

Utilization of Renewable Energy using V2H Technology

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Abstract: In recent years, the electric vehicle (EV) sector is growing day by day. Electric vehicles have various advantages as they are more powerful, does not emit pollutant gases like CO₂, CO. It is possible to use solar energy to charge EV's. EV's can act as mobile power reservoirs. This paper analyses the capability of electric vehicles, in Vehicle to Home (V2H) scenarios, for which the vehicle acts as a residential battery storage system and/or a backup generator during a grid outage or more frequent short duration distribution system fault, similar to a stand-alone emergency generator. This paper also proposes the use renewable energy like solar energy to charge batteries of EV. During the S2V operation mode the batteries are charged from the solar with constant current. During the S2H operation mode the power is supplied back to the home. In the vehicle to home (V2H) operation mode the energy from EV's batteries can be used to supply home loads during power outages and/or in emergency condition. The smart IOT based system, app is composed for monitoring battery charging state and switching modes to control system, where the relays control the switching action to adjust power supply modes.

Keywords: Electric Vehicle, V2H, Solar Energy, IOT, Renewable Energy

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