all details about the land like currently pending bills, right owner and need of middle man. If anyone gets success in the above-mentioned hurdles, after all this they must go through the time-consuming and paper-based land registration process. Now, if we replace the current running model by our project. After registering all the lands and real-estate properties on our platform, it is time-consuming work, but this small effort changes all aspects of buying and selling of the land. We provide dashboards for different usage; peer dashboard helps to give ownership and transfer property using the biometric system. Just one punch and all done. User dashboard for the public to manage their family and land records, giving power to the user they can list their property for sale and all the individual registered on the platform easily look for the property anywhere they want and they can also directly contact the right owner and move forward without any worries. Our system forming a family tree which helps to distribute property among the child without any type of dispute and all get legal authorization in no time. This project builds on blockchain technology that gives extra security, trust, and immutable state of the asset. The complete process requires no effort and no time, act by just a click.

Keywords: Land Acquisition, Blockchain Technology, Social Reform

I.   Introduction

Digitization and development of new information technologies (IT) are one of the most powerful sources of change in life. Known technically as "blockchains" are one of the most talked-about technologies in recent times. years, both in the IT community and in the financial services industry.The parent bank, Goldman Sachs, said the following in December 2015 talks about blockchain technology: "Silicon Valley and Wall Street are gambling like other technologies behind the [Bitcoin Hype cycle], Blockchain, can be traded ... well in anything". In the research of experts 2015 International Conference, the majority (57% of respondents) estimates that 10% of world GDP will be recorded on the blockchainuntil 2025.

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The technology will create vouchers or credentials for digital documents, e.g. information or changes. This proof can be considered as a fingerprint for information. These fingers saved the group combination in "block". The wiring is connected in the chain from which subsequent extensions contained the inscription, a "fingerprint" from the previous block. Therefore, it is impossible to add the new data for the old link in the chain does not change the connections to continue. The chain can track information and the history of why it is called the "Trusted Machine" by an economist.Describing the technology and its implementation with block chain technology is not easy. Partly because it's dramatic partly because the area is experiencing steady growth and innovation new requests and artists were quickly completed in response.

Most IT tools are now secure the system cannot be used behind a fire fence and with special connections. For example, there are only a few players, such as agencies, banksand several government officials who could extend their ordinance for Tehsil records. Blockchain technology makes it possible Announce credentials for files, records, and other external sources firewalls without compromising the security of the original. In practice, trust in the transaction is altered and information is restored when few employees have access to blockchain credentials. When the certificate is open and the problem is complicated management, no reason to question and trust them confidence in them increases, however, so the epithet "trust car "is valid.

 Real Estate and Books real estate exchanges are areas where security and transparency are important and where there is a high level of cost, but where necessary the transaction speed and number of changes were lower. People who have looked at this field, as economists understand it the cost to race can be huge - not least in missing countries a firm such as legal, land registration, etc.

Blockchain technology is an emerging technology of distributed databases, which records all the transactions & digital events executed & shared among numerous contributing parties. Each transaction across the public ledger is validated by an agreement between most of the stakeholders in the organization. It contains a demonstrable & certain record of each transaction ever executed.
In the field of land in India, it has a bright future as it could be implemented with the help of the government. As in past government made the compulsion of the aadhaar card with a similar movement we could implement it. For the market opportunity, the market is as of the whole of India because for now it has not been implemented.It's not the market opportunity in India, it is a necessity as the fraud is related to the lands which can lead to some serious crime. It could solve the many issues related to land.With this initiative, Tehsil. you want to see how block chain technology can be applied to infrastructure buy. At the same time, we believe in this technology as well as the solutions we generate will have a wide application in the real estate market problems as in several other places, especially in the public sector. digital technology, for now, is a separate block chain technology that is also confirmed in the open block chain. In the future, tehsil and other organizations can work together on different block chain solutions.

The solution provides costs by improving the processes involved with the field registers and sells spare parts. Some   of the improvements are i.e. Eliminates the need to transcribe contracts and documents.Controversy and reclassification of existing business documents land title and mortgage application.Greater security for system users, in part due to the ability to use the system purchase and ownership contracts can be made independently of Tehsil.Business is faster and more transparent.Be legally registered and acknowledge that members are waiting four months earlier than the current method, which allows more information and information about exchange transactions, increase the efficiency of real estate because it can be quickly sold on the property and more.Make sure you receive confirmation of

the last landing from the working day.Provide good mortgage protection and make products mortgage payments under the climate transfer of a mortgage.Eliminate the need to sell the property multiple times. It makes it difficult to steal the property.

Blockchain technology is an emerging technology of distributed databases, which records all the transactions & digital events executed & shared among numerous contributing parties. Each transaction across the public ledger is validated by an agreement between most of the stakeholders in the organization. It contains a demonstrable & certain record of each transaction ever executed.

Followings are reasons to trust on block chain technology

Confidential and transparent:
The blockchain technology offers a proven and censorship-resistant option for information sharing (such as value measurement).

Reduced storage: Land processes can benefit from safe and tamper-resistant materials that collect data and information from multiple stakeholders in one place.

Making the process more flexible: Most property changes are still being delivered by wire transfer and require expensive verification procedures that can take days to complete. Blockchain-based partnerships can lead to complex solutions that deliver speed and cost reduction.

Restrictions on middle-class employees: Many middle-class employees - from employers to escrow companies - can make the most of the impact on the blockchain process, according to the information can be stored, verified, and transferred to blockchain technology. Eliminating the need for a neutral system can reduce costs and save time.

Liquidity:
Real estate has long been considered an illiquid product since it took some time for the sale to end. This is not the case with cryptocurrencies and tokens since in theory they can be easily exchanged for legal currencies via exchange. However, as a token, real estate can be easily marketed. The seller does not have to wait for a buyer who can afford everything to get value from his property.

Family disputes involving the property in consideration: Using a family tree (during the process of registration of land the nominee of the owners would be recorded. When the death certificate of the owner is submitted and verified, the property would be transferred automatically to the nominee within a certain time.

