Solar Powered Intelligent IOT Based Car Cabin Cooling System

Sachin Ashok Badgujar[1], Rohan Pramod Shinde[2], Rushikesh Ajay Ambekar[3],
Nilesh Prakash Sanap[4], Mr. Lokesh G. Kamde[5],
Students, Department of Mechanical Engineering[1,2,3,4]
Assistant Professor, Department of Mechanical Engineering[5]
Matoshri College Of Engineering & Research Centre, Eklhare, Nashik

Abstract: *Car owners, particularly in India, are confronted with many problems as the temperature here is quite high once they have been stored beneath the warm sun. The cabin cooling system is reflected in the brief throughout the planning and construction of the car for this project. A new ventilation system has been developed using fans. Solar arrays, temperature sensors and a feedback electrical system for mechanical temperature management, after the ignition is switched off in the automotive interior. This approach includes a different controller for the automatic temperature control unit management. When the temperature hits 40, the system starts. degrees and quit as soon as the temperature is below 30 degrees, according to our control system's present. It's straightforward. Due to its capacity to enhance the air and water quality of the proposed system, it offers consumers comfort. The cabin of the vehicle. Experiments with various temperatures were conducted in bright sunlight, and the temperature at which the good system is activated was thus determined. The air temperature in the automobile decreased substantially when the excellent ventilation was activated.*

Keywords: Solar, Car, Internet of Things, Electrical system

REFERENCES

[1] A. M. Abdelwahab, A. A. Omer, O. Younis, and D. Ahmed, "Design of a fully automated ventilation system for vehicles subjected to direct sunlight," J. Eng. Sci. Technol., vol. 13, no. Special Issue on the ninth/ 2018, pp. 27–39, 2018.

[2] H. N. M. Shah et al., "Develop and implementation of solar powered ventilation system," Indones. J. Electr. Eng. Comput. Sci., vol. 12, no. 3, pp. 1211–1221, 2018, doi: 10.11591/ijeecs.v12.i3.pp1211-1221.

[3] C. V. Sudhir and J. M. Al Dhali, "Effect of solar ventilation on air conditioning system performance of the car parked under sun light," ARPN J. Eng. Appl. Sci., vol. 10, no. 22, pp. 10618–10625, 2015.

[4] N. Universiti and E. V Li-ion, "methods in reducing car cabin interior Experimental Comparison Study of the Passive Methods in Reducing Car Cabin Interior Temperature," in International Conference on Mechanical, Automobile and Robotics Engineering (ICMAR'2012) Penang. Malaysia, 2014, no. September, pp. 229–233.

[5] H. A. Kazem, "Renewable energy in Oman: Status and future prospects," Renew. Sustain. Energy Rev., vol. 15, no. 8, pp. 3465–3469, 2011, doi: 10.1016/j.rser.2011.05.015.

[6] M. Shanmugaraja, R. Jeipraveen, R. Ashith Raj, and M. Brian Joel 4 1 Hod, "Smart Way To Reduce Car Cabin Temperature By Using Thermoelectric Cooler," Int. Res. J. Eng. Technol., vol. 06, no. 03, pp. 8014–8019, 2008, [Online]. Available: www.irjet.net.

[7] G. Sevilgen and M. Kilic, "Three dimensional numerical analysis of temperature distribution in an automobile cabin," Therm. Sci., vol. 16, no. 1, pp. 321–326, 2012, doi: 10.2298/TSCI1201321S.

[8] H. N. M. Shah, M. Z. Ab Rashid, M. F. Abdollah, M. N. Kamarudin, C. K. Lin, and Z. Kamis, "Biometric Voice Recognition in Security System," Indian J. Sci. Technol., vol. 7, no. 2, pp. 104–112, 2014, doi: 10.17485/ijst/2014/v7i1.9.

[9] G. Kumar Jaiswal et al., "Design of A Smart Automotive Ventilation System For A Parked Car," Int. J. Theor. Appl. Res. Mech. Eng., vol. 1, no. 1, pp. 83–88, 2012, [Online]. Available: http://www.irdindia.in/journal_ijtarme/pdf/vol1_iss1/15.pdf.

[10] B. S. Kumar, Baltha Manoj, "Heat Reduction in Car Cabin by Using Nonconventional Source of Energy," Int. J. Eng. Sci. Invent., vol. 6, no. 12, pp. 48–54, 2017.

[11] EXIDE BOSS 5 LB. n.d. N.p.: Exide care. https://www.exidebatteryworld.in/products/exide-boss-5-lb-old-battery-buy-back-/10#:~:text=%C2%A0-,EXIDE%20BOSS%205%20LB(%20OLD%20BATTERY%20BUY%20BACK,-).

[12] "Silicon PV module." n.d. Pv education. https://www.pveducation.org/pvcdrom/modules-and-arrays/module-structure.

[13] Super Debug DC 12V 3 inches Cooling Fan for PC Case, CPU Cooler Radiator (Black) Cooler (Black)." n.d. Flipkart. https://www.flipkart.com/super-debug-dc-12v-3-inches-cooling-fan-pc-case-cpu-cooler-radiator-black/p/itmc5c0cd3dc07e7?pid=COLFZFWECZG7VHXY&lid=LSTCOLFZFWECZG7VHXYQRPURD&marketplace=FLIPKART&store=search.flipkart.com&srno=b_1_16&otracker=browse&fm=organic&i.