

पेटेंट कार्यालय
शासकीय जर्नल

**OFFICIAL JOURNAL
OF
THE PATENT OFFICE**

निर्गमन सं. 43/2024
ISSUE NO. 43/2024

शुक्रवार
FRIDAY

दिनांक: 25/10/2024
DATE: 25/10/2024

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(54) Title of the invention : Advanced Train Door Alert System for Enhanced Passenger Safety and Automated Anomaly Detection

<p>(51) International classification :B61L0027700000, H02J0009060000, B61L0025020000, B61L0027400000, B61L0015000000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)CMR COLLEGE OF ENGINEERING & TECHNOLOGY Address of Applicant :KANDLAKOYA, MEDCHAL ROAD, HYDERABAD, TELANGANA, INDIA, 501401. Hyderabad -----</p> <p>Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : 1)B.BALAKRISHNA Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>2)P.TULASI REDDY Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>3)B.SURESH RAM Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>4)K. RAVI KIRAN Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>5)P. MAHESH BABU Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>6)AARYAN T Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>7)P.NARENDRA Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p> <p>8)M.TEJASRI Address of Applicant :CMR College of Engineering & Technology, Kandlakoya, Medchal Road, Hyderabad Hyderabad -----</p>
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(57) Abstract :
ADVANCED TRAIN DOOR ALERT SYSTEM FOR ENHANCED PASSENGER SAFETY AND AUTOMATED ANOMALY DETECTION ABSTRACT The Train Door Alert System is designed to enhance passenger safety and operational efficiency through real-time monitoring of train doors. It utilizes a network of advanced sensors, including proximity and magnetic contact sensors, to detect anomalies such as incomplete door closures or obstructions. Data from these sensors is processed by an embedded microcontroller, which triggers visual and auditory alerts via an integrated alert module. The system also interfaces with the train's central control unit to enable automatic actions, such as halting the train or locking doors in case of critical failures. A communication module transmits real-time alerts to train operators and crew, improving response times. Additionally, the system includes self-diagnostics and backup power capabilities for uninterrupted operation during emergencies. Scalable and cost-effective, this solution seamlessly integrates into existing train infrastructures, ensuring improved safety, reduced operational delays, and enhanced overall train service reliability.

No. of Pages : 13 No. of Claims : 10