A general power of attorney: We will use the family tree to check for authorization of the selling process i.e. the nominee can sell only the part of the land which was transferred to him (complete land or apart).

Duplicate ownership : We will tag each of the lands and give is a unique id & all the original documents would be digitally available and associated with a uniquid only.

The land belongs to the government : Since the lands would be tagged and the owner would be the government the reselling of the land would not be possible.

Boundary disputes : The tagged lands would contain the details of the dimensions with the use of GPS coordinates.

Fake documents: We would take the help of the government's record to check for the authenticity of the documents (sub-registrar office). It would be an onetime only process as after

verification the land would be tagged and given a unique id and the Original documents would be mapped to it for future references.

Remove as many intermediaries as possible: Since the complete process would be digitalized the customer can Buy-Sell the land from the comfort of his home. All the processes would be systematicand would be available online on the platform, so the need for a middleman would not arise.

LITERATURE REVIEW: Current Real-Estate

The value of all real estate in India is now a huge greater value of Indian GDP. For many Indians, that is their Private homes are the most important. Most of the household expenses are also interconnected with private homes of family debt is in the form of mortgages with the land that mortgage.

Tehsil is one of the oldest citizens in India. Throughout history, new technology has been introduced to safety real estate and business and the tools that follow including soil. In the beginning, there was no saying, so putting national labels on paper is a way of securing information of members. Tehsil was the first group authorities to make their country digitally registered. It's not the whole process digitally, but they are trying to do some of the work that Tehsil is doing make use of new and improved technologies.

Despite the importance of personal property to the community and individuals, there are different sections of product and information refers to markets that take too long to adapt. Many of these everything is also according to the previous rules. Country records data not included, including Tehsil registration, because part of the registration process was wrong. It usually takes a length of time from the signing of the contract to the signing of the bill the eyes are signed and the real change takes place. The sale was registered with tehsil long after the first contract was signed, and until that happens, it will not be found in the property directory. Sold on tenants laws have not been registered with tehsil since the tenant and the landlord are only enrolled in the partnership a community-based home with personal property to use.

To present some important issues that need to be addressed now the process we can report on these issues:

● Tehsil is only involved in a few stages of the finale estate to buy. As a consequence of this most of the process is not transparent, by definition, to the public or otherwise, people involved.

● The system will be delayed by registering real estate investors. Time of signing the procurement agreement and when tehsil received the sale price and made an endorsement of the name is usually three to six months.

● The above issues have been made to the seller, buyer, bank and the real private sellers have been forced to create their complicated processes for approval, because they have to make sure that everything does not go wrong, and because the cost of change is huge. This creates inefficiency. Tehsil is currently working on reducing the problem as well as weakness in his technique and technology. Blockchain technology provides solutions to many of these problems. In the long run, yes also effective if a solution can be developed and shared, or provided framework and support for many political organizations anywhere appropriate.

Block chain Integration in the Current System

Government start it as a pilot project in some district's this will help to make some update as per the usage. In the beginning, we divided the land into two class.

- Disputed
- Non disputed

We onboard all the process in that district related to land, perform using our software. This requires a proper document to decide land class. Important documents are:

- Land registry stamp.
- Person aadhaar card.
- Pancard.
- Two family member guarantee in case of land does not belong to you (for family members property).
- All land details.

SUPPORTINGTECHNOLOGY STACK AND APIs for PROPOSED SOFTWARE SOLUTION

Front End Technology

List of Technology Stacks for Frontend Development of the project.

1. HTML
2. CSS
3. Javascript

Backend Tools and Technology

List **of tools** forbackend development of the project.

1. NodeJS
2. ExpressJS
3. Mongoose
4. Heroku
5. Google Cloud

For back-end we have used following technologies

Block chain Technology

The Hyperledger Project is a build under the Linux Foundation. The Linux Foundation is "the organization of choice for building sustainable open source ecosystems by onboarding big companies under one umbrella" according to their website. What that means is that the Hyperledger Project is not the product of a private company such as IBM or Oracle, but rather the product of a community.

The goal of the Hyperledger Project is to create a blockchain specifically for the enterprise community. If the Bitcoin blockchain is for individuals who want to make transactions without a middleman like a bank, then the Hyperledgerblockchain is for companies that want to make transactions or execute smart contracts without intermediaries.We are also trying to build the same trust among the buyers and sellers in the field of real state. Some of the benefits of this technology over the conventional method are:

- Increased trust issues between buyers and sellers.
- Digital Documentation and Buying process moved online so the user can access the options from his ease.
- No extra payment to the middleman or during any other stage.
- Better and improved security provided.
- Option to transfer property rights to alimony using an automated process.
- Greater Diversification.
- Prevent Fraud and Human Error.
-

APIs (Application Programming Interfaces) Library

AADHAR API

Aadhaar is a 12-digit unique identity number that can be obtained voluntarily by residents or passport holders of India, based on their biometric and demographic data. The data is collected by the Unique Identification Authority of India (UIDAI), a statutory authority established in January 2009 by the government of India, under the jurisdiction of the <u>Ministry of Electronics and Information Technology</u>, following the provisions of the <u>Aadhaar (Targeted Delivery of Financial and other Subsidies, benefits and services) Act, 2016</u>.

UMANG - Personal Detail API

Here, to get the personal detail of any person we can use Pre-built government API UMANG, that works well without other APIs.
Here is something about UMANG, that make it amazing to be integrated into our project.
The unified mobile application for the governance of the new era (UMANG) is planned to do e-governance. It is developed by the Ministry of Electronics and Information Technology and the National Division of Electronic Government to drive Mobile Government in India. UMANG provides a single platform for all Indian citizens to access India's e-government services, ranging from central to local government agencies and other citizen-centric services.
UMANG will revolutionize the way an Indian citizen takes advantage of government services today because it takes advantage of the current accelerated penetration of the Internet and smartphones in our country.

