To automatically turn on and off a TV using an HDMI cable and a Raspberry Pi (RPI), you can use a CEC (Consumer Electronics Control) library such as **cec-client** to send commands over HDMI. Before implementing this, you'll need to make sure your TV and Raspberry Pi are CEC compatible. CEC allows control of various functions like power, input source, and volume. Here's an example of how to do it:

1. Install **cec-client**:

bashCopy code

sudo apt-get install cec-utils

1. First, let's turn on the TV when the Raspberry Pi boots. To do this, you can add the following line to your **/etc/rc.local** file (edit it with **sudo nano /etc/rc.local**):

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echo "on 0" | cec-client -s -d 1

This command sends a "power on" signal to device 0 (which is usually the TV).

1. Now, to automatically turn off the TV when the Raspberry Pi shuts down, you can create a script. Create a file named **shutdown\_tv.sh**:

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nano /usr/local/bin/shutdown\_tv.sh

Add the following content to the file:

bashCopy code

#!/bin/bash echo "standby 0" | cec-client -s -d 1

Save the file and make it executable:

bashCopy code

chmod +x /usr/local/bin/shutdown\_tv.sh

1. You should configure your Raspberry Pi to execute this script when it's shutting down. To do this, create a systemd service:

Create a service file:

bashCopy code

sudo nano /etc/systemd/system/shutdown-tv.service

Add the following content to the file:

iniCopy code

[Unit] Description=Shutdown TV via HDMI CEC [Service] Type=oneshot ExecStart=/bin/true ExecStop=/usr/local/bin/shutdown\_tv.sh [Install] WantedBy=multi-user.target

Enable and start the service:

bashCopy code

sudo systemctl enable shutdown-tv sudo systemctl start shutdown-tv

Now, when you shut down your Raspberry Pi, it will send a "standby" command to your TV via HDMI CEC.

Please note that the effectiveness of this solution may depend on the specific TV and HDMI-CEC implementation. Make sure HDMI-CEC is enabled on your TV, and the device number (0 in this example) corresponds to your TV. You might need to adjust this number based on your setup.

Also, remember that HDMI-CEC features and commands may vary from one TV brand and model to another, so some experimentation might be needed.