HEATING PAD DESIGN

FOR ELDERLY PEOPLE USING **SMART MECHANISM**

EXISTING HEATING PADS

ELECTRIC HEATING PAD

Cons- people use heating pads when they are placed on the switchboard to warm up

INFRARED HEATING PADS

Cons- Infrared pads may offer limited depth penetration, affecting surface tissues more than deeper muscles for therapeutic relief.

CHEMICAL HEATING PADS

Cons- they also have possibility of leakage or spillage and require a lot of maintenance due to pouring in & out of water.

GEL HEATING PADS

Cons- Over time or due to wear and tear, the gel within these pads may leak out.

WATER-FILLED HEATING PADS

Cons- they also have possibility of leakage or spillage and require a lot of maintenance due to pouring in & out of water.

BATTERY-OPERATED HEATING PADS

Cons- Depending on the battery life and the heat settings used, these pads might offer heat for a limited period before needing recharging or replacement of batteries.

Familiarity: Conventional heating pads are well-known and widely available, contributing to a sense of familiarity among users.

Affordability: Compared to advanced models, traditional heating pads are often more budget-friendly, appealing to price-sensitive consumers.

Variety: The market offers a variety of sizes, shapes, and types of conventional heating pads, allowing users to choose based on their preferences.

Complex Controls: Many conventional heating pads have intricate controls, making them challenging for users with limited motor skills, like Mrs. Evelyn Thompson.

Limited Features: Traditional heating pads may lack innovative features, such as visual temperature indicators, which can impact user experience and convenience.

Safety Concerns: Some older models might lack advanced safety features, potentially posing risks like overheating or discomfort.

I**nnovation:** There's an opportunity for manufacturers to introduce updated versions of conventional heating pads with improved controls and safety features.

Targeted Marketing: Highlighting the affordability and reliability of conventional heating pads can attract a broad consumer base, including those who value simplicity.

Collaboration: Partnerships with healthcare professionals or organizations could enhance the credibility of traditional heating pads for pain relief.

Competition from Advanced Models: Advanced heating pads with innovative features may attract users looking for a more sophisticated and user-friendly experience.

Changing Consumer Preferences: As technology advances, consumers may increasingly lean towards smart or tech-enhanced heating solutions, leaving traditional pads behind.

Regulatory Changes: Evolving safety standards and regulations might require traditional heating pad manufacturers to update their products, incurring additional costs.

USER PROFILE

Age: 65-75 years
Occupation: Retired or semi-retired professional
Location: Suburban or urban setting, living with family or independently

DEMOGRAPHICS

Education Level: Moderate to high, comfortable with basic technology
Living Situation: Often lives with family but values independence in daily activities
Income Level: Middle to upper-middle class, prioritizing cost-effective yet high-quality solutions

GOALS

- To manage chronic pain or discomfort effectively with minimal physical strain.
- To use products with intuitive functionality and clear feedback mechanisms.
- To avoid dependence on family members for setup or adjustments.

PSYCHOGRAPHICS

Personality: Practical, cautious, and values convenience and comfort over technical complexity
Technology Affinity: Moderate; prefers straightforward devices with visual or tactile feedback
Values: Safety, reliability, and minimal effort in operation