The unique characteristics of UMANG are:

1. Ease of Access - Explore UMANG on various channels, such as smartphones, desktops, and tablets. UMANG has a rich multimedia interface with a focus on maximizing usability and enriching the user experience. Supports 13 Indian languages and satisfies scalability on demand.
2. Integration with Aadhaar, Paygov, Digilocker - UMANG provides seamless integration with popular customer-centric services like Aadhaar and Digilocker.
3. Government Services - At Your Dedicated Boards: Now access various government services through a single mobile app. UMANG provides a unified platform where the user can access multiple government services (central, state, and regional). Unique

mobile application to access more than 490 services of various government organizations in the States and the Center.

4. Dedicated Customer Service - UMANG has a dedicated Customer Service for the comfort of the user from 8 am to 8 pm every day of the week

Advantages for government agencies, including states:

1. Ease of provisioning services via mobile devices without a lengthy tender / DPR process.

2. Personalized home page, free API development facility and full control through the self-care portal.

3. No CAPEX or OPEX for departments / states.

4. Basic integrations viz. Aadhaar, DigiLocker, payment gateway (s) and RAS (comments) available.

MAPS API

The Maps JavaScript API lets you customize maps with your content and imagery for display on web pages and mobile devices. The Maps JavaScript API features four basic map types (roadmap, satellite, hybrid, and terrain) which you can modify using layers and styles, controls and events, and various services and libraries.

We are using google maps javascript API for showing the lands on the map in the user dashboard. Here, to get the personal detail of any person we can use Pre-built government API **NCoG**, that works well without other APIs.
Here is something about **NCoG**, that make it amazing to be integrated into our project.

The **key points** of the NCoG are:
1. 1: 5000 Base maps
2. Open source and internal development: cost-saving solutions because champion software is not used.
3. Introduction of technologies (web, mobile, GIS, GPS, image processing, mathematical models etc.).
4. Geodata set multipurpose support.
5. Search engine: Common reports and available dashboards.
6. Training: bidirectional skills building.
7. Verification: data display in the GIS domain is verified by the department / responsible/responsible.
8. NCoG brought transparency and better planning. This is possible thanks to modern GIS solutions implemented in the form of web portals and specialized mobile applications created by web technologies.

Benefits of using NCoG platform:

1. **Positive Management**: The Mining Monitoring System has helped to prevent illegal exploitation through automatic awareness. District officials are notified, and their activities are reported via the mobile app.

2. **Monitoring**: mapping of all central government cities, including the CPSE, and allowing the provision of land for specific purposes.

3. **Development Plan**: The industry information system contains information about 3,500 industrial parks, farms, groups, etc. Information related to access to rail, highways, air, and port. Access to raw materials, urban infrastructure, etc.

4. **The GIS web portal** for the 115 districts has been put together with a wealth of information on infrastructure, agriculture, demographic details, education, health, energy, forestry, industry, infrastructure, water, water supply, banking, capacity building etc. Risk management: 3D printing is ready for the country. Crucial to the development of a flood simulation system.

Pension
- Jeevan Praman
- Employee Provident Fund
- National Pension System
- Pensioners' welfare services

Education
- CBSE
- e-Pathshala (NCERT)
- All India Council for Technical Education (AICTE)
- National Scholarship Portal (NSP)
- Madhya Pradesh Board Results
- National Digital Library

Utilities
- Electricity
- Gas
- DTH
- Telephone / Mobile

Health
- e-Raktkosh
- Hospital Bookings
- Pharma SahiDaam from NPPA
- Employees' State Insurance Corporation

Agriculture
- Crop Insurance
- Soil Health Card
- AgMarknet
- Agro Advisory
- Weather Forecast
- Farmer Friend detail
- Equipment Dealer Information

Other Services
- Passport
- PAN
- Income Tax
- Vahan
- TRAI - DND, My Call, My Speed
- Sukhad Yatra
- CISF - Lost & Found
- PM Awas Yojana
- Grievance / Complaints

Source: https://negd.gov.in/node/88

Figure: List of UMANG fetures.

KEY CONCEPTS OF BLOCKCHAIN TO DEVELOP THE PROJECT

Blockchains record trust like an atomic clock records time. Unlike a trust, time marches ever forward and is irreversible. What if trust could be recorded in the same manner, with the same accuracy and fidelity? With the advent of technology, Indian Real Estate will revolutionize all the shortcomings of commerce. In the past decade, technology has changed the real estate industry, making it safer and smarter. One of those technological advances would be Blockchain, which has a significant impact on controlling the growth of the real estate market.

Blockchain technology has the latent to solve many real estate problems, including:

1. **Improving faith and transparency**: Blockchain technology offers a certifiable and censorship-resistant opportunity for the exchange of information (for example, evaluation information).

2. **Reduction of disparate databases**: Real estate processes will benefit from secure and tamper-proof shared databases that collect data and documents from numerous stakeholders in one place.

3. **Improving the efficacy of transaction processes**: Most real estate transactions are still completed through wire transfers and require expensive verification procedures, which can take several days. Blockchain-based transactions can simplify a process that offers and reduces costs quickly.

4. **Restriction of the use of intermediaries**: many intermediaries, from brokers to deposited companies, can become obsolete using blockchain-based approaches since records can be stored, verified, and transferred using blockchain technology. Eliminating the need for intermediaries can significantly reduce costs and save time.

Blockchain Operator

This actor involves Individuals which putting there effort to build this ecosystem, and maintain this to work properly. Core members are Frontend developer, backend developer, blockchain developer, and DevOps guys. All are working to fulfil the different requirements like

- Frontend members build Web UI for user, peer and admin.
- Backend members try to build API then it integrated with UI.
- Blockchain members help to integrate the DLT framework on the Web application.
- DevOps members help to deploy this application on the cloud after this anyone can access it on the internet.

Google cloud

It provides PaaS as a service which helps DevOps members to deploy each component into a separate docker container. K8 help to build microservices like infrastructure which is easy to maintain and upgrade. It also helps to scale each component individually as per the requirement. It is good to use an integrated deployment environment because it helps to maintain security and other components.

