Smart Stove Project "Granny-Safe"

Members

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Description

This device is designed to create a product which uses a temperature sensor to monitor and control a hot plate burner. The product will feature time and temperature settings, where the user will be able to control the temperature of the hot plate within ±10°F of a set temperature . Also featured would be a setting that turns the power to the burner off if the burner was left on for a set period of time. The device will also include the exclusion of relays, instead opting to use discrete components to control the hot plate burner. The project will also be comprised of a micro-controller and alarm circuitry. The main components will be powered by 5VDC, which will be obtained by utilizing an AC-DC and DC-DC converter from the wall outlet.

Inputs

- Temperature sensor data
- Temperature control knob/keypad
- DC voltage
- Pushbutton

Outputs

- LCD display
- Hotplate controller signal
- Alarm (speaker and LED)

Specifications

-DC to DC voltage converter 5V ± 5% with less than 100mV ripple supplying at least 500mA.
-No relays, 5V DC input controlling 120V AC and at least 5A.
-Alarm timer enabled when temperature exceeds 120◦F, Alarm sounds after 10 minutes, and alarm deactivates if hotplate is turned off or reset if reset button pressed.
-Maintain hot plate temperature within ±10°F of set temperature between 150℉ and 400℉, measured in middle of second hotplate coil.

Name:	_____	_____
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Date:	_____	_____