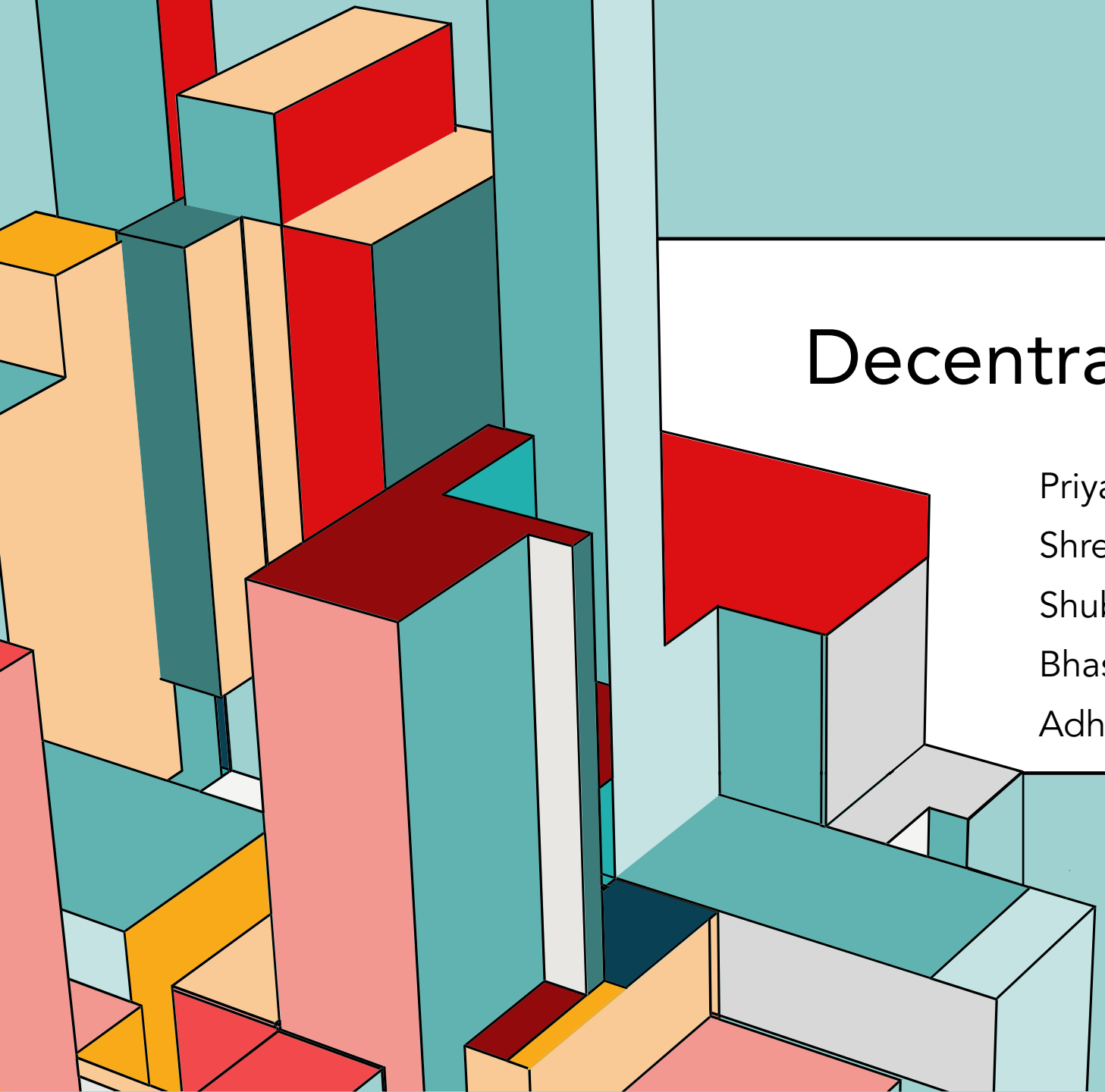


Decentralized Carpooling

Priyam Jain

Shreya Verma

Shubham Jain

Bhaskar Seshadri

Adhiviraj Singh Bangari

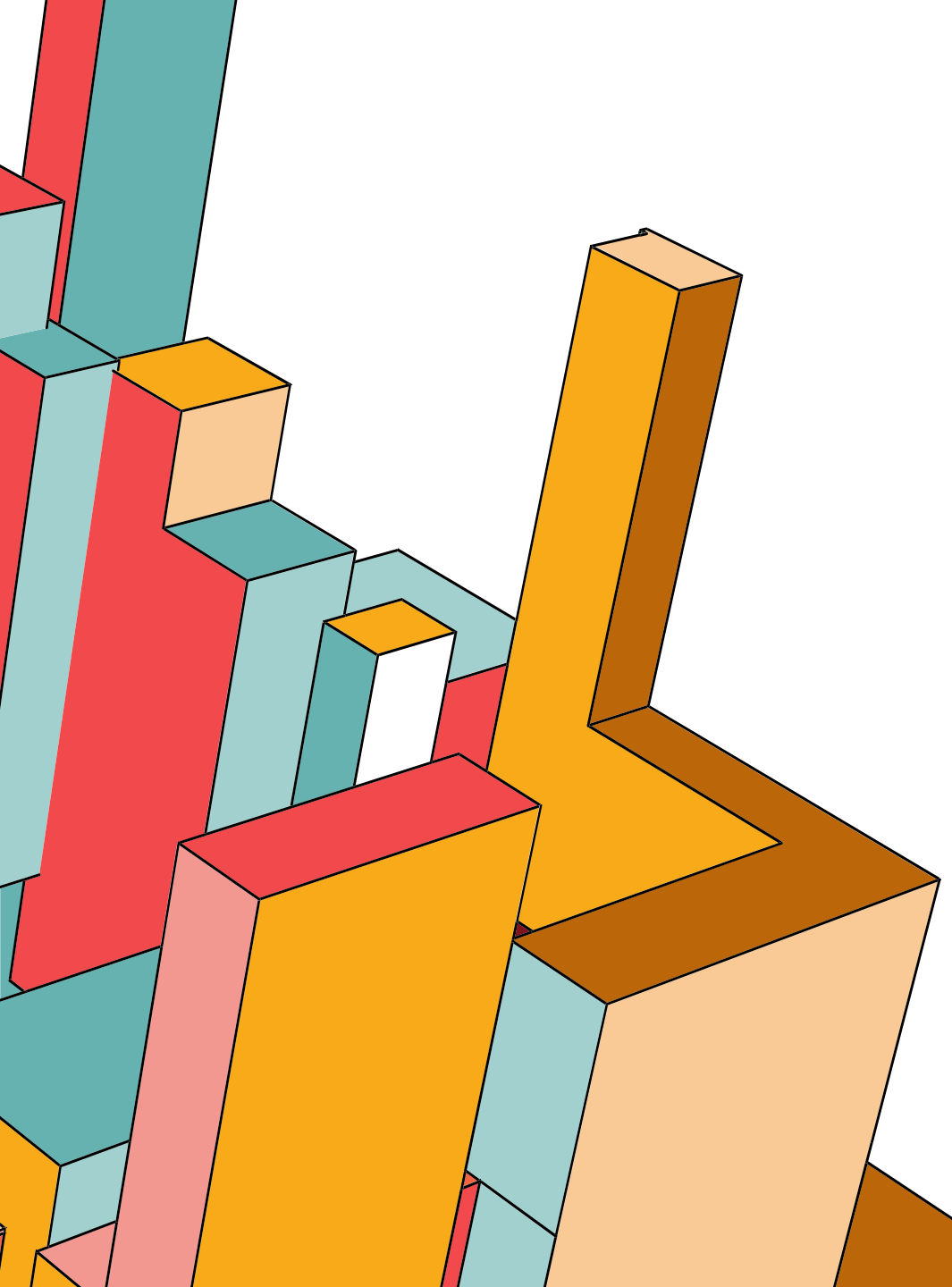


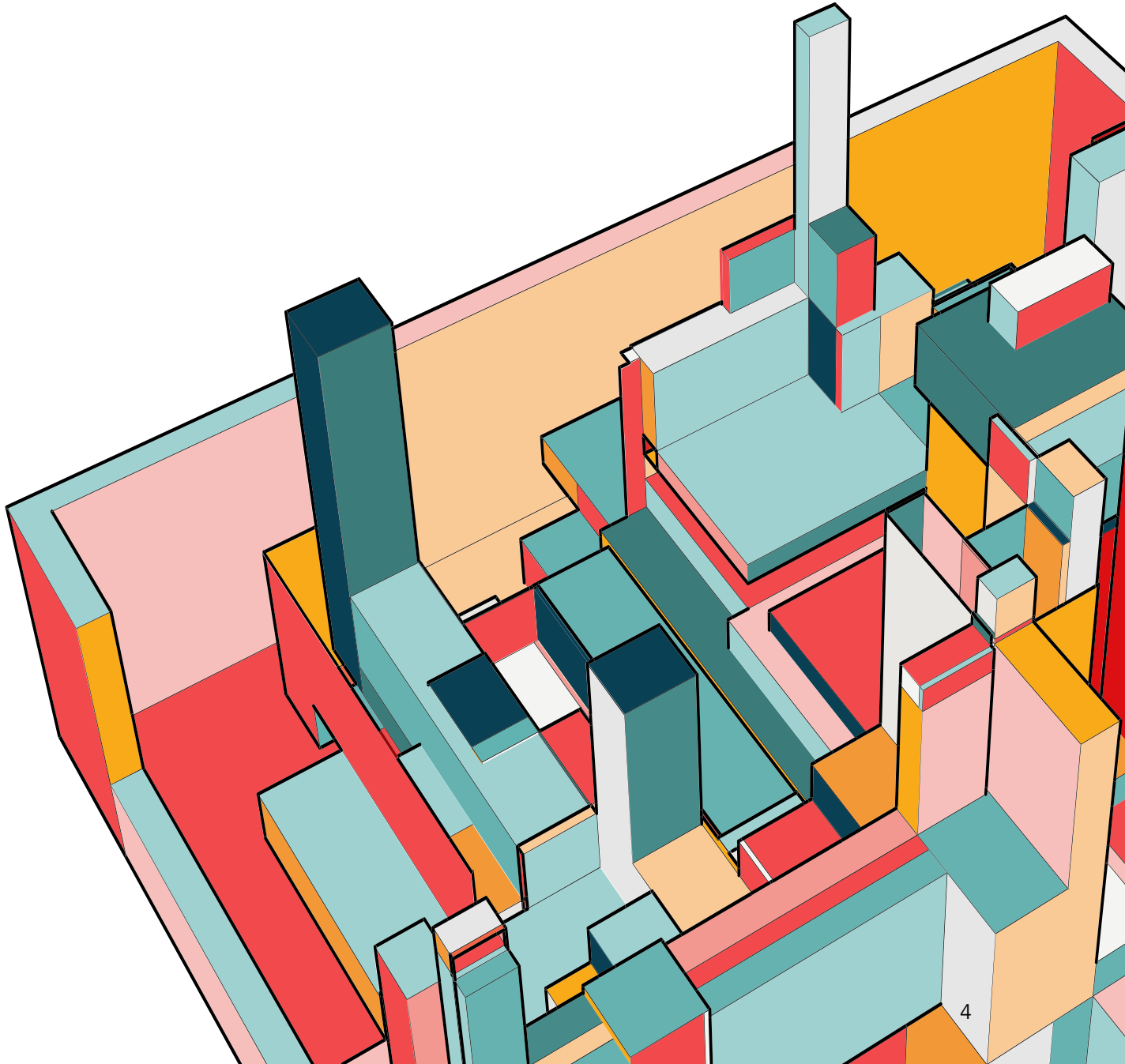
Table of Contents

Challenges in the Ride-Sharing Industry

1. Cost Problems due to the middle man:
2. Insufficient Transparency:
3. Lack of Data Security and Privacy Mechanisms:
4. Exploitation of Employees by Companies:
5. Trust-based Centralization:

