

### SOLAR ENERGY BASED SYSTEM TO REMOTELY REGULATE TEMPERATURE OF VEHICLE

#### IITM Technology Available for Licensing

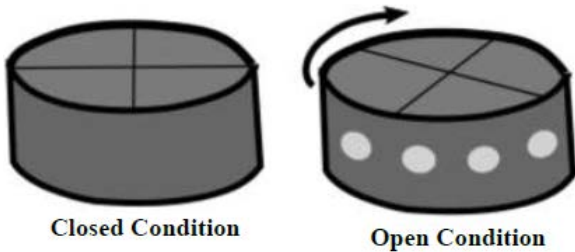
#### Problem Statement

- The interior temperature of vehicles parked in the sun rises significantly, causing discomfort and delays for passengers.
- Running the vehicle's air conditioner continuously while unoccupied is impractical due to energy consumption and engine health concerns.
- There's a need for a solution to remotely regulate the parked vehicle's temperature to address these issues.

#### Intellectual Property

- IITM IDF Ref. 1775
- IN 493781 - Patent Granted

Airflow device (200)



Closed Condition

Open Condition

Fig 2. illustrates the airflow device under closed and open conditions.

#### Technology Category/ Market

**Category - Automotive Climate Control System**

**Applications-** Passenger Vehicles, Public Transportation, Commercial Fleets

**Industry-** Automotive Manufacturing, Smart Transportation

**Market -** Global smart transportation market size is projected to grow from USD 122.4 billion in 2023 to USD 248.7 billion by 2028, at a **CAGR of 15.2%**.

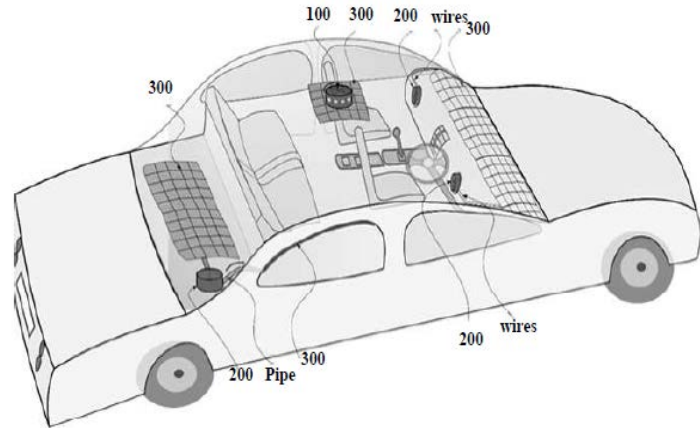


Fig 1. illustrates a vehicle with the solar powered system.

#### Technology

- The present disclosure introduces a solar-powered system for remotely controlling the temperature inside a vehicle.

The disclosed system uses solar energy to remotely regulate the temperature inside a parked vehicle, employing an airflow device and a temperature control device.

It operates without running the vehicle's engine, utilizing power from solar cells mounted inside or outside the vehicle, thus addressing energy consumption concerns.

Users can activate the system through various means, such as SMS, call, or email, and it can be programmed to start cooling at preset times or respond to user commands.

#### TRL (Technology Readiness Level)

TRL - 4: Technology validated in lab scale.

#### Research Lab

Prof. Bobby George,  
Dept. of Electrical Engineering

#### CONTACT US

Dr. Dara Ajay, Head  
Technology Transfer Office,  
IPM Cell- IC&SR, IIT Madras

IITM TTO Website:  
<https://ipm.icsr.in/ipm/>

Email: [smipm-icsr@icsrpiis.iitm.ac.in](mailto:smipm-icsr@icsrpiis.iitm.ac.in)

[sm-marketing@imail.iitm.ac.in](mailto:sm-marketing@imail.iitm.ac.in)

Phone: +91-44-2257 9756/ 9719

### Key Features / Value Proposition

#### 1. Solar-Powered Cooling:

- Utilizes solar energy for efficient and eco-friendly temperature regulation in parked vehicles.

#### 2. Remote Activation:

- Allows users to remotely initiate cooling via SMS, call, or email, enhancing convenience and comfort.

#### 3. Automatic Operation:

- Smart temperature control system activates airflow based on pre-set schedules or user commands.

#### 4. Energy Efficiency:

- Reduces reliance on engine power, minimizing fuel consumption and engine wear.

#### 5. Universal Compatibility:

- Adaptable design fits various vehicle types, providing a versatile solution for different automotive needs.

#### 6. Safety Integration:

- Integrates with vehicle systems to ensure safe operation, enhancing passenger comfort and well-being.

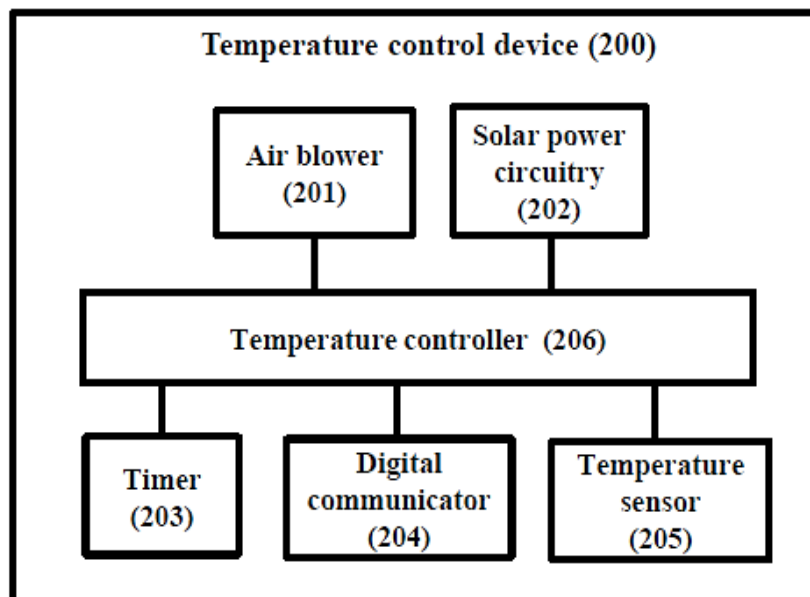


Fig 3. Block diagram of various components of the temperature control device.

### CONTACT US

Dr. Dara Ajay, Head  
Technology Transfer Office,  
IPM Cell- IC&SR, IIT Madras

IITM TTO Website:  
<https://ipm.icsr.in/ipm/>

Email: [smipm-icsr@icsrpis.iitm.ac.in](mailto:smipm-icsr@icsrpis.iitm.ac.in)

[sm-marketing@iimail.iitm.ac.in](mailto:sm-marketing@iimail.iitm.ac.in)

Phone: +91-44-2257 9756/ 9719