5. **DESIGN & ARCHITECTURE BLOCK CHAIN BASED SOFTWARE SOLUTION**
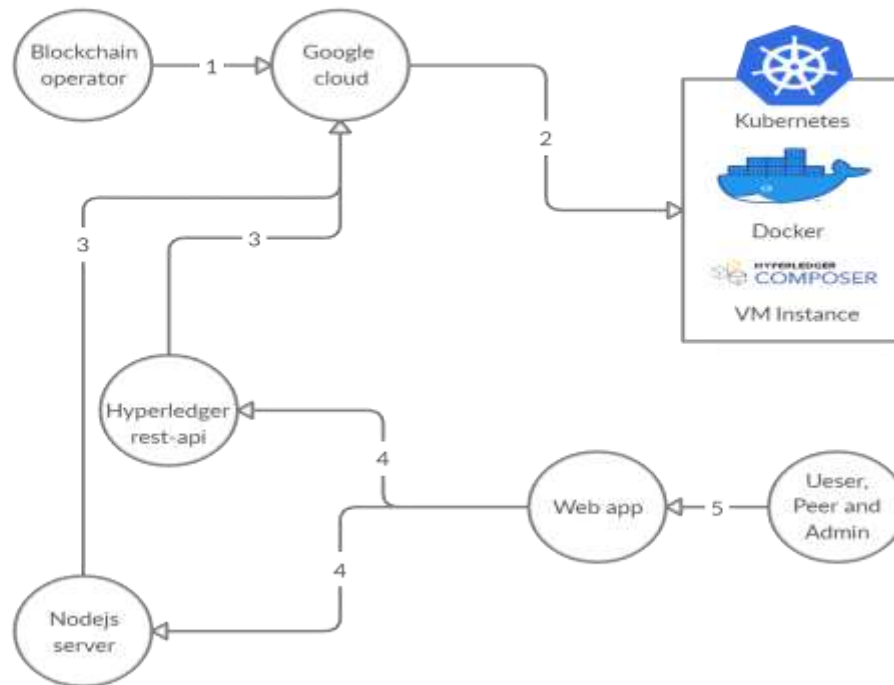
Above image shows all the important actors which playing their role to fulfil different requirement of the application and these all are the building blocks to achieve the end-end system. Now we will explain all the actors briefly: -

NodeJs Server

Very important actor because of its different user access to all the services as a web application. It gives us three different dashboard users, peers, and admin. These are utilized by different groups.

- User dashboard used by all.
- Peer dashboard only used by the government body.
- Admin dashboard only used by the governing bodies.

Hyperledger Rest API

We are implementing this project on DLT framework hyperledger. It helps to build power full application with all the features of the blockchain. To server, all the blockchain services easily and make the integration of blockchain easy with the web application we serving all feature of the blockchain as a rest API.

Web APP

When we integrate all the above actors, it completes the project and it ready for use. It provides many features like real-time insight, biometric-based land registration and transfer and many more.

