CRII: CPS: Internet-Inspired Autonomous EV Charging

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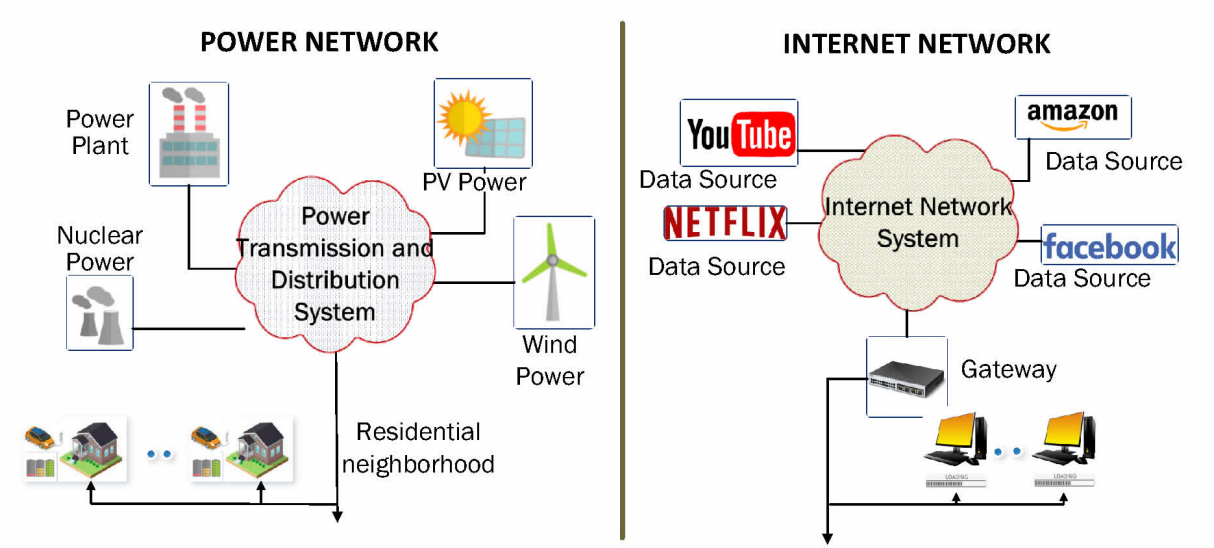
Description

Electric vehicles (EVs) must safely integrate to the grid operation and scale up without disruption. [Internet Example]

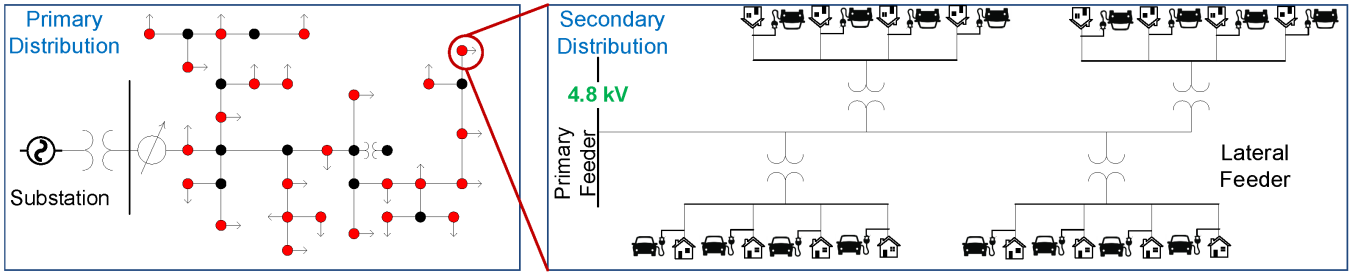


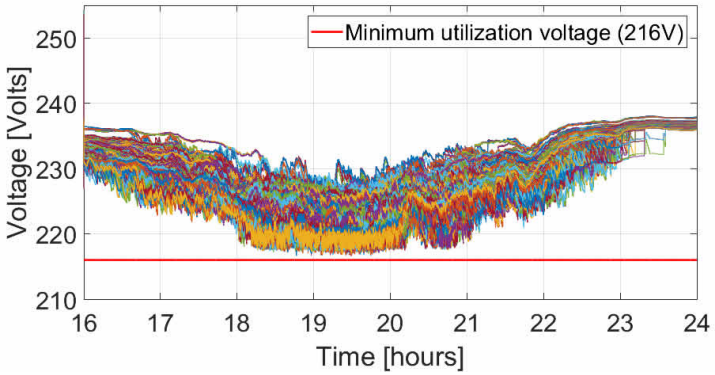
Goals of This Project:

- Investigate distribution grid congestion through field data collection
- Design of entirely decentralized and localized EV charging algorithms that work autonomously
- Develop a **fair** and adaptive charging algorithm very much like AIMD control widely used in Internet operation

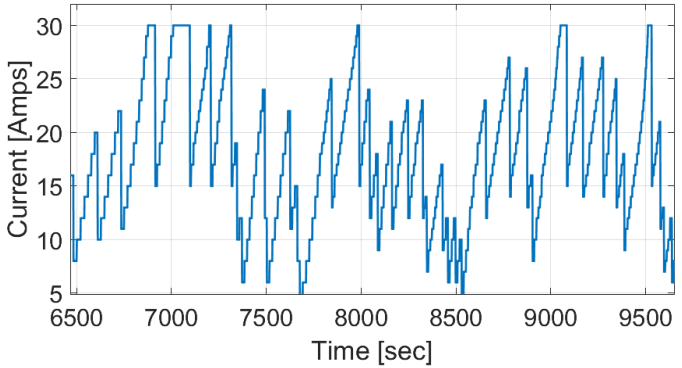
Findings

- Simulated baseline algorithm in IEEE 37-bus test feeder
- Proportional-fair charging is established among EVs with no communication.
- EVs charge as fast as possible with no grid disruption.





100% EV charging without grid disruption.



Constant probing and monitoring of charging current