Decentralized Energy Platform

Jatin Jha

- Blockchain Development Student-*GBC*.
- 5 years of experience in Web development(Javascript frameworks i.e Node.js,Angular,MongoDB,AWS).
- Transitioning into Web 3.0.

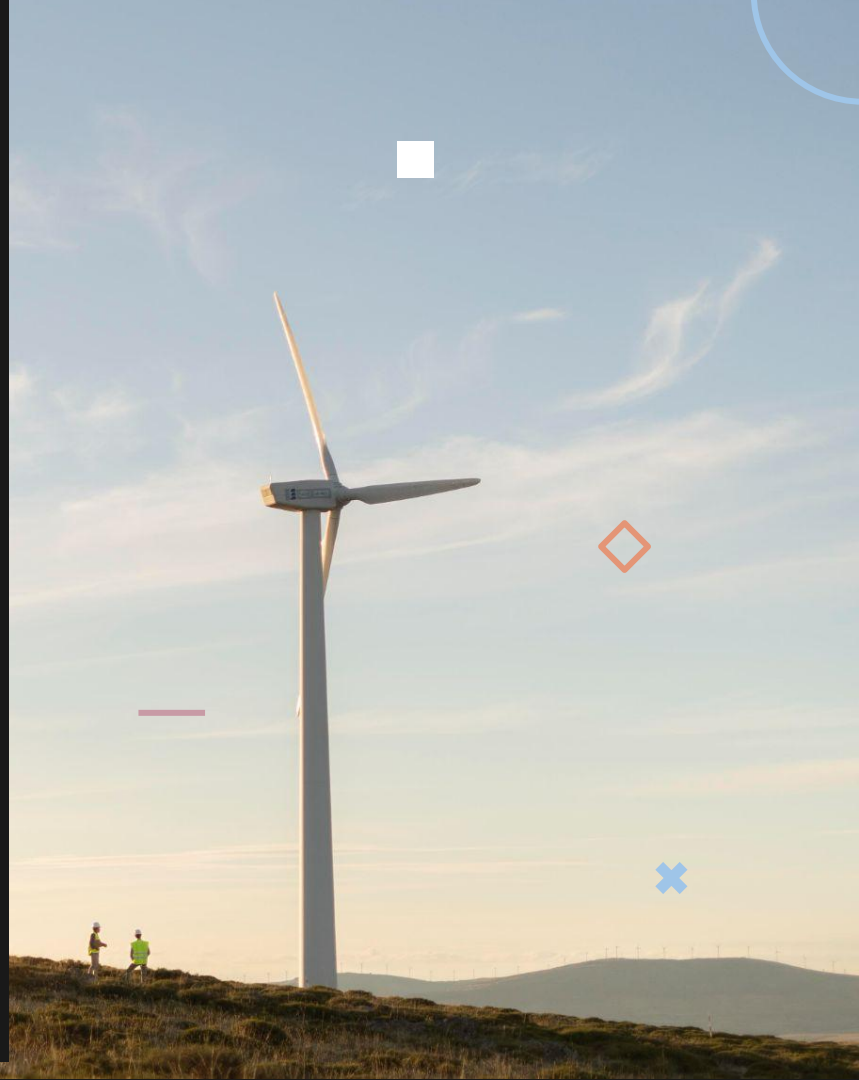
Problems

1. Vulnerability to Disruptions
2. Limited Flexibility
3. **Lack of innovation**
4. Lack of Local Control

