(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058372 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART IOT-ENABLED VEHICLE SAFETY SYSTEM WITH INTEGRATED EMOTION AND SAFETY COMPLIANCE DETECTION

(51) International classification	:G08B0025010000, H04W0004900000, A42B0003040000, G06V0040160000, G10L0025630000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**

1)Brainware University, Kolkata

Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 ---------- ----------

Name of Applicant : NA

Address of Applicant : NA

(72)**Name of Inventor :**

1)Subham Kumar Mandal

Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India ---------- ----------

2)Ms. Areeka Dey Sarkar

Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India ---------- ----------

3)Ms. Trisha Sarkar

Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India ---------- ----------

4)Mr. Subhajit Mukherjee

Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India ---------- ----------

5)Mr. Subhadeep Sil

Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India ---------- ----------

6)Riyanka Hazra

Address of Applicant :Assistant Professor of Computational Sciences in Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India ---------- ----------

(57) Abstract :

[034] The invention discloses a Smart Vehicle Safety System utilizing IoT and facial emotion recognition to prevent unsafe driving conditions. The system integrates an ESP32 microcontroller with modules for emotion detection via ESP32-CAM, alcohol sensing using an MQ-3 sensor, helmet verification through RFID or computer vision, and crash detection using an MPU6050 accelerometer. Upon identifying unsafe conditions—such as driver fatigue, emotional distress, alcohol influence, or absence of a helmet—the system disables vehicle ignition using a relay mechanism. Additionally, in the event of an accident, the system automatically captures real-time GPS coordinates and sends emergency alerts via SMS using a GSM module. The modular and cost-effective design allows retrofitting into existing two-wheelers and small vehicles, enhancing driver safety through proactive monitoring and automated emergency response. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10