CHALLENGES

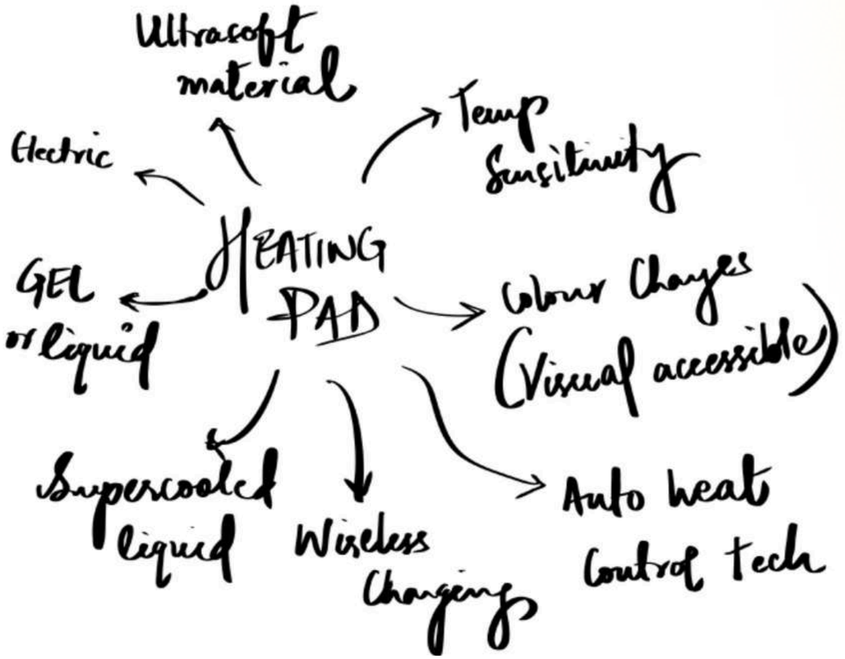
- **Motor Skills Limitations:** Difficulty handling small buttons or complex interfaces.
- **Cognitive Load:** Prefers devices that reduce the need for memorization or troubleshooting.
- **Mobility Concerns:** Limited movement necessitates lightweight, wireless, and portable solutions.
- **Safety Assurance:** Requires products with built-in safety features to prevent overheating or misuse.

DESIGN BRIEF

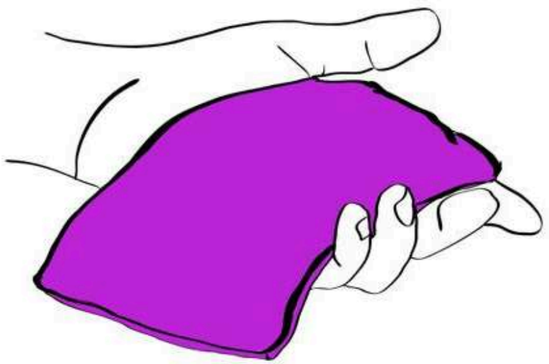
To design a smart, wireless heating pad tailored for elderly users, combining ergonomic comfort with innovative features. Incorporate a dynamic color-changing mechanism for intuitive temperature visualization and automatic power cut-off for safety. Focus on user-friendly, lightweight, and accessible design to address motor skill limitations and ensure effortless, independent pain relief.