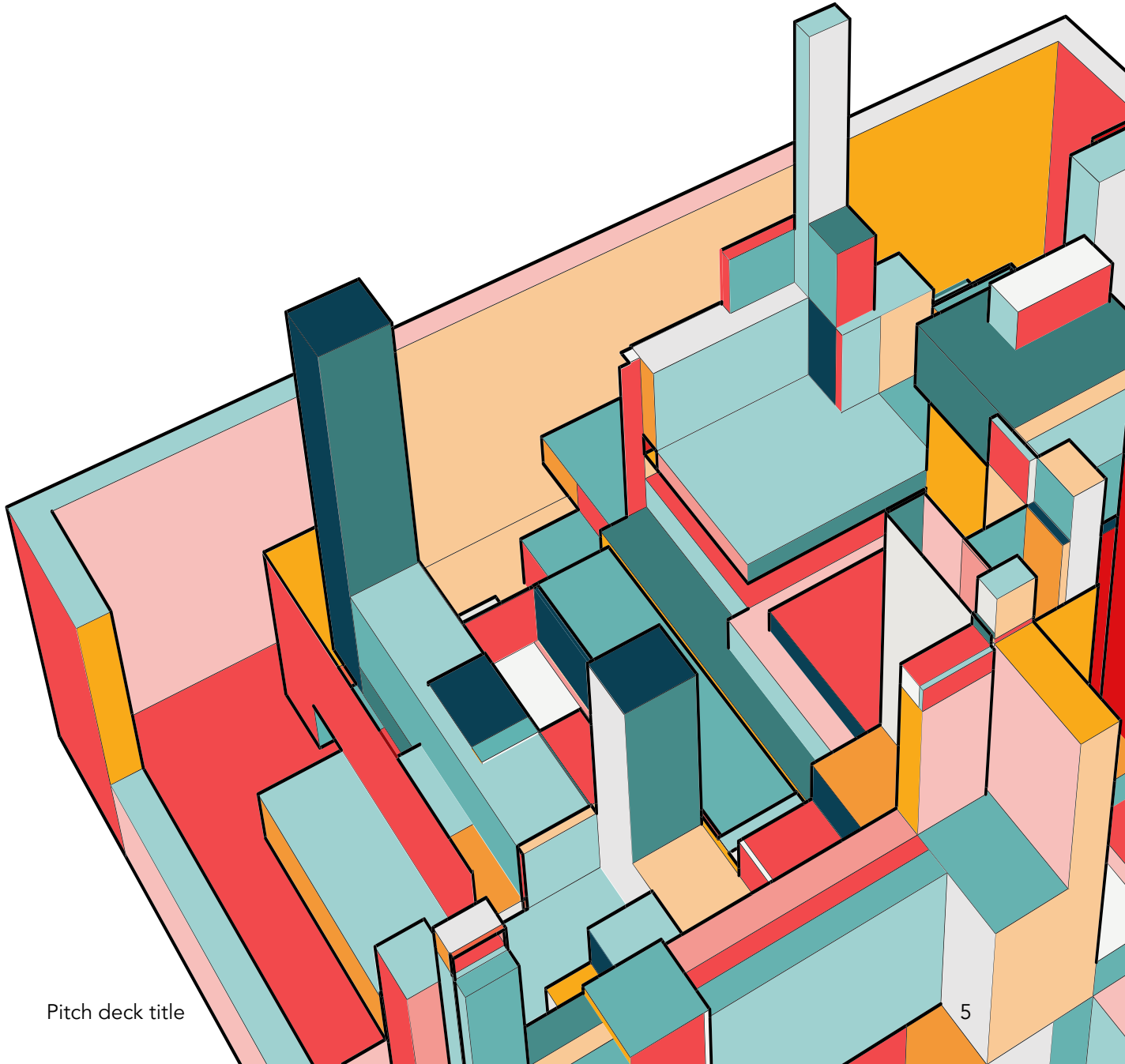
Why Blockchain

The blockchain is the underlying technology behind the success of cryptocurrencies. It acts as a data structure that holds various records and while ensuring utmost security, transparency, and decentralization. While creating, storing and facilitating transactions of cryptocurrencies is one of the applications of Blockchain technology, there are numerous other.



PEER TO PEER CAR POOLING

Decentralized ride sharing on the Ethereum blockchain. The project contains the frontend website and backend Ethereum Smart Contract to deploy and run the decentralized ride sharing application.



