**Solar Energy Prediction and Allocation Recommendation for Smart Homes**

Problem Statement:

Solar Energy is the energy source of the future but there exist no systems for maximizing usage of this energy by smart prediction and dynamic allocation. Create such a system for effective use of small-scale solar panels for Smart Homes.

Abstract:

Solar Energy systems are an important source of renewable energy generation. Solar intensity is directly proportional to solar power generation and solar power generation is highly dependent on weather fluctuations. The model is proposed that predicts the amounts of solar power generation using weather information provided using deep learning techniques such as Fully Connected Neural Networks and Convolutional Neural Networks. The results allow us to make effective energy consumption plans for smart homes with efficient utilization of solar energy which may provide several economic benefits. Additionally, accurate forecasts would make users more prepared to switch between conventional and renewable sources as required. We aim to obtain the total energy consumption of a home and to lay the groundwork for constructing models that could be dispatched to various regions, incorporate that geographic locations weather data, and output accurate predictions for that areas solar power production. This prediction can be used for dynamic recommendation system for all solar devices in the smart home.

Objectives:

* To use weather data to obtain accurate Solar Energy Predictions.
* To use Solar Energy predictions to dynamically recommend distribution and usage of the Solar Energy amongst all Solar Devices in the home.
* To tune dynamic parameters of a Solar Panel to maximize Solar Energy Generation.
* To use this system to maximize savings by efficient use of Energy.