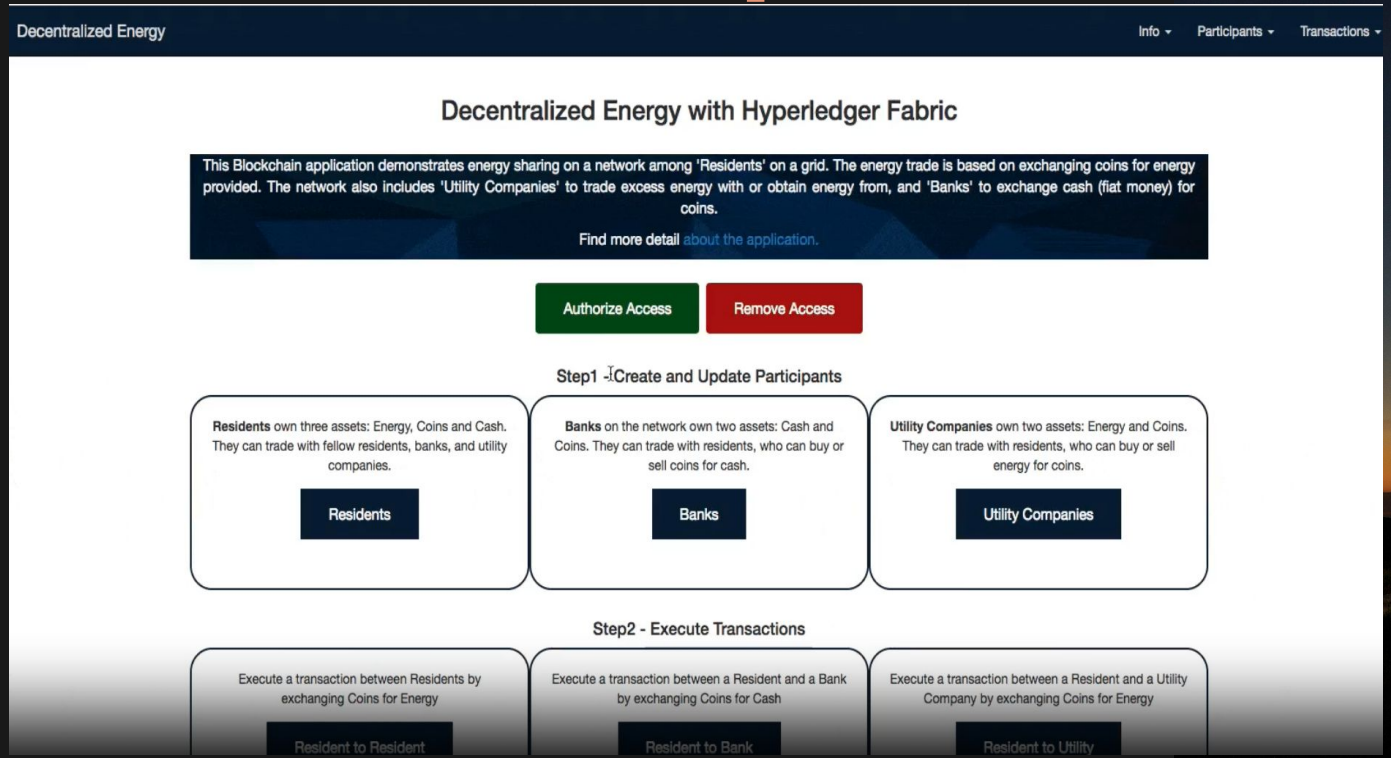
Solutions

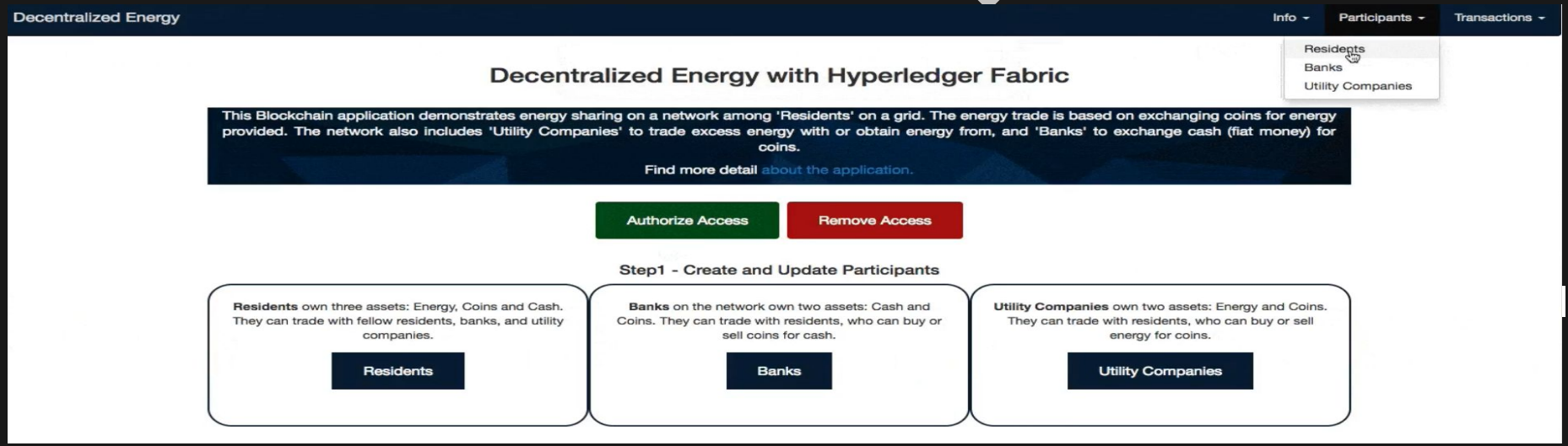
Decentralized energy platforms offer a range of solutions for various energy-related challenges. Here are some of the solutions that decentralized energy platforms can provide:

- Energy Security.
- Flexibility.
- Integration of Renewable Energy..
- Lower Transmission Costs.
- Local Control.