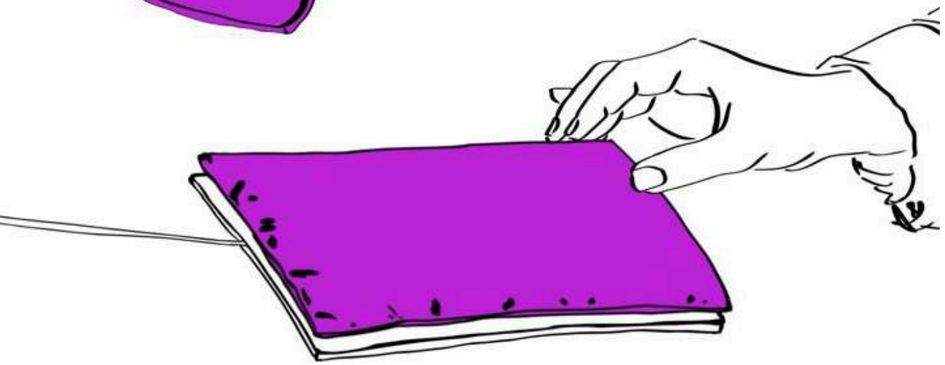
NEEDS & EXPECTATIONS

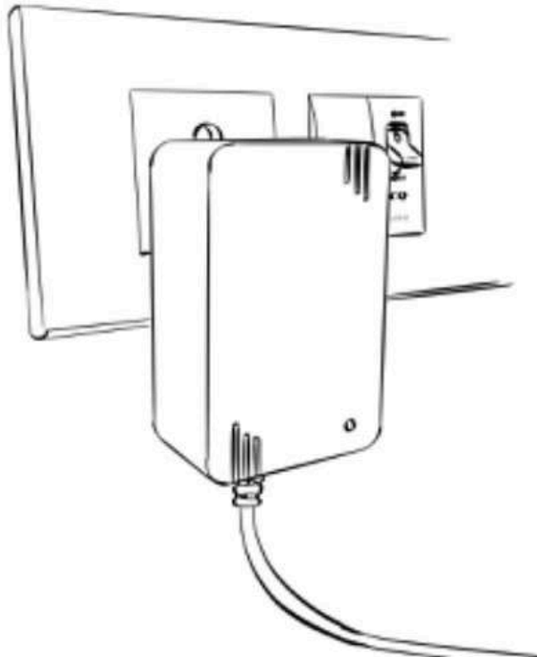
- **Comfortable Design:** Lightweight, ergonomic, and easy to position on different body parts.
- **Visual Temperature Feedback:** A color-changing mechanism that eliminates guesswork.
- **Wireless Functionality:** To avoid tripping hazards and cumbersome cords.
- **Automatic Power Control:** Ensures safety by cutting power once the optimal temperature is reached.
- **Ease of Use:** Simple, intuitive interface with minimal setup required.

