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(57) Abstract :

An integrated vehicle air purification device (100) comprising a HEPA filter (102), activated carbon module (103), ionizer (104), UV-C sterilization chamber (105), air quality sensors (106), microcontroller (107), and blower fan (108) is disclosed. The system monitors cabin air and dynamically purifies it by removing particulates, gases, and microorganisms. A compact housing (110) enables easy dashboard installation. The device ensures real-time cabin air purification, low power consumption, and enhanced user safety and comfort through automated control and multi-layered filtration.

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