

# **BULIDING FUTURE CITIES A 24 HOUR HACKATHON**

## **SCHIZPPHRENIA**

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## 1.Introduction

### 1.1 Overview

Bangalore is a tier 3 city in which millions of people visit and over a million stay for their daily hood. There is no record maintained for their accommodation. If we stay in a PG or a flat in Bangalore, we are actually writing a handwritten agreement to the PG owner but after that agreement tenure becomes invalid and it will be of no use.

Suppose a new person is coming to Bangalore and he/she is staying in the PG or a flat for a year or 2. The agreement is written and when the tenure is over it is torn apart. Suppose after 5 years some allegation (say a criminal activity or a terrorist threat) happens and the person was searched for some special cases then authorities came to know that the person was in Bangalore for some time. So, with the current system we are not able to trace him/her even if it was a false identity. We have chosen blockchain for this idea because of the huge scope of data privacy which is going to pile up in the coming decades. We have the security of the encryption algorithm.

### Description

In our project we are proposing a system that can store all the data about the peoples who are residing in a PG or Flat or a Hostel. Although there are current systems for identity management implemented in immigration and citizenship part of an individual. For example, the identity management system used in the USA for the citizenship and immigration department.

We are proposing a system that will be aadhar for the next generation which includes not only the details of the particular individual but their full life. This proposed system will help the ultra-growing cities to move to the concept of blockchain from the ground level. This will also be a part of smart contracts.

### 1.2 Existing System and Disadvantages

The existing contracts system is implemented in almost all the regions of India except the renting (especially the house renting) part of the country. If we consider the case of India itself most of the people in the villages are traveling to cities for better livelihood. The current system has problems with tons of paperwork across the country for land registration. It eventually reduces the corruption in the country because the chances of taking money for land dealing can be reduced.

1. Money is needed for maintaining the records over a period of time.

2. Corruption is growing by the same margin.
3. Big cities like Bangalore can use it to make the whole concept of agreement from the lowest level (hostel. PG) to the government office.

### **1.3 Proposed System and Advantages**

The system aims at providing a simple and self-reliable platform for the contact making of the PG flats. It makes the system more efficient in terms of storage and processing. Computerization comes up as the best solution for all the problems of the world. The proposed system will provide the future of the paperless agreement transaction on all major domains for Bangalore. The core change will happen if we implement it in the rental part of the society. Cities/countries can make their own blockchain for this purpose and most of the banks are planning to change their concept to decentralization of the system which is requiring more in many aspects.

#### **Advantages:**

1. Cities can use it in the agreement aspect because after the post-covid life more people are moving to the cities for a better livelihood.
2. Make the future cities with a well development plan that target each individual. And their life
3. Reduces the wastage of time, money, and other resources of an individual and the time they need to spend for these activities.
4. The Government of Andhra Pradesh has implemented the smart contract system in the land buying, selling, and renting the land. It also can reduce the money that the government uses for the agreement storage.

## **2.REQUIREMENT SPECIFICATION**

### **2.1 Requirement Description:**

#### **2.1.1. Build Owner / Landowner deploying**

He/she is able to deploy a transaction with no of room, room types,and other description related to the room. The system must be able to provide the owner all the features related to him like viewing the existing agreements, signing the agreement account details etc.

**Actors:** Building owner, Miners

#### **2.1.2. Contract Signing:**

Any individual who wants the rooms can deal with the system and make a smart agreement with the system.

**Actors:** Users, Miners

#### **2.1.3. Transaction:**

It is the basic part of the project in which very deployment leads to a transaction. The building owner starts the transaction by deploying the room details to the Ethereum test blockchain. And the user is able to make a smart agreement on the particular transaction.