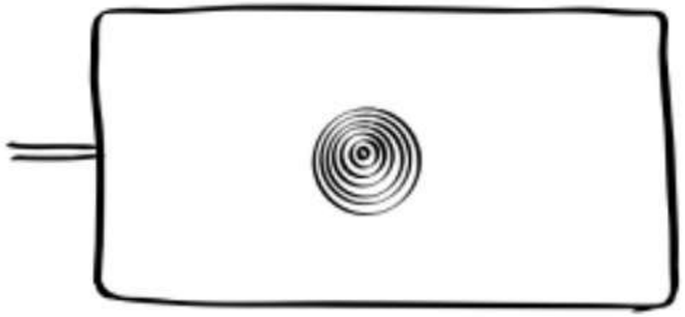


THERMAEASE HEATING PAD





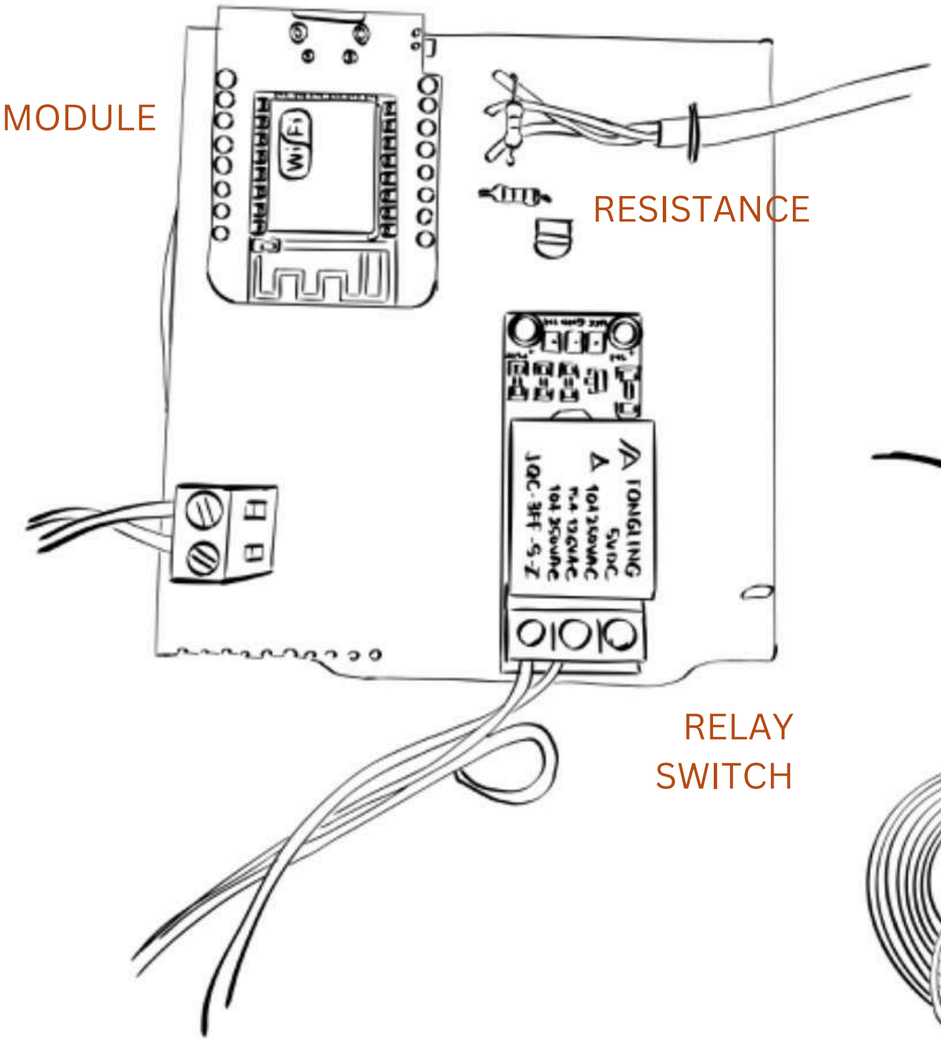


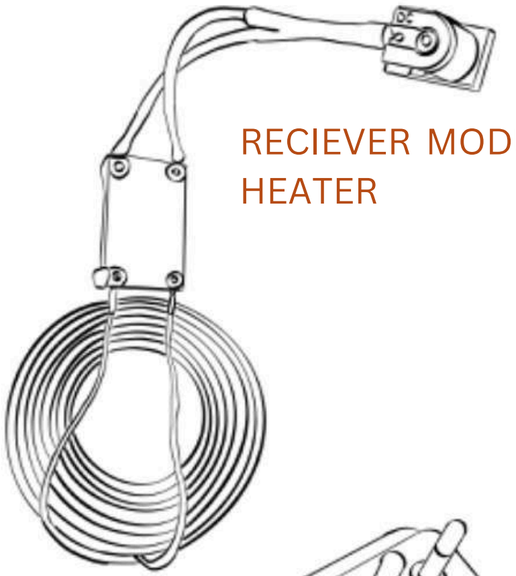


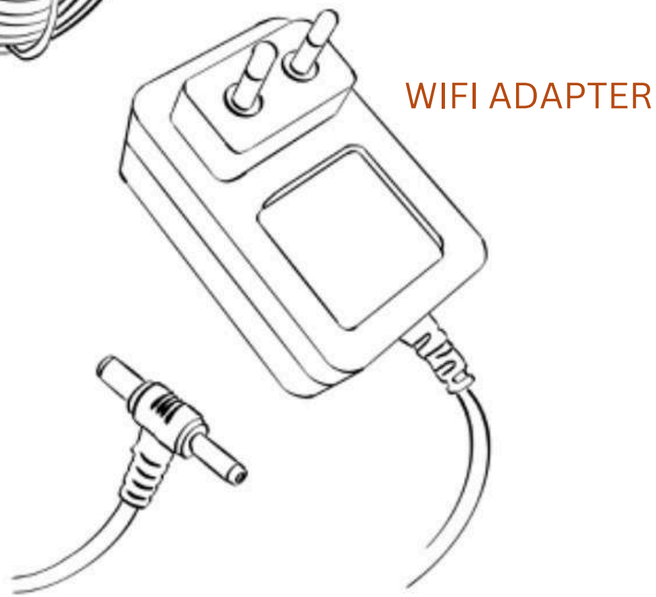
WIRELESS CHARGING SYSTEM

