ABSTRACT

Solar Radiation has an adverse effect on human being and also on Earth. Sunburn, Immunodepression, Photo-carcinogenesis are some of the most significant adverse effects of solar Radiation. On average yearly 60000 people died due to solar radiation. The paradigm of renewable energy has been increasing in popularity in recent years. This is due to the acceleration of global warming and its effects that are visible quite clearly on the rising sea levels and the melting ice caps. Therefore, the governments have been providing incentives to shift to a much more renewable source of energy other than the fossil fuels that are predominant nowadays. This has led to increased applications of renewable energy that are being used by a large number of organizations and individuals.

One of the most common forms of renewable energy sources is solar energy. As we know the harvesting of solar energy is purely based on the amount of solar radiation obtained on that particular given day. Hence, the early prediction of solar energy harvesting can boost the production of the same. The dataset consist of solar radiation is collected from Turkey and accesses by Kaggle. The dataset contains 35000 instances and 18 attributes. The dataset is trained by using machine learning algorithms.

Machine learning algorithm plays an important role in the prediction mechanism. The LSTM and the Extreme Gradient Boosting (XG Boost) algorithms have been implemented on solar radiation dataset to predict the solar radiation output. LSTM plays an important role in handling time series data which uses a machine learning model to predict the results.

The XGBoost method perform with more efficiency than LSTM with an accuracy of 89%.