Mock-up


Decentralized Energy
Info
Participants
Transactions
Decentralized Energy with Hyperledger Fabric
This Blockchain application demonstrates energy sharing on a network among 'Residents' on a grid. The energy trade is based on exchanging coins for energy provided. The network also includes 'Utility Companies' to trade excess energy with or obtain energy from, and 'Banks' to exchange cash (fiat money) for coins.
Find more detail about the application.
Authorize Access
Remove Access
Step1 - Create and Update Participants
Residents own three assets: Energy, Coins and Cash. They can trade with fellow residents, banks, and utility companies.
Residents
Banks on the network own two assets: Cash and Coins. They can trade with residents, who can buy or sell coins for cash.
Banks
Utility Companies own two assets: Energy and Coins. They can trade with residents, who can buy or sell energy for coins.
Utility Companies
Step2 - Execute Transactions
Execute a transaction between Residents by exchanging Coins for Energy
Resident to Resident
Execute a transaction between a Resident and a Bank by exchanging Coins for Cash
Resident to Bank
Execute a transaction between a Resident and a Utility Company by exchanging Coins for Energy
Resident to Utility


Decentralized Energy
Info
Participants
Transactions
Residents
Banks
Utility Companies
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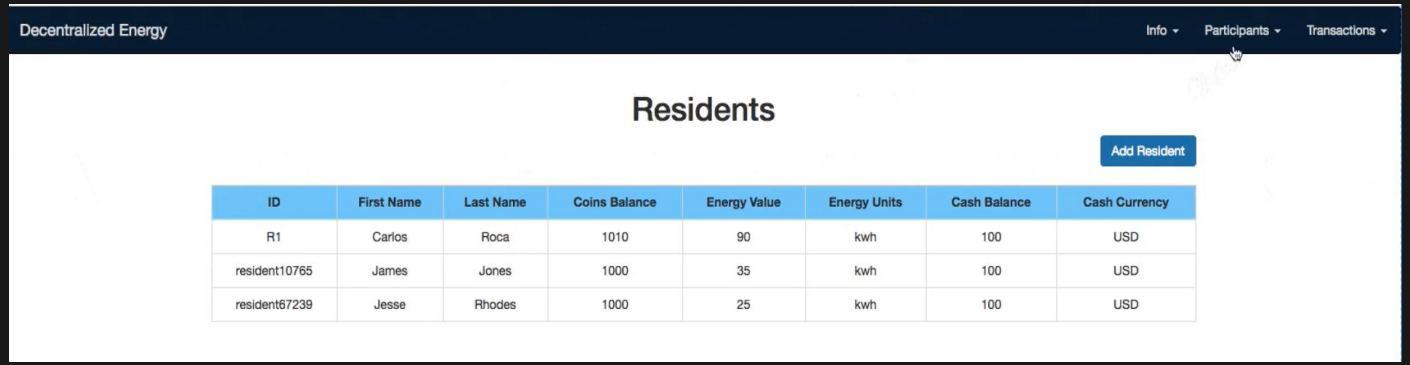

Decentralized Energy
Info
Participants
Transactions
Residents
Add Resident
ID
First Name
Last Name
Coins Balance
Energy Value
Energy Units
Cash Balance
Cash Currency
R1
Carlos
Roca
1010
90
kwh
100
USD
resident10765
James
Jones
1000
35
kwh
100
USD
resident67239
Jesse
Rhodes
1000
25
kwh
100
USD

