

Draft 2: Design of micro grids with reduced no of Hops.

Inspiration:

The main purpose of micro grids is that anyone can get energy from anywhere. Our main inspiration comes from how trees data structures work(Ex: Binary ,K-ary tree etc...).

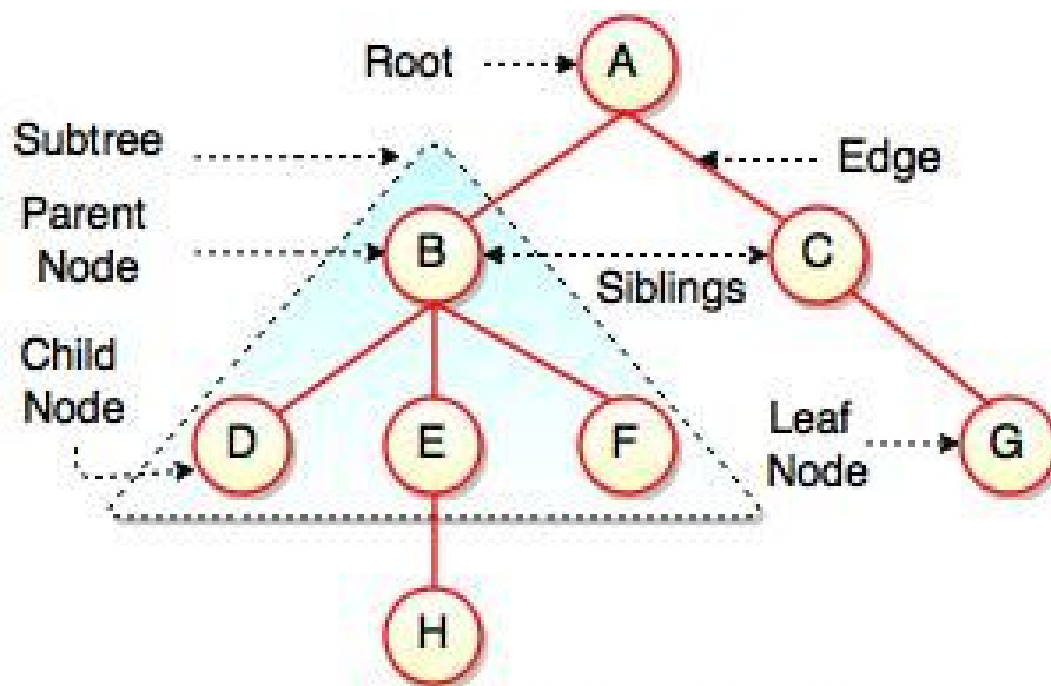


Fig. Structure of Tree

Real life scenario:

My fake name is Tim Raw and I live a villa and I get energy friend Steve Jobless and both of us live in the same locality. To ensure this can take place we would both would need to have a battery and a main battery to ensure the transaction(You will see why later). Imagine mine and Steve jobless batteries are children in the tree and the transaction battery is a parent. All I would need to do is send to energy to the transaction and Steve Jobless would need to pull energy from the transaction battery.

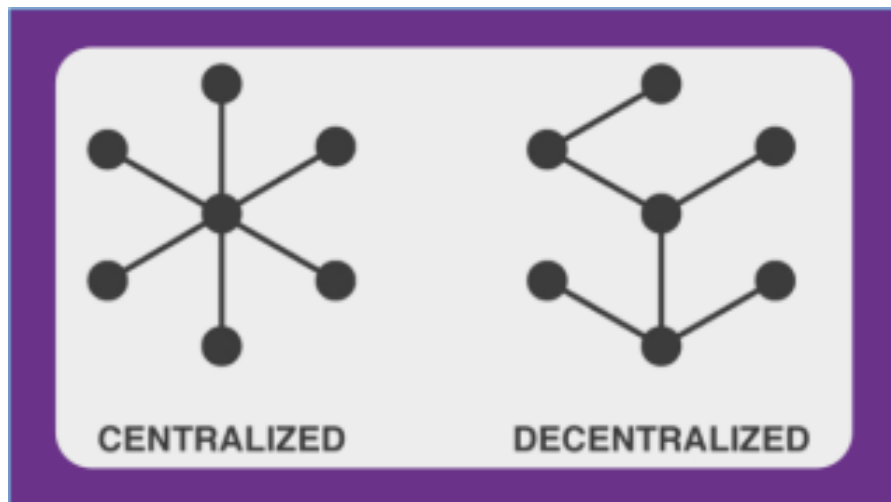
Why do we need to have a transaction battery?

