Patent Search

Invention Title	System and Method for IoT-Based Car Cabin Ventilation with Manual Activation and Automatic Temperature-Based Control
Publication Number	20/2026
Publication Date	15/05/2026
Publication Type	INA
Application Number	202641057358
Application Filing Date	06/05/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	B60H 1/00, B60H 1/24, B60H 1/34, B60H 1/26, B60H 1/32

Inventor

Name	Address	Country
Dr. V. S. N. Narasimha Raju	Department of EEE, Professor, Vishnu Institute of Technology, Sri Vishnu Education Society, Vishnupur, Bhimavaram, Andhra Pradesh 534202	India
Dr. Reddi Khasim Shaik	Associate Professor Department of Electrical and Electronics Engineering, Vishnu Institute of Technology, Sri Vishnu Education Society, Vishnupur, Bhimavaram, Andhra Pradesh 534202	India
Addanki Praveen Kumar	Student Department of Electrical and Electronics Engineering, Vishnu Institute of Technology, Sri Vishnu Education Society, Vishnupur, Bhimavaram, Andhra Pradesh 534202	India
Donthukurthi Kumara Swamy	Student, Department of Electrical and Electronics Engineering, Vishnu Institute of Technology, Sri Vishnu Education Society, Vishnupur, Bhimavaram, Andhra Pradesh 534202	India
Varri Shanmukha Anand	Student, Department of Electrical and Electronics Engineering, Vishnu Institute of Technology, Sri Vishnu Education Society, Vishnupur, Bhimavaram, Andhra Pradesh 534202	India

Applicant

Name	Address	Country
Vishnu Institute of Technology	Vishnu Institute of Technology, Sri Vishnu Education Society, Vishnupur, Bhimavaram, Andhra Pradesh 534202	India

Abstract:

The present disclosure relates to systems and methods, and provides an IoT-based car cabin ventilation system (100) configured to enable manual activation and aut deactivation of cabin ventilation based on temperature sensing. The IoT-based car cabin ventilation system (100) includes an ESP32 wireless microcontroller (102), a D temperature sensor (104), and a pull-up resistor (106) that together continuously monitor cabin temperature and control a single-channel relay module (108) driving fan with DC motor (110). The IoT-based car cabin ventilation system (100) is configured to provide manual activation and automatic deactivation of cabin ventilation b temperature sensing in response to user activation via a Blynk application or automatic temperature threshold detection by temperature threshold comparison logic configuration achieves reduction of off-gases in the car cabin and minimises associated health risks.

Complete Specification

Description:TECHNICAL FIELD

[001] The present invention relates to the field of automotive embedded systems, and more particularly to an IoT-Based Car Cabin Ventilation system enabling man activation and automatic temperature-based deactivation of cabin exhaust ventilation using a wireless microcontroller, a temperature sensor, a relay, and a DC mot driven exhaust fan.

BACKGROUND

[002] Automotive cabin environments are subject to significant thermal and chemical changes, particularly when vehicles are parked in direct sunlight for extended Under such conditions, interior cabin temperatures may rise substantially above ambient levels, creating thermal stress on interior materials including polymeric upholstery, adhesives, and plastic trim components. This elevated temperature may cause such materials to release gaseous compounds into the enclosed cabin atmosphere. The accumulation of such compounds, including volatile organic compounds, may pose discomfort and potential health concerns for occupants enter vehicle after prolonged parking.

[003] Conventional approaches to managing parked-vehicle cabin temperatures typically include passive measures such as manually lowering windows or placing sunshades on the windshield. While such measures may reduce solar heat gain to some degree, they typically offer no active removal of accumulated gases from th atmosphere. Manually opening windows requires physical presence at the vehicle and provides no automated or remotely initiated operation. Furthermore, such p approaches offer no means of monitoring actual cabin temperature or confirming that the cabin atmosphere has been adequately cleared before occupant entry.

[004] Active ventilation using the vehicle's air conditioning system may address some thermal concerns; however, such systems typically require the vehicle engine

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Page last updated on: 26/06/2019