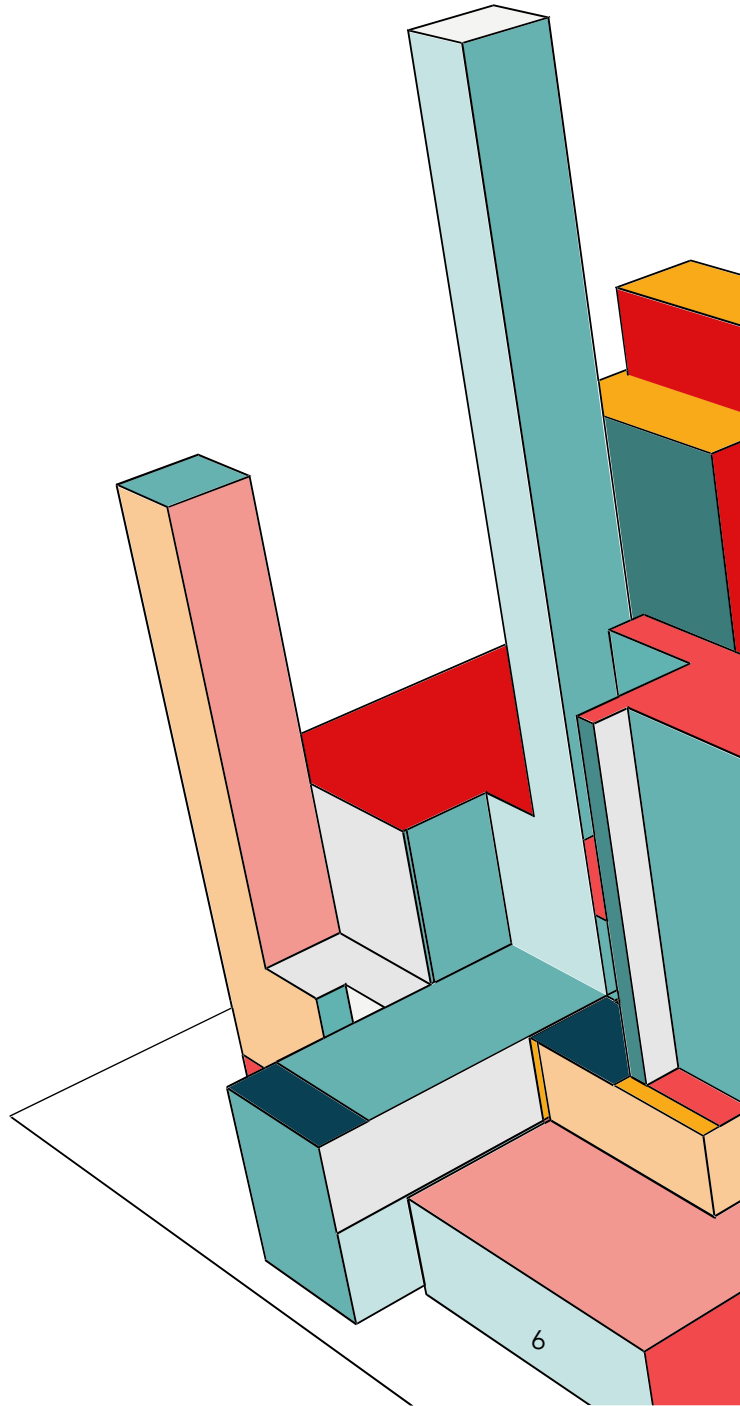
PROBLEM STATEMENT

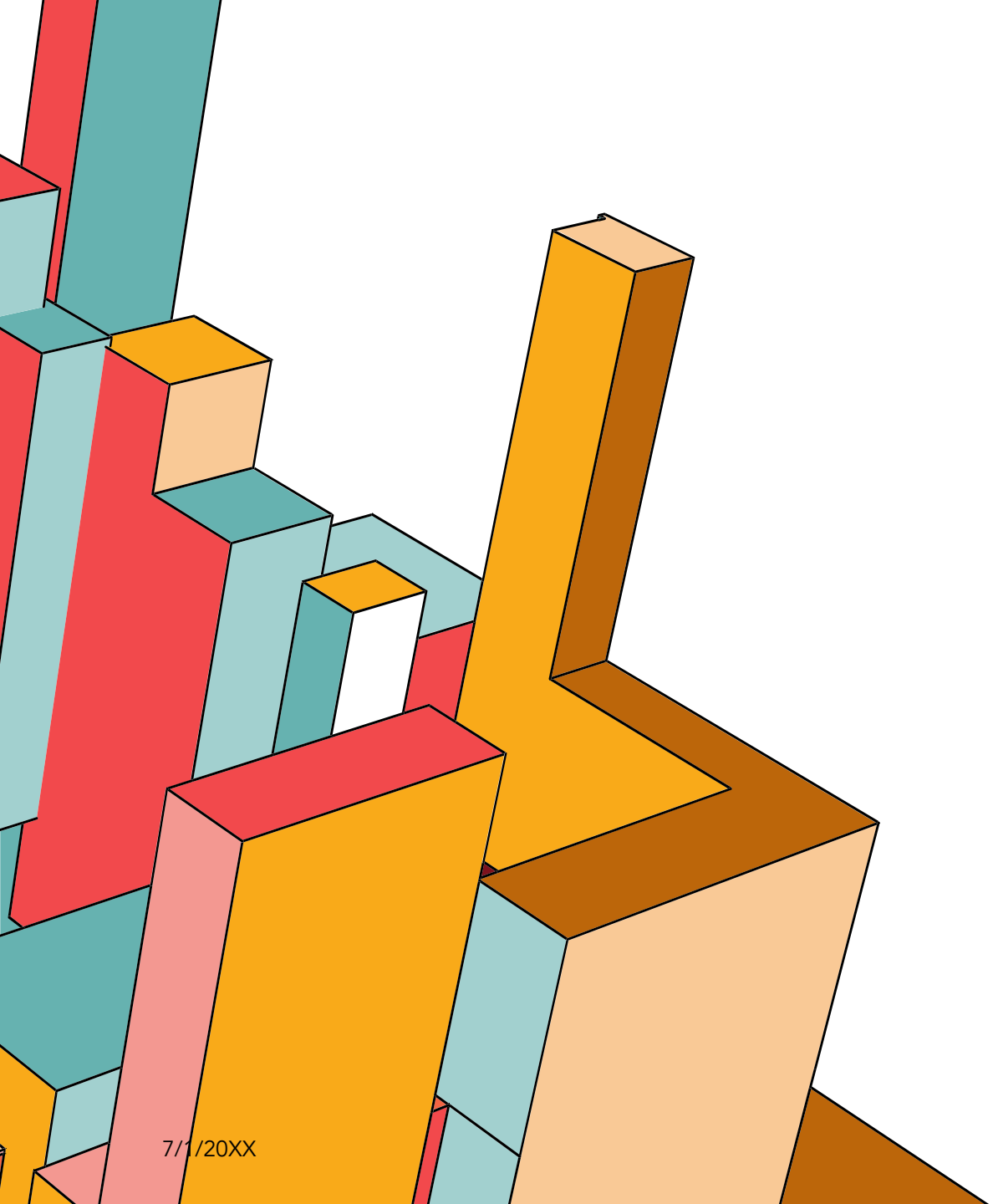
PROBLEM

Most car pooling systems and radio cab facilities come with the middleman the agency itself controlling transactions from both the riders and the drivers this limits to the agencies as they play the major role in connecting riders to drivers

Objectives

- Allow passengers to register.
- Allow for payment of passenger to driver without third party associates.
- Allow for verification of payment and generations of reports.