At last, we mentioned all the users who finally utilize all the facilities and try to build and grow the ecosystem. These different services help build trust, give security and perform some of the time-consuming tasks by just one click. Please follow the next few pages for the left part.
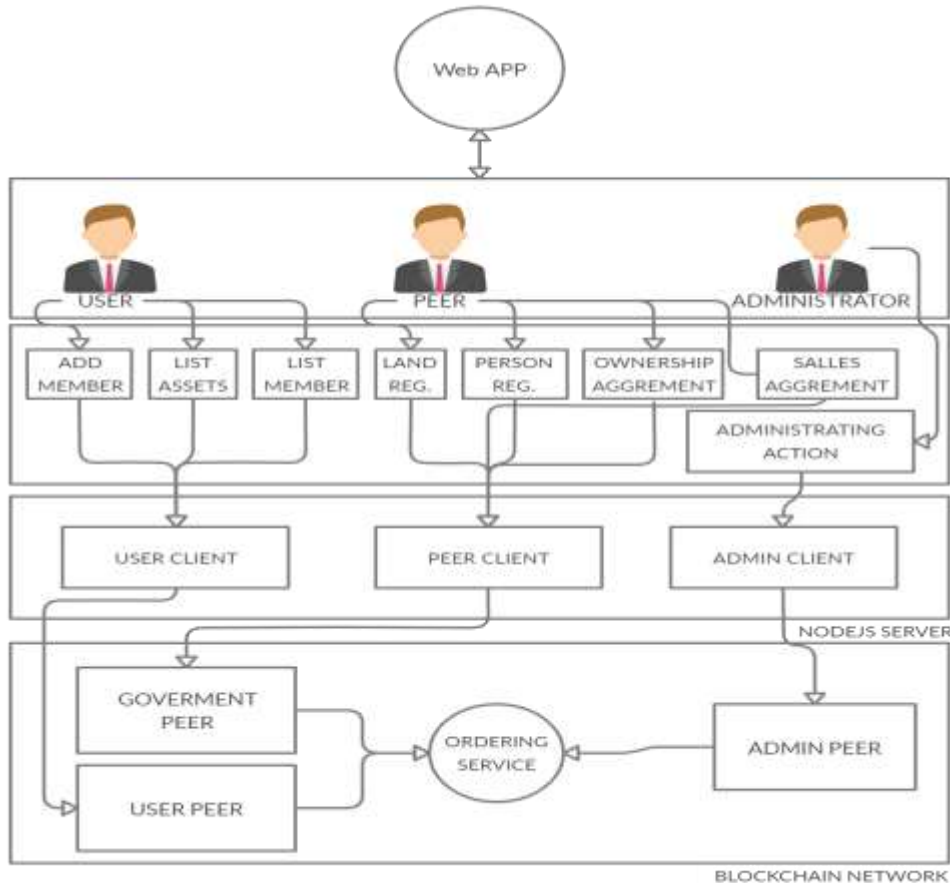
FIGURE 2 - DIFFERENT CLIENT AND INTERNAL COMPONENT
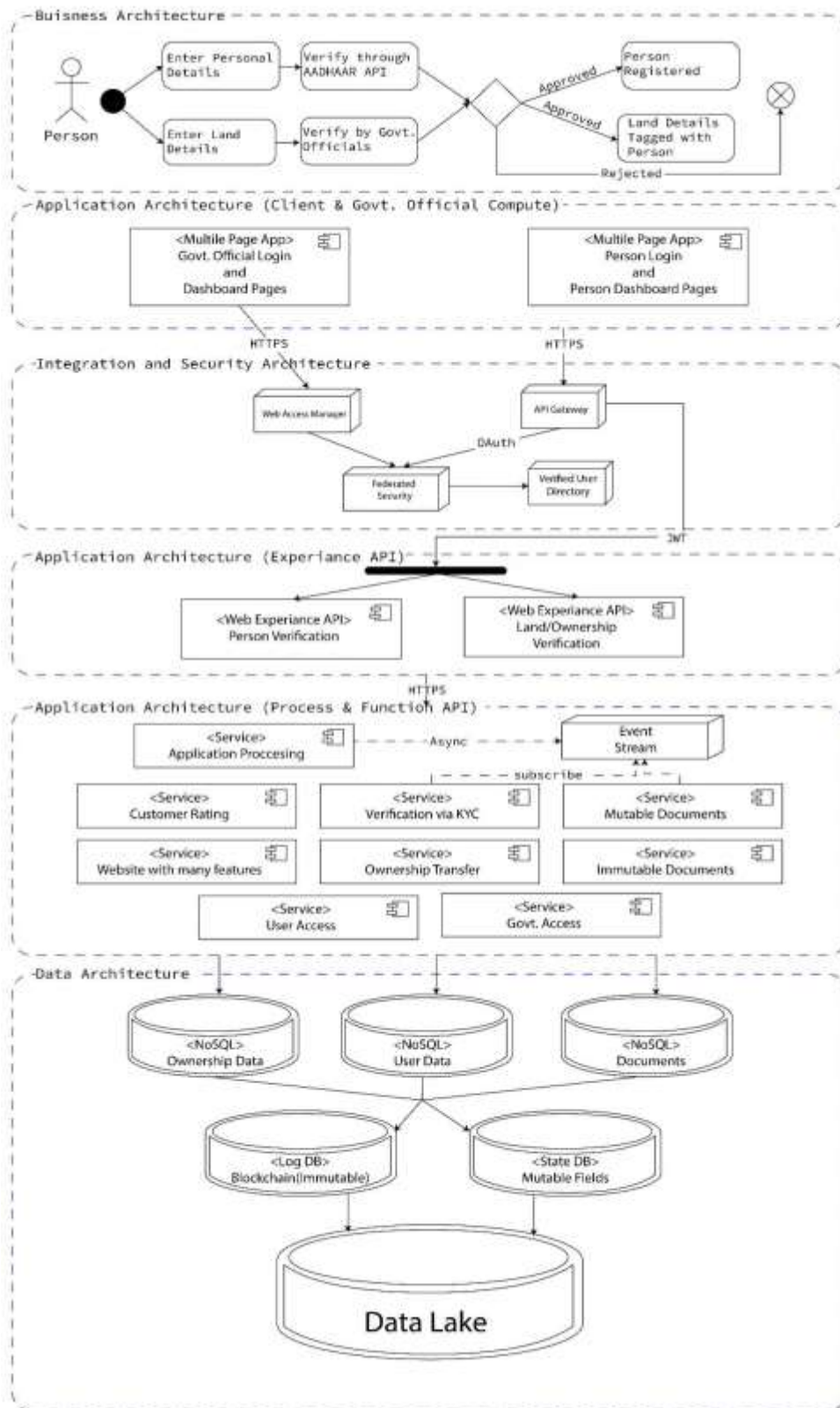
Figure 3: Software Architecture

Already described above about the system component connected with web actor. In this diagram, I try to explain about all the user which using it. As per the image, there are three main users are user(for buyer and seller), peer (by government officials) and admin (which maintain the whole network).

User (buyer & seller)

Buyer and seller are the two main users who get the most benefit from it. Both use a client web app to perform a different action:
- Check their current asset.
- Search for new land to buy.
- List there, family member.
- Add a new family member.
- List their property for sell.

Peer

Only government official uses this peer client to action related to land:
- Add a new user in the network.
- Register new asset on the network.
- Link asset to the registered user.
- Transfer land ownership to other users.

Admin

All the government official who maintains this network and has the power to update different policy related to the platform.

- Update current network version.
- Add or Remove peer user.
- Add other state or district to be the part of the network.
- Check the current state of the network.
- Check all the transaction.

NodeJS Server

We are using nodejs and frontend technology to fulfil the different individual requirement. It maintains three different clients for a different type of user.

Blockchain Network

It is a crucial part of the project because it gives the power of blockchain to the project. In this many internal components which help maint the copy of the state ledger among all the peers. Describing the component below:

Orderer

It is the most important component of the network it arranges all the transaction happen on the different client dashboard in the queue and broadcast to the ledger peer. Interaction between among network component verified using ca certificate and if there is any iterator then it will be easier and network stop any further communication.

Peer

There are two types of peer's leader peer and normal peer. Ledger peer play a crucial role in the network if any action performs on any client then it first goes to the ledger and it verify is the action valid and performed by the valid user. If it not then it reject that action.

All the component in the network use ca certificate to perform any type of action and the same methodology follow for the different user. Every user in the network have ca certificate to perform any action this make the network more secure.

Getting on the LaunchPad

In all the dashboard, these techniques have been used. The backend is divided into three modules: -
1. Backend of the user dashboard
2. Backend of the peer dashboard
3. Backend of the admin dashboard

Backend of the peer dashboard

This dashboard contains four functions as of land registration, person registration, ownership agreement and sales agreement. In the peer dashboard, the **REST API** is implemented which means the **CRUD** application which stands for **CREATE, UPDATE, READ and DELETE.**

Land registration

It contains two routes one to **GET** route to get them the land details stored in **hyperledger** and second route to **POST** route to save the land details entered by the user to the HYPERLEDGER.
In this, the land data from the frontend like address, state, city, locality, district, post office, pin code, road width, land width, land height and type of land are sent to the backend.

