

पेटेंट कार्यालय
शासकीय जर्नल

**OFFICIAL JOURNAL
OF
THE PATENT OFFICE**

निर्गमन सं. 31/2026
ISSUE NO. 31/2026

शुक्रवार
FRIDAY

दिनांक: 31/07/2026
DATE: 31/07/2026

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :11/07/2026

(21) Application No.202641085118 A

(43) Publication Date : 31/07/2026

(54) Title of the invention : MACHINE LEARNING-BASED INTELLIGENT DEVICE FOR REAL-TIME AIR POLLUTION MONITORING USING ELECTRIC VEHICLES

(51) International classification :G06N 20/00, G01N 15/06, G01N 33/00, G06N 3/04, G06N 3/08 (31) Priority Document No :NA (32) Priority Date :NA (33) Name of priority country :NA (86) International Application No : Filing Date :01/01/1900 (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA	(71)Name of Applicant : 1)Dr.V.Geethalakshmi Address of Applicant :Assistant Professor, Department of Chemistry, KIT- Kalaingar Karunanidhi Institute of Technology, Coimbatore, 641402 Coimbatore Tamil Nadu India 2)Ms.Aruna Verma 3)D Sudheer Reddy 4)Dr.G.Nageswara Rao 5)Suja Alphonse A 6)Girija Vasumathi G G 7)Prashant K 8)Dr. P. Sumalatha 9)Dr Thallapally Sreelatha 10)R.Anand 11)E.Ahiladevi 12)Thonepudi Hemalatha (72)Name of Inventor : 1)Dr.V.Geethalakshmi 2)Ms.Aruna Verma 3)D Sudheer Reddy 4)Dr.G.Nageswara Rao 5)Suja Alphonse A 6)Girija Vasumathi G G 7)Prashant K 8)Dr. P. Sumalatha 9)Dr Thallapally Sreelatha 10)R.Anand 11)E.Ahiladevi 12)Thonepudi Hemalatha
--	--

(57) Abstract :

Machine Learning-Based Intelligent Device for Real-Time Air Pollution Monitoring Using Electric Vehicles is the proposed invention. The proposed invention discloses a machine learning-based intelligent device for real-time air pollution monitoring using electric vehicles. The proposed system employs electric vehicles as mobile sensing platforms equipped with environmental sensors for measuring particulate matter, gaseous pollutants, meteorological parameters, and geographical location. Sensor data are pre-processed through an embedded edge-computing module and analyzed using the Mamba State Space Model (Mamba SSM), a recent sequence learning architecture optimized for efficient long-term temporal modeling. The model accurately predicts pollutant concentrations, detects abnormal pollution events, identifies pollution hotspots, and forecasts short-term air quality variations while requiring minimal computational resources. The predicted pollution information is integrated with GPS coordinates to generate dynamic pollution maps and transmitted to a cloud platform for visualization, environmental analytics, and smart city management. The invention offers high prediction accuracy, low latency, energy-efficient computation, and scalable deployment on mobile edge devices, making it highly suitable for sustainable urban environmental monitoring and intelligent transportation applications.

No. of Pages : 16 No. of Claims : 4