**AIR‑POLLUTION PREDICTION IN SMART CITY, DEEP LEARNING APPROACH**

**ABSTRACT**

Air pollution is a type of environmental challenges that considered one of the crucial problems confronting human life in urban areas. Among air pollutants, Particulate Matter with a diameter of less than 2.5µm (PM2.5) causes various illnesses. Hence, it is necessary to accurately predict the PM2.5 concentrations in order to prevent the citizens from the dangerous impact of air pollution beforehand. With the rapid development of deep learning technologies and their usage in almost all aspects of life, it has become possible to predict air quality in smart cities using deep learning techniques. This paper investigates the studies related to deep learning techniques under the framework of smart cities. By implementing a deep learning solution to predict the hourly forecast of PM2.5 concentration in India particularly Delhi, based on CNN-LSTM, with a spatial-temporal feature by combining historical data of pollutants, meteorological data, and PM2.5 concentration in the adjacent stations. Also examining the difference in performances among Deep learning algorithms such as LSTM, Bi-LSTM, GRU, Bi-GRU, CNN, and a hybrid CNN-LSTM model.