With the help of the data, a JSON builds and the JSON is sent to the REST API of the HYPERLEDGER. The JSON looks like this
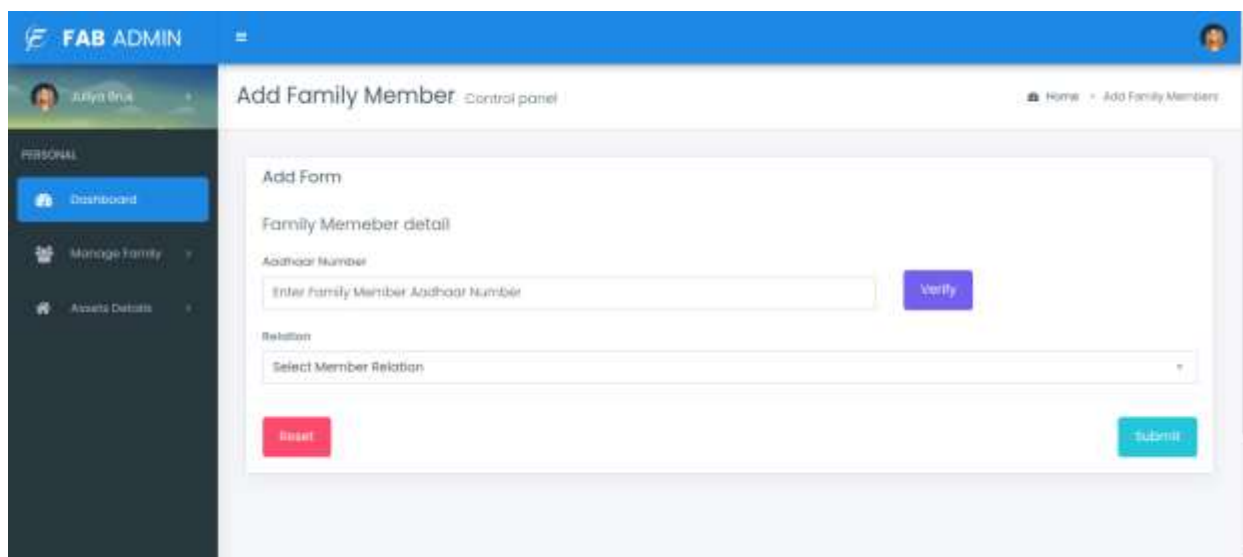
Fig : Add Family Member
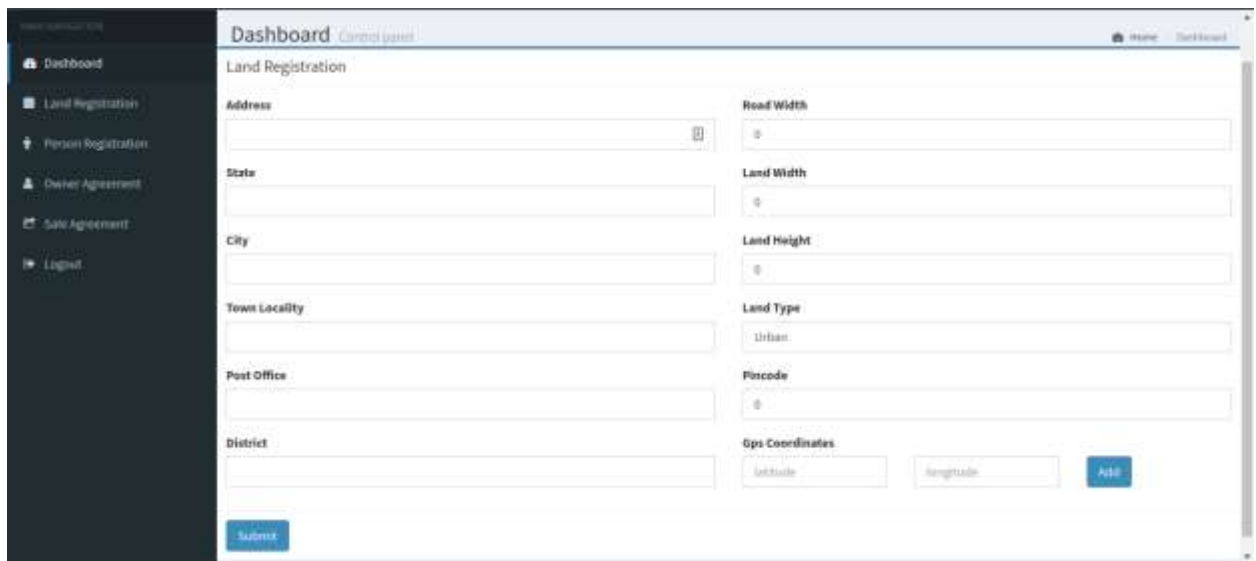

Fig : Land Registration

```
{
        address: req.body.address,
        state: req.body.state,
        city: req.body.city,
        locality: req.body.locality,
        district: req.body.district,
        postOffice: req.body.postOffice,
        pincode: req.body.pincode,
        roadWidth: req.body.roadWidth,
        landWidth: req.body.landWidth,
        landHeight: req.body.landHeight,
        type: req.body.type
}
```

If the land data is successfully saved onto the **HYPERLEDGER** we get a message success otherwise it gives an error.

