Car Rental using Blockchain

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Introduction:

The idea for this project was generated after coming across privacy issues relating to the drivers who provide their services to companies like Turo, Enterprise and Zipcar. Whenever an owner of a car wants to provide their car for rental service to customers and earn money from the same usually the owners register with Turo, Enterprise or Zipcar. This leads to accumulation of data of the owner and vehicle with these companies which later can cause privacy issues in case of data leak. Sensitive data related to owner information, vehicle registration information, insurance information is provided to these companies and can be risky in case of data leaks. The customer also must provide their information including details related to license and personal details while registering and creating profile with these services. To avoid providing sensitive information to the middle man or third party apps, we have made use of blockchain to avoid this and directly connect between the owner of car and customer needing rental service. This eliminates need of middleman and makes transactions more secure.

Details of Project:

The project works on the base of contracts and uses blockchain technology for secure transactions. The method of payment used is Ethereum in the transaction made while using the service between owner and renter. Initially a block is created- genesis block which holds information about the smart contract between owner and customer. First the owner of the vehicle creates a contract which contains information about the car, rate of rental and other necessary details. The contract also has a payment gateway where after the rental is completed the Ethereum will be received. On the other hand, the customer contract contains necessary details like customer id and required number of days for car rental. The owner will post the information or contract on blockchain block. The customer requiring the rental service will look up the contract and request any car they want to rent. Once the request is made the block is updated and proof of work is used to validate the information requested by the customer or contract is valid or not. If it is determined that the contract is valid the transaction goes through, and the car is booked.

When the trip ends, and the customer ends the trip the blockchain updates the contract and the payment goes through. The mode of payment is Ethereum which is deducted from the

customer’s account and automatically deposited in the owner’s account. The proof of work only passes the contract if the necessary balance is present in the customer account. In the end at end of trip the blockchain updates again making the owners contract free for other transaction meaning the car is back in market for rent, and new customers can now rent the car. We have also implemented blockchain functionalities like proof of work, mining, adding new block to chain, adding transactions.

Achievement:

In the end after complete implementation we were able to build a car rental system which solves the issues related to owner and customer privacy by making use of smart contract, that will be used to perform transaction on blockchain. This also eliminated the need for third-party apps or middleman for car rental service, in turn making sure that these companies or so called middleman do not get information, leading to more secure and private transactions for car rental system.