WORKING PRINCIPLE

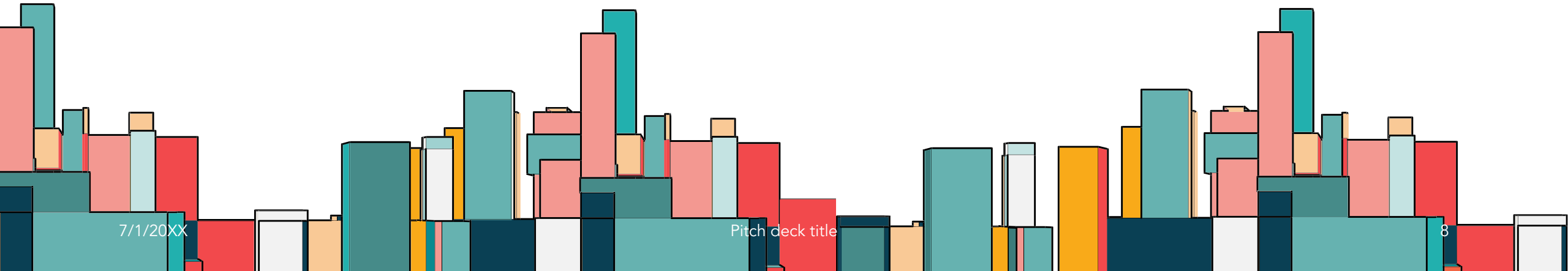
1. The working principle is that a blockchain is a decentralized network which therefore does not require central control and regulation and even prevents centralized intervention.

2. Nowadays, substantial efforts made by many organizations, from distinct economic sectors, which are using blockchain technology to develop very innovative applications.

3. We propose a blockchain based peer-to-peer car pooling system that has the potential to save the major limitations and issues associated.

SMART CONTRACT

- Contract is like a program, which runs on the blockchain and has its correct execution enforced by consensus protocol.
- A smart contract can encode any set of rules represented in its programming language. Accordingly, a good contract can implement a wide range of applications including financial tools and self-enforcing management.
- The main objective are to satisfy common contractual conditions, minimize both malicious and accidental events, and minimize the need for trusted intermediaries.
- Related economic goals include lowering fraud laws arbitrations and enforcement costs.
- Typically, blockchain is a network composed of set of nodes, named miners or validators, which are responsible for keeping trustworthy records of all transactions using a consensus algorithm in a trustless environment .



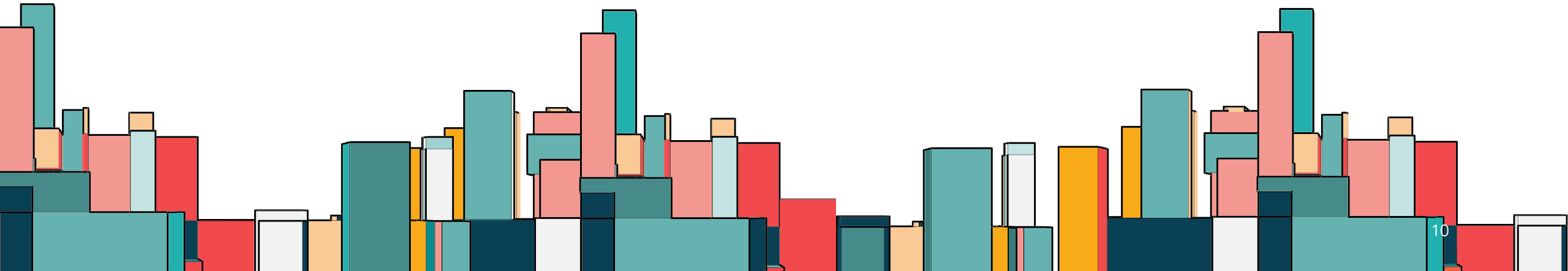
CONSENSUS PROTOCOL

- Consensus a protocol is the mechanism that allows a decentralized network to arrive at an arrangement about the state of the blockchain and forces all nodes to behave accordingly to the network to the network principles.
- By using a consensus protocol the blockchain eliminates the need to trust or rely upon a centralized authority .
- The protocol rewards the community for properly maintaining the consensus allowing greater recording and processing power in an incentive and typically competitive manner.