Person Registration
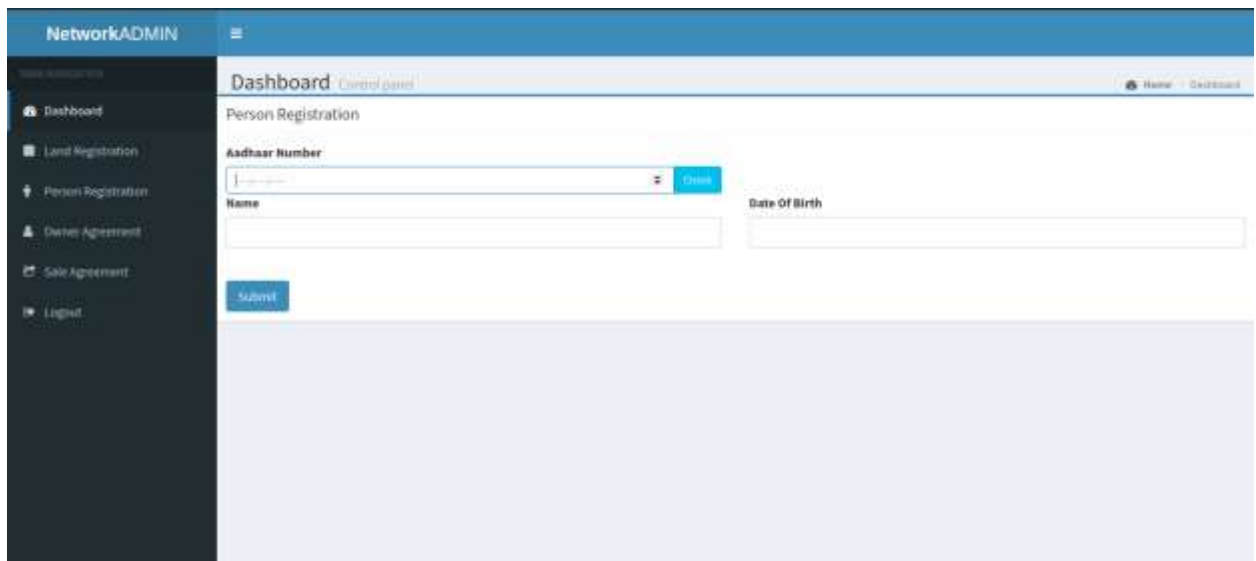
It contains two routes one to **GET** route to get the personal details stored in **HYPERLEDGER** and second route to **POST** route to save the personal details entered by the user to the **HYPERLEDGER**.
In this, the personal data from the frontend like name, date of birth, aadhaar number are sent to the backend.

With the help of the data a **JSON** is build and the **JSON** is send to the **RESTAPI** of the **HYPERLEDGER**. The **JSON** looks like this:

```
{
    {
        "name": data.aadhaar.name,
        "dob": data.aadhaar.dob
    },
        "aadhaarDetail": {
        "aadhaarNo": data.aadhaar.addharnumber,
        "status": true,
        "data": ""
        },
}
```

If the personal data is successfully saved onto the **HYPERLEDGER** we get a message success otherwise it gives an error.

Fig : Person Registration

Ownership Agreement

It contains two routes one to GET route to get the ownership details stored in HYPERLEDGER and second route to POST route to attach the land to a person and saved to HYPERLEDGER. This is done by government officials. The JSON object looks like

```
{
        "$class": "org.dsociety.rstate.land.LandOwnerShip",
        "owner": `resource:org.dsociety.rstate.participant.Person#${personid}`,
        "OriginalDocuments": true,
        "DocumentVerifiedStatus": true,
        "ScanDocumentPath": "Verified",
```

}

In this, we assign the land to a person using the land id and person id, so in the **HYPERLEDGER.**
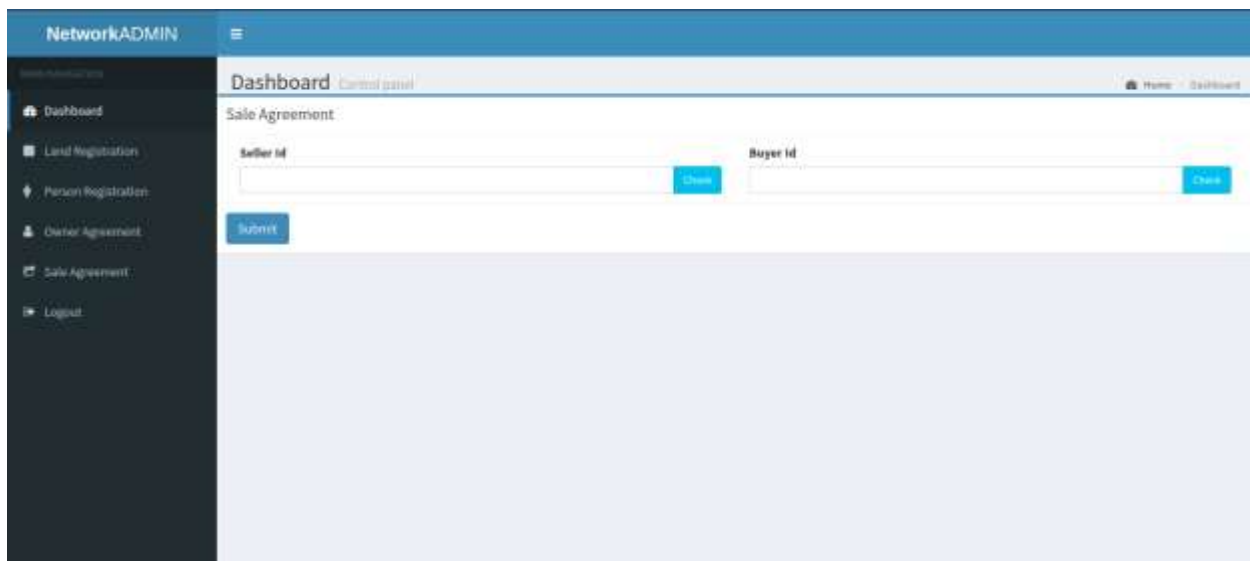
we add the land id to the personal data. This is done only when the original document is there, and the document is verified otherwise the ownership agreement will fail.

Sales agreement

In this, we change the owner of the land by removing the land id for the seller and adding it to the buyer. Here both the person using the respective id then the seller chooses the land from his acquired lands and enters the transfer button to make the transfer happen.

We use the **POST** route to transfer the land between the seller and the buyer.