I locality is going to have a bunch of houses and hopping through a bunch of houses will reduce battery duration in those houses and also cause more power loss. This can be fixed by just forwarding and receiving power all from just one transactional battery per locality. The number of nodes a transactional can host depends based on the battery type used. To make sure there is no power loss a transactional battery can be hooked up with solar or most prominent renewable power source available in that area to compensate for this problem.

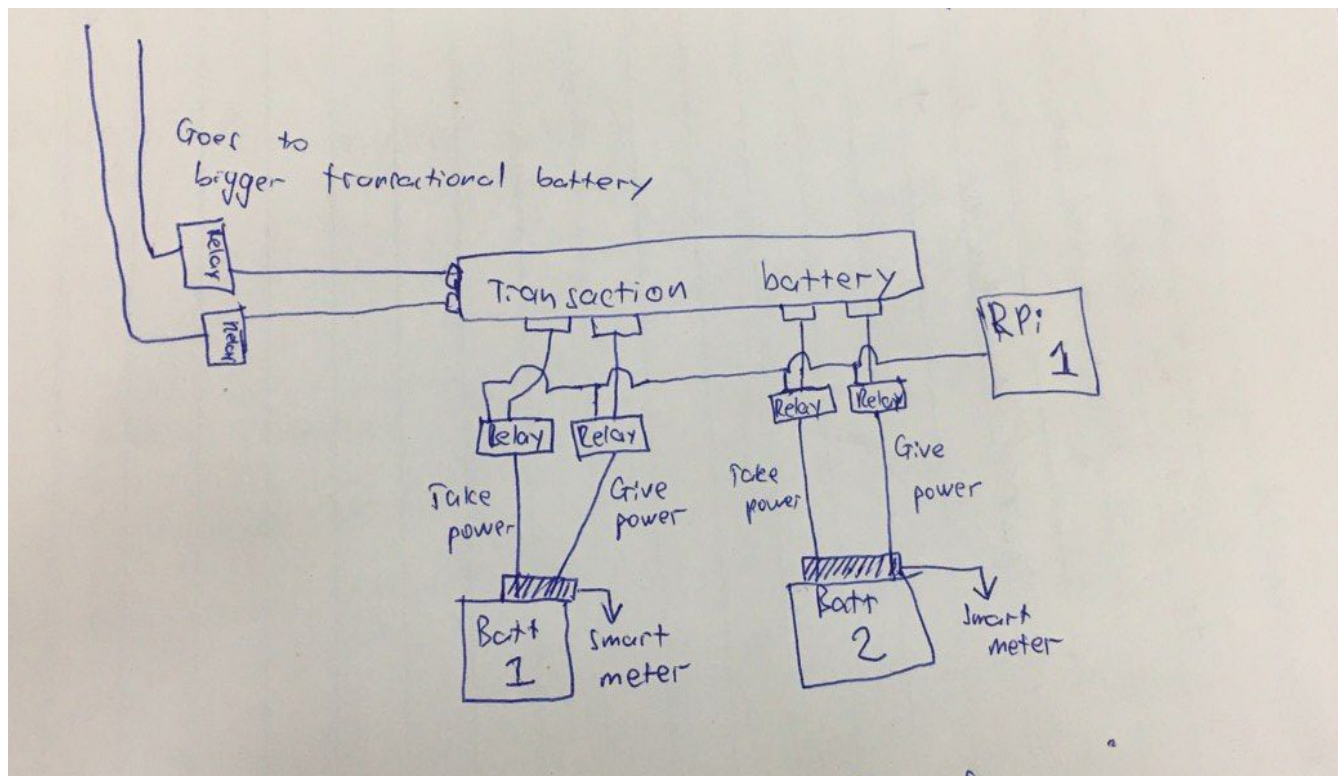
Note that this same system can be used for car charging stations , solar farms and is just a physical layer power transfer system that can easily scale and follows the core purpose of a micro grid.

Lower Abstracted Explanation :

Now this entire system needs a computer to govern it. The system does not need AI. We would need very simple computers to run the system (Even a raspberry pi would work in most cases). We are hoping that researchers and developers of different levels would find ways to create simple computers using only recycled parts. The system can run using centralized servers or using decentralized protocols like IPFS (Note that blockchain is just a type of a decentralized strategy).



Ex: Each house would have a node that is connected to a smart meter and can also report battery information to the users and each house would also have 2 relays that would let power go back and forth. The transactional battery would also have a node that is connected to all relays in the network. So when we want to transfer power from house to another we just need to tell the transactional battery computer to open the appropriate relays.



(Diagrammatic representation of how it would look like)

Why do we need trees:

Imagine a state that has multiple microgrids and to ensure that we can transfer energy from one micro grid to another we can scale it up the same way we thought of transferring energy from one house to another i.e transactional battery connected to another transactional battery of a higher level.