SMART CONTRACT

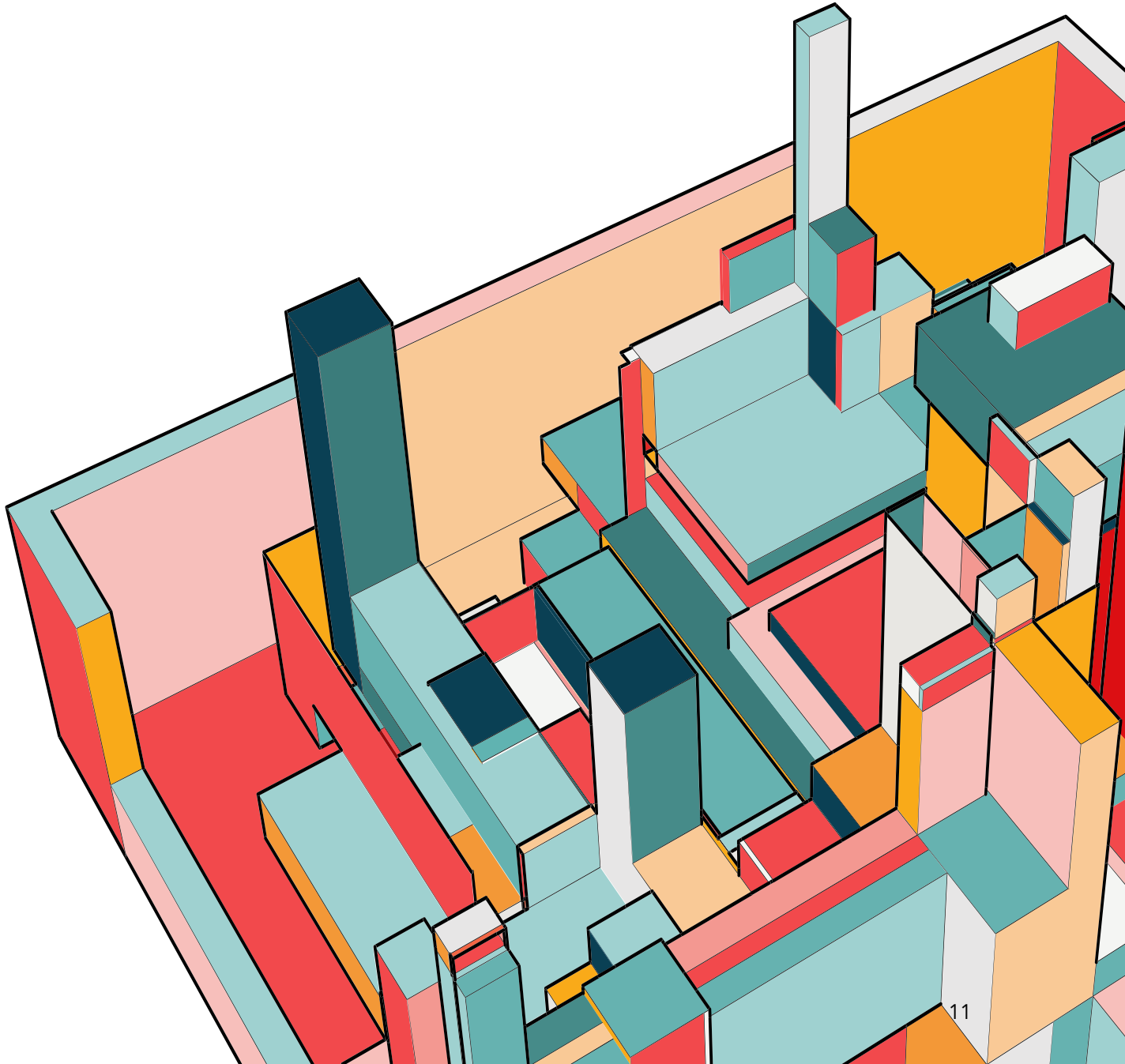
The major functions in the smart contract are :