Here is the **JSON** object of the landowner

Fig : Sales Agreement

```
let landOwnership = {
        "$class": "org.dsociety.rstate.land.LandOwnerShip",
        "owner": "resource:org.dsociety.rstate.participant.Person#340543",
        "OriginalDocuments": true,
        "DocumentVerifiedStatus": true,
        "ScanDocumentPath": "Verified",
        "landTag": "721998",
        "address": "1/124,vardanKhand, Gomti Nagar Vistar",
        "state": "Uttar Pradesh",
        "city": "Lucknow",
        "town_locality": "Gomti Nagar",
        "district": "Lucknow",
        "postOffice": "Gomti Nagar",
        "pincode": "233545",
        "roadWidth":80,
        "landWidth": 15,
```

```
    "landHeight": 60,
    "Coordinates": [
     {
       "$class": "org.dsociety.rstate.land.gpscoordinates",
       "x_coordinates": 23.25,
       "y_coordinates": 13.45
     }
    ],
    "type": "RURAL",
    "belongs": "STATEAUTHORITY"
  }
```

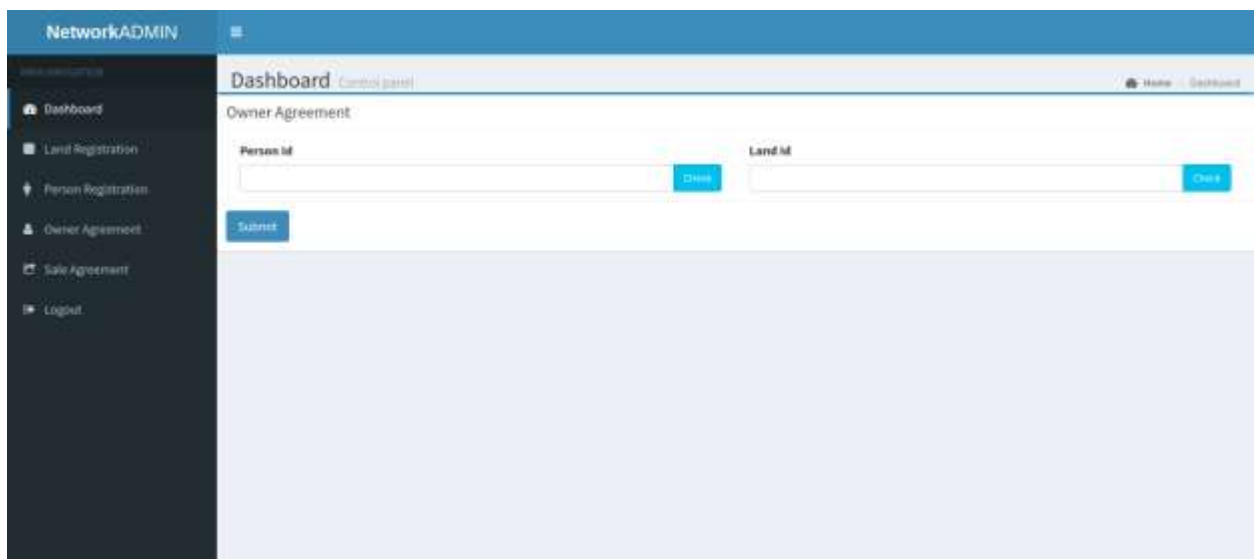In this, the person id is changed from the seller to the buyer.

Fig : Land Ownership

Backend of the user dashboard

This dashboard is for the users which contain four functions which are adding the family members, getting the list of the lands the user owns, list of family members users have and the land which users have is shown on the google maps embed in the dashboard.

Using the Platform

User registers on the platform

- Users who want to buy or sell real estate are registered on the blockchain platform.
- Profiles can be created on the platform with data such as name, government-issued ID card, and designation. The hash of the identity submitted by the user is stored on the blockchain.

Upload the property specifications to the platform

- Sellers can upload real estate images and documents to the platform and show the location of the land on the map. Transactions that correspond to seller actions that transfer real estate information are recorded on the blockchain.
- Once the property data is uploaded to the platform, it will be available to all registered users as buyers.

Buyer requests access to specified properties

- Buyers interested in a particular property may ask the seller to access their specifications.
- The seller receives the notification of the request to access the property. They can look at the customer's profile and reject or accept it.
- Buyers can review the property's previous property record, submit a request to get it and initiate the transfer.
- Transactions that meet the needs of sellers and buyers are recorded on the blockchain to ensure reliability and traceability.

Seller approves transfer request and land inspector receives notification

- If the seller approves the land title transfer request, the land inspector receives notice of the start of the asset transfer. The smart contract begins providing land inspectors with access to land documents.
- After the land inspector reviews the documents, they plan a meeting and transfer the property to the buyer and seller.
- Meeting records will also be added to the blockchain to resolve future property disputes.

Land Inspector confirms the transaction and initiates the transfer

- The land inspector will validate the documents submitted by the buyer and seller and add a certified entry to the blockchain land registration platform.
- The seller and the buyer sign the title of the land inspector of the land registration platform.
- The signed document is stored in the database and the corresponding transaction is recorded on the blockchain.
- The money transfer begins, the smart contract begins to send money to the seller, and the seller's property begins to be sent to the new buyer.

Property Registry Document Validation and Reliability

- In the event of a dispute, authorized parties can upload signed land registration documents to the platform to verify and verify their authenticity.
- If the hash generated after loading the document matches the hash created when the document was signed, the document has been certified and has not been modified.

Finalize and Updating

As the blockchain does not modify the store data means the blockchain is immutable. So once the land details are uploaded to the **HYPERLEDGER** it can not be altered. When there is the change of the ownership of land the state gets changed but the previous details are stored in the transactional database.

It means the owner of the land gets updated but at the same time blockchain keeps the track of the previous state in its chain.

CONCLUSION

Here we have reached to the end of our report of our project, so lets summarize and conclude, what we have mentioned above.
Firstly, we have gone through the Introduction of our projects and in literature view we have studied previously implemented projects for the same.Later we talked about the basic Technology Stacks and APIs that are required for our project to start with its basic functionality.

Going forth, we have understood why should we use Blockchain as its main backend technology and got to know administration levels or we can say different users controlling our projects also we have learnt about, why should we put our trust in Block chain.Last but not the least, We have studied about the Business terms of our projects like Market opportunities and dealt with the inhuman activities in real-world of real-estate business and its positive impact on the society.

So, overall as we can also see that the influence of the application of our project is being positive and takes the current scenario to a better and safe humankind society.

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