HEATING PAD SYSTEM

COMPONENTS

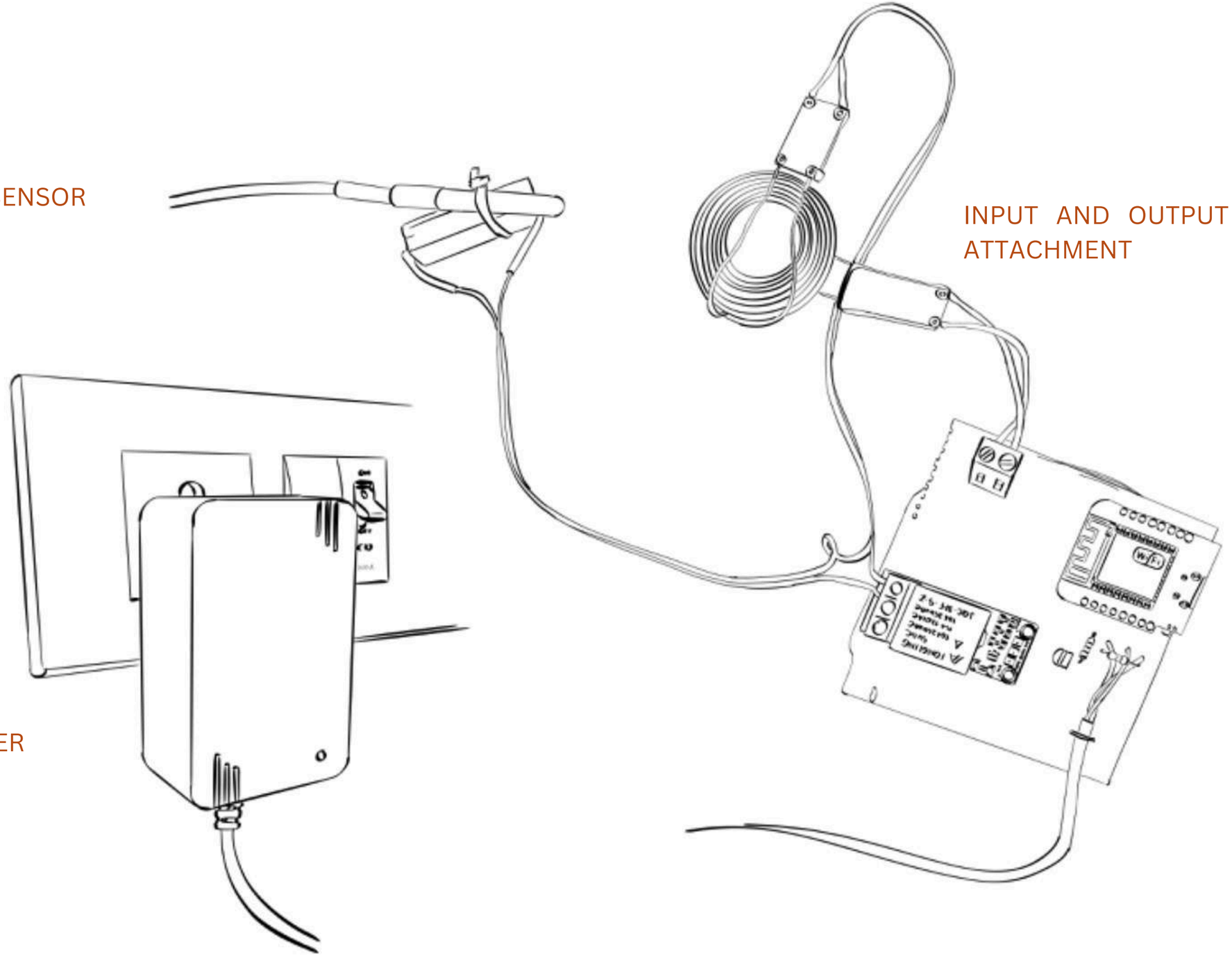

WIFI MODULE
RESISTANCE
RELAY
SWITCH


RECIEVER MODULE
HEATER


WIFI ADAPTER

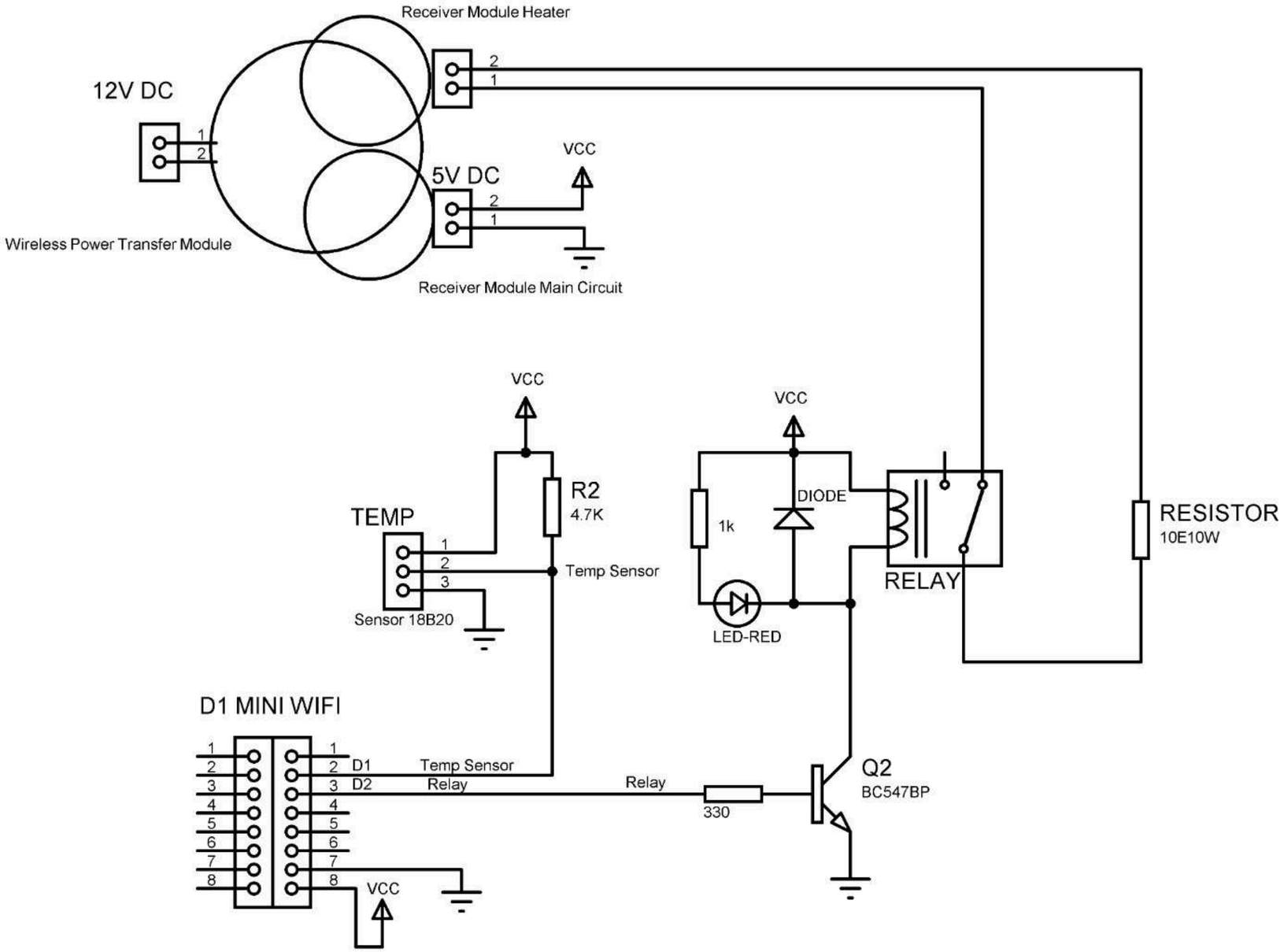
TEMPERATURE SENSOR