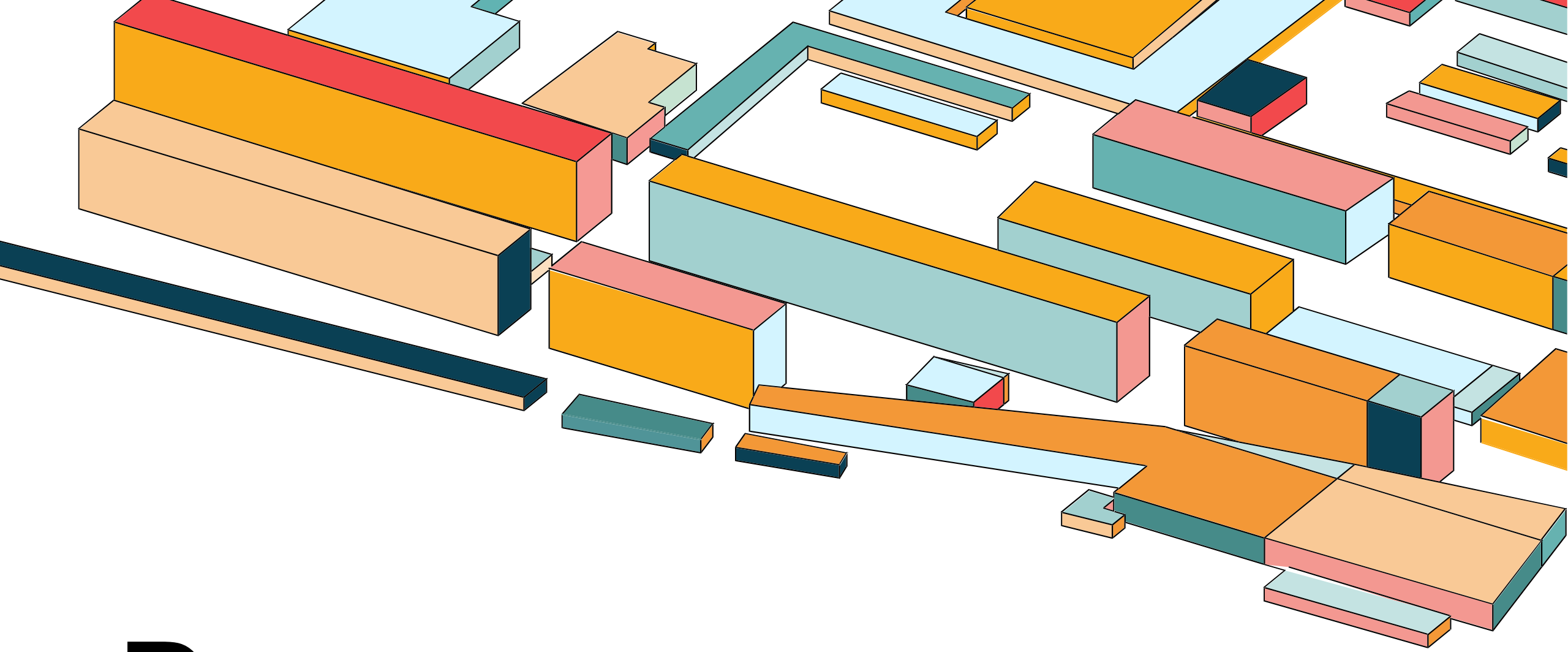
- driveRequest( ) // Create a new ride request
- rideRequest( ) // Request for a new ride
- pickRider( ) // Initiate a handshake between driver and rider
- payDriver( ) // transfer wei's in the blockchain once ride is completed
- userReset( ) // create a new block for a new ride



Ganache Framework

- Ganache is actually a component of the Truffle Suite framework along with the other components, Truffle and Drizzle.
- The biggest advantages of using Ganache smart contract development would refer to the facility for developing, testing, and deploying your smart contracts and dApp projects in a deterministic and safe environment.
- Ganache offers two significant advantages in ensuring savings of money and time.





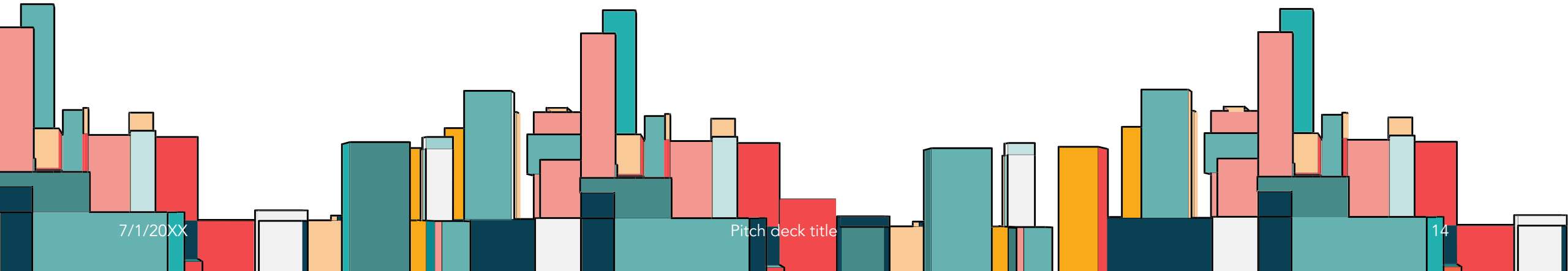
Demo


Recorded on
screencapture.com

FUTURE DEVELOPMENT

- The application that we built with blockchain technology performs some functionality, but since we couldn’t launch and deploy it to the main network (which would cost some of our own money), it would be the next main thing.

- We would’ve also loved to add a history feature for our users, so they can review their previous transactions and possible refund them.



THANK YOU