TASK 07:- GAP ANALYSIS

Here is the gap analysis for smart thermostat using the \*Design Thinking\* framework:

1:-Empathize (Understand the Users)

\*Current State:\*

- \*Users:\* Homeowners looking for energy efficiency and convenience in managing home temperature.

- \*Pain Points Identified:\*

- Difficulty in adjusting temperature remotely.

- Lack of intuitive interface for non-tech-savvy users.

- Inconsistent temperature control, especially in larger homes.

- Concerns about the cost savings vs. the initial investment in a smart thermostat.

\*Desired State:\*

- Users want a seamless, intuitive experience where they can control their home's temperature from anywhere, with smart features that adapt to their preferences over time.

- Ensure clear communication of cost savings and energy efficiency benefits.

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2. Define (Identify the Problem)

\*Current State:\*

- \*Problem Definition:\*

- The thermostat offers standard connectivity and scheduling options but lacks adaptive intelligence (e.g., learning habits).

- Users often struggle to connect it with other smart devices in their home.

- Complicated user interface for those not familiar with smart home technology.

\*Desired State:\*

- Provide a thermostat that learns user behavior, integrates smoothly into a smart home ecosystem, and offers a user-friendly interface for all types of users (tech-savvy and non-tech-savvy).

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3. Ideate (Explore Possible Solutions)

\*Current State:\*

- \*Ideas in Place:\*

- Wi-Fi connectivity and remote control through an app.

- Basic energy usage tracking and temperature scheduling.

\*Desired State:\*

- Incorporate AI for predictive temperature control based on user habits.

- Improve UI/UX design with clear, intuitive touch screen controls.

- Provide seamless compatibility with other smart home devices (lights, smart plugs, etc.).

- Implement a cost-benefit display, showing users the energy savings in real time.

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4. Prototype (Create Solutions)

\*Current State:\*

- \*Existing Features:\*

- Simple, functional design.

- Limited integration with other home automation devices.

- Energy reports provided on a weekly or monthly basis.

\*Desired State:\*

- Prototype a thermostat with:

- A fully customizable dashboard with real-time data.

- A design that allows for visual and voice commands (integrating with voice assistants like Alexa, Google Assistant).

- Predictive temperature control that adjusts based on user patterns and external weather data.

- Modular, upgradeable hardware that can expand its capabilities over time (for new features or integrations).

5. Test (Get Feedback)

\*Current State:\*

- \*User Feedback:\*

- Users find the current app interface confusing.

- Difficulty integrating the thermostat with existing smart home devices.

- Mixed feelings on whether the thermostat provides real savings.

\*Desired State:\*

- Gather more feedback on ease of use and real-time integration.

- Improve testing in various user demographics, especially focusing on non-tech-savvy individuals and large home setups.