INPUT AND OUTPUT HEATING PAD ATTACHMENT



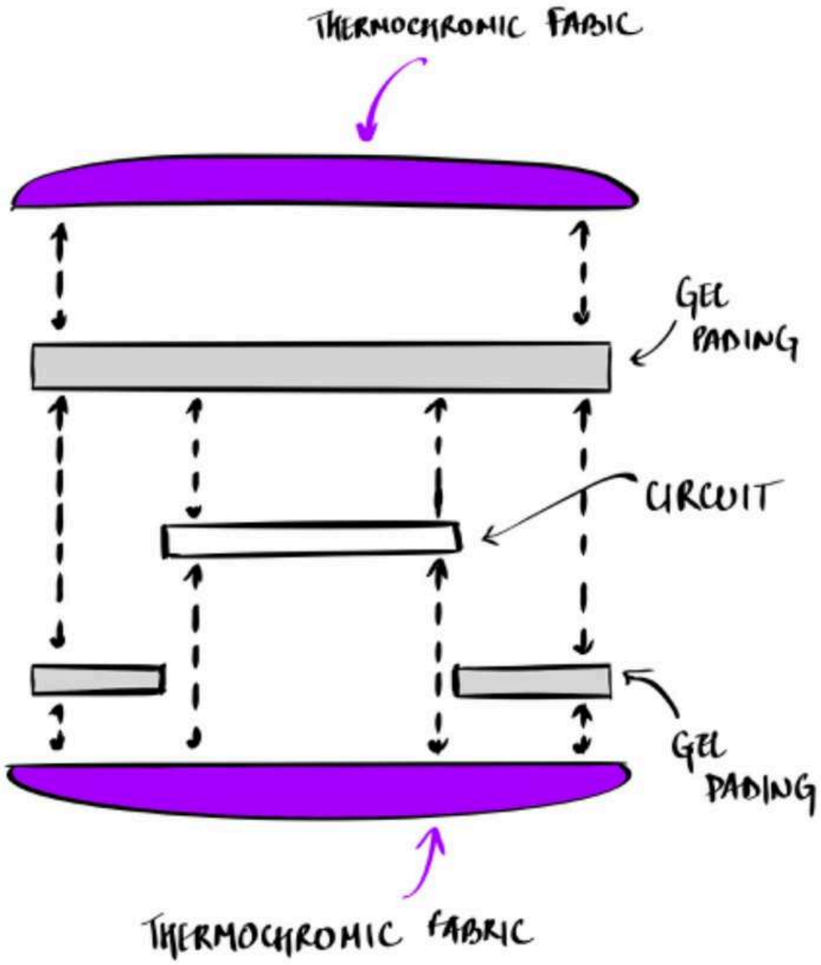
ADAPTER

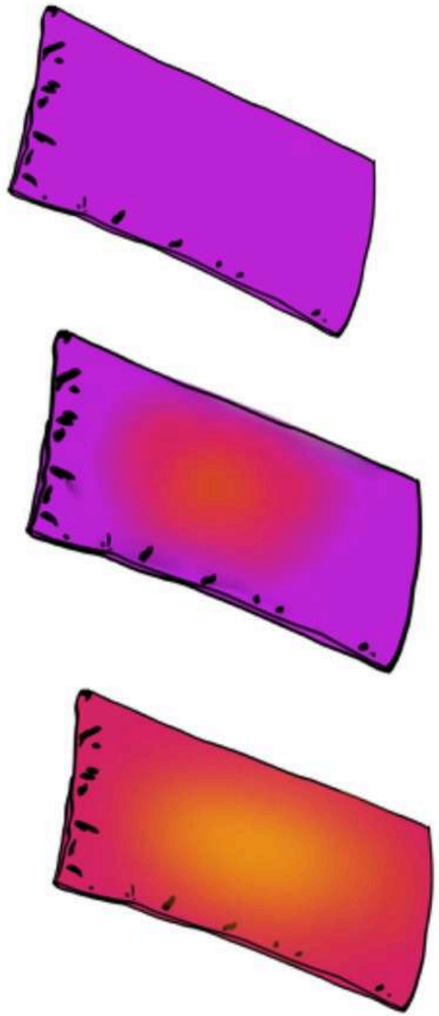
CIRCUIT DIAGRAM



COLOR CHANGING MECHANISM

Thermochromic cloth is a type of fabric that changes color in response to temperature variations. It contains specialized dyes or pigments that are sensitive to temperature changes, causing the fabric to alter its color when exposed to heat or cold.





WIRELESS CONNECTIVITY