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Design of a Solar Power and Wireless Power Transmission System for Dynamic Electric Vehicle Charging with AI Based Load Forecasting.

Sustainability is an important topic which has grown much interest in the field of Energy and Transportation such as distributing power from renewable sources of energy (solar, wind, hydro, etc.), and utilizing Electric Vehicles (EVs) as a means of transportation to combat global problems dealing with global warming and sustainability. Another technology that is growing in popularity is Wireless Power Transmission (WPT) systems to provide contactless solutions to supplying power to EVs, and can be useful to supply power dynamically to an EV which is in motion. Lastly, these systems can be improved by implementing monitoring and forecasting to optimally determine how much power needs to be supplied over a period of time. Artificial Intelligence can be implemented using Artificial Neural Networks (ANN), or Recurrent Neural Networks (RNN) to be able to learn from voltage, current, and power measurements while it is changing over time to forecast load demands from a power system to EVs. For this research, a Solar Power system will be implemented to supply power to EVs dynamically using a WPT system that will be used to monitor when a car is detected to supply power when needed. Finally, the data from the system will be used to train an RNN to forecast the load demands of the system using simulations of the system to collect enough data to ensure optimal performance of the model.