Banks

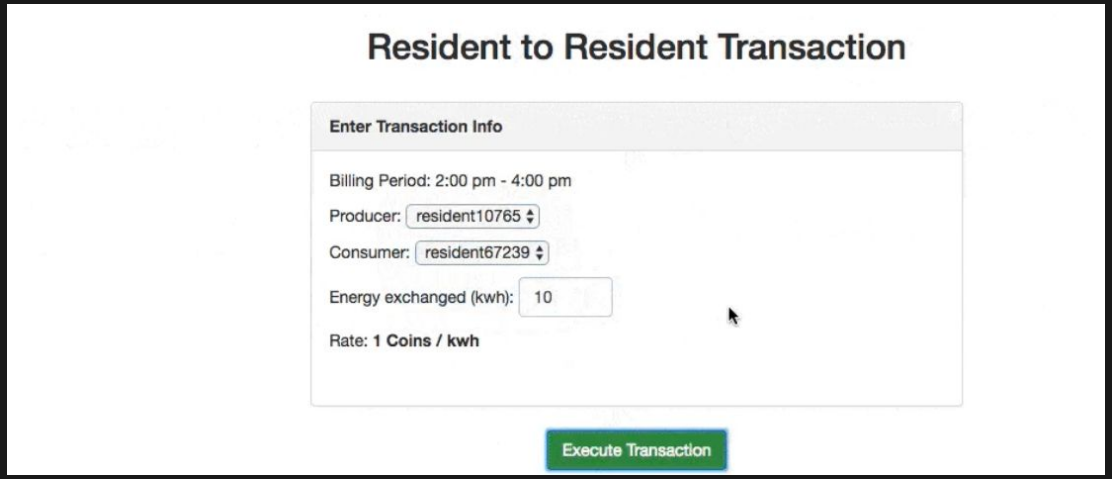
Add Bank

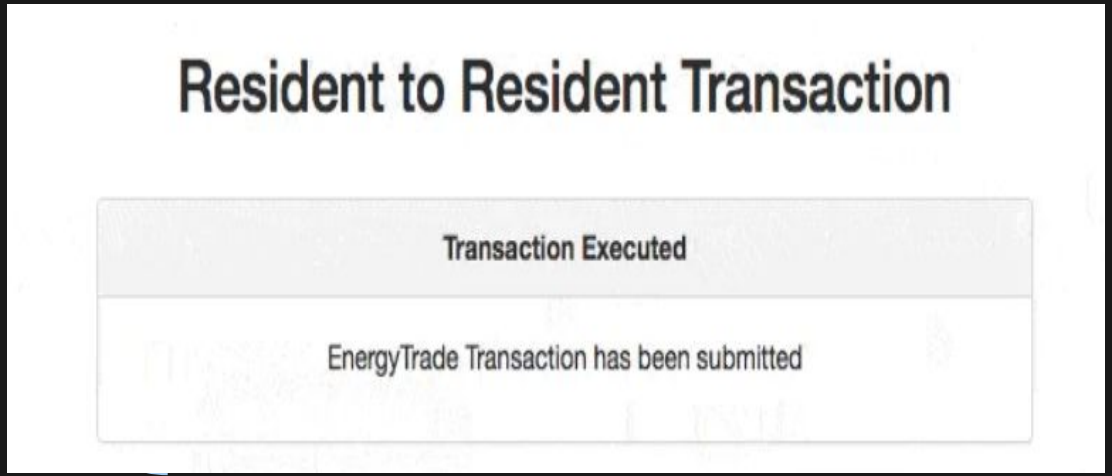
Bank ID	Bank Name	Coins Balance	Cash Balance	Cash Currency
B1	UNITED	10000	1000	USD

