

SYNOPSIS

Project Team No: 02

Register No:

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Name:

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Project Title: COMPARATIVE ANALYSIS OF VARIOUS MACHINE LEARNING, DEEP LEARNING AND HYBRID MODELS FOR AIR QUALITY PREDICTION.

Name of the Guide: Mrs. Vanitha M/AP-II/CSE

Abstract:

Despite the increasing urbanisation and increased worries about air pollution, the goal of this project is to improve the sufficiency of current technologies in forecasting Air Quality Index (AQI) levels. Before relocating to any region that is filthy, the Air Quality Index (AQI) prediction can help them to take precautions regarding their health. Understanding how important AQI is for evaluating contaminants and directing regulatory actions, this project suggests a Hybrid model.. The proposed model seeks to offer precise and up-to-date projections by utilising past air quality data and meteorological parameters. This project will aid in making educated decisions regarding environmental sustainability. In order to promote a cleaner and healthier future, the project is in line with the urge to enable communities and authorities to proactively battle air pollution.

Specific Contribution:

- Janupalli Saketh Reddy – Collected and preprocessed the AQI parameter dataset.
- Thumukunta Vamshi Karthikeya – Trained the dataset and predicted the AQI using Machine Learning and Deep Learning Algorithms.
- M Krishna Kaushal – Trained the dataset and predicted the AQI using Deep Learning and Hybrid Model Algorithms.

Specific Learning:

- Janupalli Saketh Reddy – Data Collection and Preprocessing.
- Thumukunta Vamshi Karthikeya – Analysis of Machine Learning and Deep Learning Models.
- M Krishna Kaushal – Analysis of Deep Learning and Hybrid Models.

Technical Limitations & Ethical Challenges faced:

- Creating Hybrid model by concatenating LSTM, GRU and RNN.
- Collecting data from different data sources and concatenate to one and preprocessing.

Keywords: Air Quality Index, Air Pollution, Urbanization, Sustainability, Forecasting, Meteorological parameters.