(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511032159 A

(19) INDIA

(22) Date of filing of Application :31/03/2025

(43) Publication Date : 18/04/2025

(54) Title of the invention : DEEP LEARNING-BASED SMART AIR QUALITY MANAGEMENT AND PREDICTION SYSTEM

(51) International classification :G06N0003080000, G06Q0050260000, G06N0020000000, G06N0003044000, G06V0010764000	(71)**Name of Applicant :**
	  1)RUPESH KUMAR TIPU
	    Address of Applicant :K.R. Mangalam University Sohna Road, Gurugram, Sohna Rural ----------- -----------
	  2)Dr. Manish Kumar
	  3)Mr. Mushtaq Ahmad Rather
	  4)Dr. Solanki Gupta
	  5)Dr. Shweta Bansal
	Name of Applicant : NA
	Address of Applicant : NA

(86) International Application No :NA
         Filing Date :NA
	(72)**Name of Inventor :**
	  1)RUPESH KUMAR TIPU
	Address of Applicant :K.R. Mangalam University Sohna Road, Gurugram, Sohna Rural ----------- -----------

(87) International Publication No : NA	**2)Dr. Manish Kumar** Address of Applicant :Department of Computer Science & Engineering, School of Engineering & Technology, K. R. Mangalam University, Sohna, Gurugram, 122103, Haryana, India. Sohna ----------- -----------
(61) Patent of Addition to Application Number :NA Filing Date :NA	**3)Mr. Mushtaq Ahmad Rather** Address of Applicant :Noida Institute of Engineering and Technology, Greater Noida 201306, UP, India. Noida ----------- -----------

(62) Divisional to Application Number :NA
         Filing Date :NA
	4)Dr. Solanki Gupta
	Address of Applicant :Department of Computer Science & Engineering, School of Engineering & Technology, K. R. Mangalam University, Sohna, Gurugram, 122103, Haryana, India. Sohna ----------- -----------
	  5)Dr. Shweta Bansal
	Address of Applicant :Department of Computer Science & Engineering, School of Engineering & Technology, K. R. Mangalam University, Sohna, Gurugram, 122103, Haryana, India. Sohna ----------- -----------

(57) Abstract :

This invention describes an AI-driven smart air quality management and prediction system employing deep learning models (LSTM and CNN) combined with satellite imagery and IoT sensor data. The system provides accurate pollution forecasting and real-time, NLP-powered corrective policy recommendations. An interactive GUI with GIS-based heatmaps and alerts supports stakeholder decision-making in urban planning, industrial regulation, traffic management, and public health safety, offering predictive insights and comprehensive multi-source data integration for enhanced environmental protection.

No. of Pages : 15 No. of Claims : 5