TRONIC PROS

PROJECT PROPOSAL

SMART EXTENSION CODE

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Problem

In our daily lives, there are numerous instances where we unintentionally fail to turn off electronic devices after use, resulting in a waste of energy and potential damage to the devices. For instance, we may forget to switch off an iron after ironing clothes or leave our smartphones plugged in for extended periods of time, leading to overcharging. Similarly, we may overlook the need to turn off our Wi-Fi routers for months on end, putting unnecessary strain on their components. These situations highlight the importance of developing solutions that can help us manage our electronic devices more efficiently and reduce our carbon footprint.

Solution

Our innovative product aims to enhance the functionality of traditional extension cords by incorporating advanced IoT technology, Sensors, and scheduling features, making it more user-friendly and convenient. In addition to IoT control functionality and scheduling, we have identified a common and dangerous problem: forgetting to turn off the iron after use. To address this issue, we have developed a unique feature that detects when the iron is not in use and automatically powers it down, preventing the risk of fire and promoting energy efficiency. With this innovative self-switching option, users can rest assured that their devices are always safe and that energy is not being wasted. With our IoT extension cord, users can easily manage and monitor their electronic devices from anywhere, at any time, using a smartphone or other Internet-enabled device. This product represents a significant advancement in home automation technology, offering users a more convenient and efficient way to manage their electronic devices.

Some applications:

- **For Irons:** Our smart extension cord includes a feature that automatically turns off your iron after 2 minutes of inactivity.
- **To schedule your phone charging at night:** If you want to charge your phone overnight, you can schedule the charging time and especially you can use this feature for laptops as well. It will protect the battery life.
- **For fish tanks:** For people who own fish tanks, you can easily schedule oxygen generator pumps to turn on and off.

- **Voice control:** You can add voice control to any plug and you can control it with voice commands.
- **To schedule your Wi-Fi routers:** With our product, you can schedule the router to turn on and off at specific times.
- **To keep track of your devices no matter where you are:** With IOT you can login to the web interface of the smart extension cord and control your plugged devices from your smartphone.

Methodology

We are planning to use relays to control the current flow through the product. We will use sensors such as PIR to input certain user data.

We are using the following subsystems:

- 230V to 5V powestep-downwn Module.
- IoT Module (ESP32 or Pi Pico w)
- Main PCB to interconnect modules and to connect other components such as relays, sensors.

We are planning to use plastics such as Bakelite to 3D print the outer casing with proper spaces for internal circuits.

Our roughly estimated price for the product is Rs. 6500.

A free-hand sketch of our product is shown below;