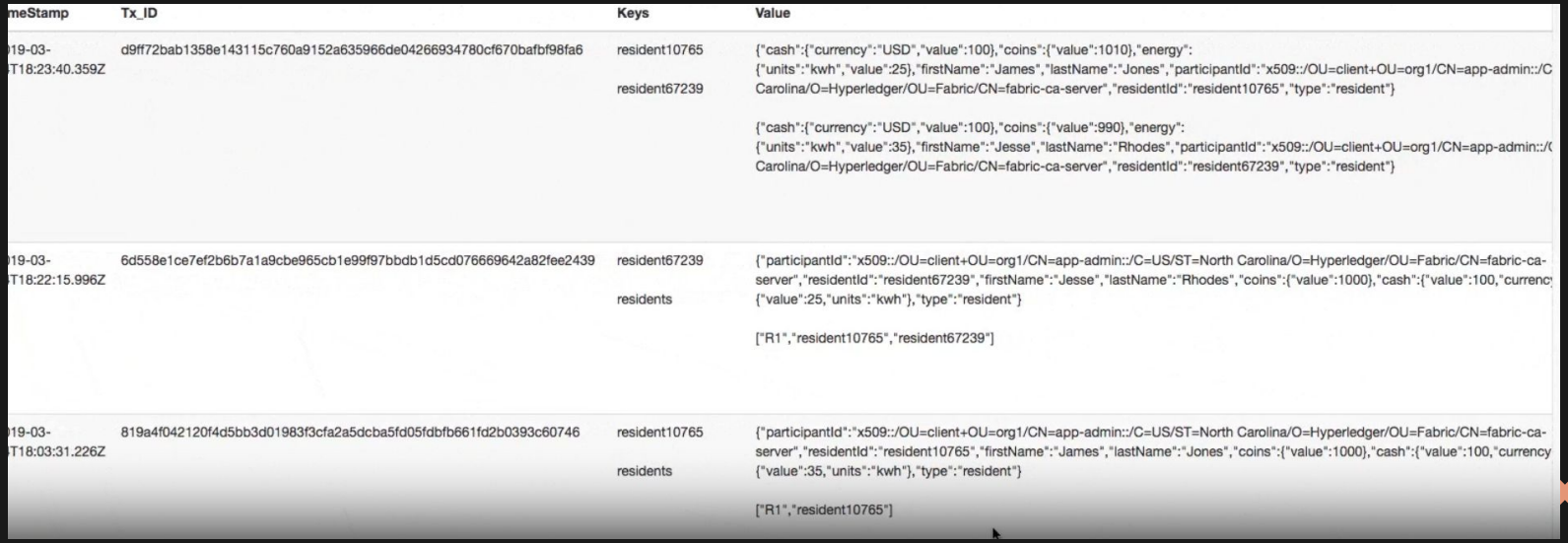
Utility Companies

Add UtilityCompany

ID	Name	Coins Balance	Energy Value	Energy Units
U1	United	9990	110	kwh


Resident to Resident Transaction
Enter Transaction Info
Billing Period: 2:00 pm - 4:00 pm
Producer: resident10765
Consumer: resident67239
Energy exchanged (kwh): 10
Rate: 1 Coins / kwh
Execute Transaction


Resident to Resident Transaction
Transaction Executed
EnergyTrade Transaction has been submitted

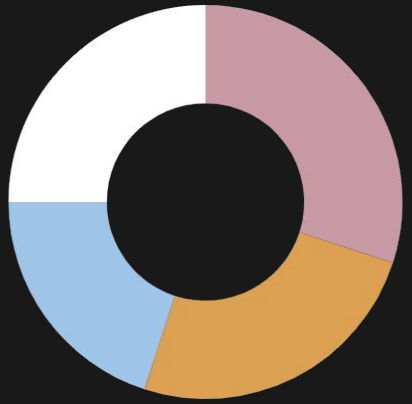


meStamp	Tx_ID	Keys	Value
019-03- T18:23:40.359Z	d9ff72bab1358e143115c760a9152a635966de04266934780cf670bafbf98fa6	resident10765 resident67239	{"cash":{"currency":"USD","value":100},"coins":{"value":1010},"energy": {"units":"kwh","value":25},"firstName":"James","lastName":"Jones","participantId":"x509::/OU=client+OU=org1/CN=app-admin::/C Carolina/O=Hyperledger/OU=Fabric/CN=fabric-ca-server","residentId":"resident10765","type":"resident"} {"cash":{"currency":"USD","value":100},"coins":{"value":990},"energy": {"units":"kwh","value":35},"firstName":"Jesse","lastName":"Rhodes","participantId":"x509::/OU=client+OU=org1/CN=app-admin::/(Carolina/O=Hyperledger/OU=Fabric/CN=fabric-ca-server","residentId":"resident67239","type":"resident"}
019-03- T18:22:15.996Z	6d558e1ce7ef2b6b7a1a9cbe965cb1e99f97bbdb1d5cd076669642a82fee2439	resident67239 residents	{"participantId":"x509::/OU=client+OU=org1/CN=app-admin::/C=US/ST=North Carolina/O=Hyperledger/OU=Fabric/CN=fabric-ca- server","residentId":"resident67239","firstName":"Jesse","lastName":"Rhodes","coins":{"value":1000},"cash":{"value":100,"currenc {"value":25,"units":"kwh"},"type":"resident"} ["R1","resident10765","resident67239"]
019-03- T18:03:31.226Z	819a4f042120f4d5bb3d01983f3cfa2a5dcba5fd05fdbfb661fd2b0393c60746	resident10765 residents	{"participantId":"x509::/OU=client+OU=org1/CN=app-admin::/C=US/ST=North Carolina/O=Hyperledger/OU=Fabric/CN=fabric-ca- server","residentId":"resident10765","firstName":"James","lastName":"Jones","coins":{"value":1000},"cash":{"value":100,"currency {"value":35,"units":"kwh"},"type":"resident"} ["R1","resident10765"]

Market Opportunity

25%
Demand response

20%
Microgrids



30%
Off-grid

20%
Energy trading

Thanks!

Do you have any questions?

jatin.anj88@gmail..com
+16478034814
https://www.linkedin.com/in/jatin-madan-43a77096/