### 3. PHYSICAL SCHEMA OF BLOCKCHAIN:

Since block chain is decentralized, we have used the structures for defining the actors which was specified in the Requirements table. They are:

#### 1. Structure Room:

Attribute	Data Type
room_id	uint
agreementid	uint
roomname	string
rent_per_month	uint
securityDeposit	uint
securityDeposit	uint
timestamp	uint
vacant	bool
landlord	address

address	CurrentTenant/user
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## 2.Structure Room\_Agreement

Attribute	Data Type
roomid	uint
agreement_id	uint
Roomname	string
rent_per_month	uint
securityDeposit	uint
lockInPeroid	uint
timestamp	uint
userAddress	address
build_owner_address	address

**3. Structure Rent:**

Attribute	Data Type
rentno	uint
roomid	uint
agreementid	uint
Roomname	string
RoomAddress	string
rent_per_month	uint
timeStamp	uint
userAddress	address
build_owner_address	address



## 4.Construction

### 4.1 Software and Hardware Environment

**System:** Any System

**Front End:** Node.js v16.15.0, Solidity, Meta Mask, Ganache

**IDE:** Microsoft Visual Studio Code 2022

**Backend:** Ethereum Blockchain

### ABOUT THE DEVELOPING TOOLS

#### Node.js Version 16.15.0

Node.js is a server-side platform built on Google Chrome's JavaScript Engine (V8 Engine). Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data- intensive real-time applications that run across distributed devices. Node.js applications are run in Java script and it's also supporting different formats of JavaScript such as. hbs (Handlebars), .ejs (Embedded Java Script). It only takes 20 lines of code for connecting with the database. The main advantage that we saw the node.js was the blocking asynchronous threads and the modules like JWT (Java Web Tokens) also allows the login faster when compared to the normal applications.

#### Microsoft Visual Studio Code 2022

Microsoft Visual Studio Code is a text editor that supports code editing, debugging, Intelli-Sense syntax highlighting, and other features. We use VS code because of light weight and robust architecture. It also supports Web Technologies like HTML, CSS and JSON. The Git support in VS code helped us in uploading the codes that we developed individually or according to our modules. So that we do not need to waste our time in sharing the codes between us. All the codes were shared between the collaborators.

#### Solidity:

Solidity is a contract-oriented, high-level programming language for implementing smart contracts. Solidity is highly influenced by C++, Python and JavaScript and has been designed to target the Ethereum Virtual Machine (EVM).Solidity is a brand-new programming language developed by Ethereum, the second-largest cryptocurrency market by capitalization.

**Meta Mask:**

Meta Mask is the trailblazing tool enabling user interactions and experience on Web3. It is currently available as a browser extension and as a mobile app on both Android and iOS devices. The purpose of this documentation is to illustrate how to build a dapp with Metamask. In particular, it handles account management and connecting the user to the blockchain.

**Ganache:**

Ganache is part of the Truffle Suite ecosystem. Specifically, the Truffle Suite consists of Ganache and an additional pair of tools; Truffle and Drizzle. Truffle is a development environment, asset pipeline, and testing framework using the EMV (Ethereum Virtual Machine); meanwhile, Drizzle is a collection of frontend libraries. On the other hand, Ganache is a high-end development tool used to run your own local blockchain for both Ethereum and Corda dApp development. Ganache is helpful in all parts of the development process. The local chain allows you to develop, deploy and test your projects and smart contracts in a deterministic and safe environment.

## 5. Testing

### 5.1 Test Cases

#### Module 1:

#### Houseowner Deployment

Test Case ID	Test Case Name	Test Case Description	Requirement ID	Execution Steps	Expected Output
1.1	To add the details of the room in the deployment	Check if the deployment is entered in the correct account	1	1.1.1). Go to home page 1.1.2) Enter the deployment details of the house owner 1.1.3) check whether the deployment is visible to another user 1.1.4) show the ether percentage and the remaining.	1. Deployment should be successful 2) the details of the deployment should be visible to other user and the remaining amount of the ether should be available.
1.2	The deployment is successful added and the owner can add the details.	Check response when valid user-id and password is entered.	1	1.2.1) Check database for account with specified details in user table. 1.2.2) Redirect to login page to retrieve the details	1. Entered data is invalid, No account with the specified user-id and password exists. Ask for repopulating details

## **6.FUTURE SCOPE**

The system could make use of Realtime data analysis. The system focuses mainly on multiple subject (identity) monitoring at same and fetches data of more than one subject a at time. The payment dashboard can be implemented. It can be extended to government instiutions and the banks for records management and