ABSTRACT

A major problem now facing Indonesian society is the increasing levels of air pollution and the deteriorating air conditions due to pollution. This pollution not only damages the environment and affects the climate, but can also have adverse effects on public health, such as respiratory diseases. This condition emphasizes the importance of measuring air pollution levels in various regions. This research aims to combine weather data and pollution data to predict air pollution levels. To get accurate data on weather conditions and pollution, a sophisticated technology is needed to support this research. The utilization of the Internet of Things (IoT) is one of the solutions used in this research and allows for efficient merging of weather and pollution data through the creation of IoT-based weather stations. Then, the data will be processed and analyzed using quantitative methodology, focusing on the development and implementation of Convolutional Long Short-Term Memory (ConvLSTM) model, which is effective in capturing spatial and temporal elements of the data. The use of this method is expected to improve accuracy and efficiency in predicting air pollution levels compared to other methods, as well as provide insights in making decisions related to pollution control and increasing public awareness in air pollution prevention.

Keywords: air pollution, weather station, IoT, prediction, ConvLSTM.