A decentralized transaction process in a ridesharing system using Blockchain

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Background:

Ridesharing is a service that arranges one-way transportation on short notice. In our day-to-day life ridesharing became an essential way of managing transport to go to office, university, shopping or anywhere. With the advancement of technology, we are moving towards a cashless society as it is a hassle to carry cash around and not always secure because of pickpocketing. Also using credit card or online transaction systems to pay the driver is not always convenient or secure as there could be credit fraud, or unauthorized transaction besides the transaction fees takes a huge amount of cut which is not fair for the rider always. Decentralized transaction system helps reduce these points of weaknesses and also provides a lot more security than regular transaction systems. We can achieve this using Blockchain technology.

Problem Statement:

- **Security:** Centralized ridesharing systems has vulnerabilities such as data breaching which could leave their user's unsafe and users (riders) can lose their fraction of the payment or not get it at all.
- **Payment Delay:** Regular ridesharing system's pays their riders after a certain time of their payment being completed by the passengers. Which could be days in some time as it takes time for some processing in the system owner's end or bank processing times. It is not convenient or fair to the rider to wait for one's deserved payment for that long.
- **Transaction fee:** Transaction fees or commission taken by most of the ridesharing organization is huge compared to the earnings of a driver. Most of the times it is in the range of 25-30% cut from the actual payment which is unfair for the drivers.

Proposed Solution:

We are proposing a solution of previously stated problems using Blockchain. Blockchain technology offers a way to make life and work easier, regardless of the industry or class, and the ride-sharing industry is one a lot of disruptors and companies in the blockchain space are looking to become major players in. There is no third-party involvement in the process so the rider doesn't have to give any expanse of his payment to anyone. Also, as it is a distributed network it is more public and secure. Also, for being decentralized it creates a trustless environment meaning no one has to know anyone else. Each member has their own copy of the network in form of a distributed ledger. Decentralization can also help optimize the distribution of resources so that promised services are provided with better performance and consistency,

Objectives:

- To ensure security and anonymity.
- To make the transaction system cost-efficient.
- To avoid delay in payment.
- To maintain transparency.

Methodology:

1. **Background Study:** Studying relevant research work is very important. We will study various papers related to our topic and make a plan for this research.
2. **Know about Blockchain:** Knowing how blockchain works. What blockchain is built upon.
3. **Private and Public Blockchain:** Knowing about public and private blockchain for using in the project like Ethereum or Hyperledger Fabric.
4. **Smart Contracts:** To know about smart contracts used in Blockchain and is used for interchain communication.

Expected Result:

A secure system based on Blockchain for making payment system more secure and efficient for ridesharing.