Adding Halt Switch To Allstar Node

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Introduction

Like any computer, when we need to shut down the system, it's always a good idea to do it gracefully and not simply pull the power from it if you do not have immediate access to SSH or you don't have a DTMF Macro setup.

The Push Switch

The switch I use is a standard single pole push switch which I mounted on the rear of the project box.

The wiring for the switch is coupled directly to the Pi GPIO pins which makes it extremely easy to install. The exact pins you connect the switch to depend on which wiring scheme for the GPIO you use.

Pi GPIO Plns

One issue with the Raspberry Pi is that there are three different systems for referring to the pin numbers. This can lead to confusion, especially when using pre-made scripts to control the GPIO pins, and requires extra attention to ensure the correct numbering system is used.

Three Schemes:

Physical Pin Numbering (Board Numbering):

This standard refers to the physical layout of the pins on the Raspberry Pi's GPIO header. It uses a simple numbering system from 1 to 40 (for the 40-pin header on most modern models), and each number corresponds to a specific pin on the board. This is useful for physically locating pins on the Raspberry Pi board.

Broadcom (BCM) Pin Numbering:

BCM stands for Broadcom, the company that manufactures the Raspberry Pi's chip. This standard uses the GPIO pin numbers as defined by the Broadcom chip itself. It's often used in software libraries and programming (like Python's RPi.GPIO library) to refer to the GPIO pins by their Broadcom-specific numbers, which differ from the physical pin numbers. Example: GPIO17, GPIO18, etc.

WiringPi Pin Numbering:

WiringPi is a software library that provides a GPIO interface for the Raspberry Pi.

It uses its own numbering system, which maps to the pins in a way that's sometimes easier for users, as it assigns numbers sequentially based on the GPIO pin layout rather than the physical board or Broadcom pin numbering.

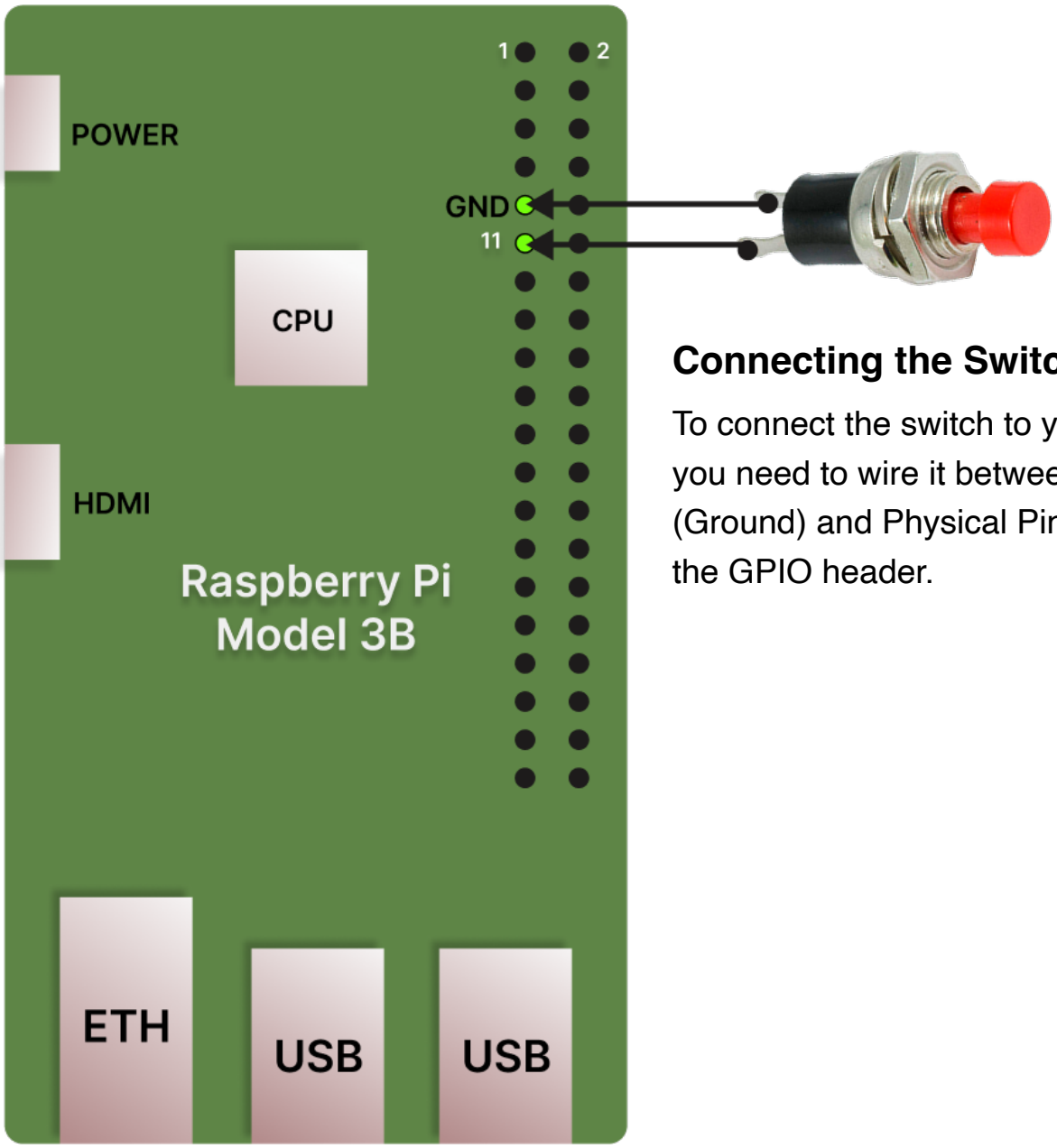
Mapping Pin Numbers:

Opposite is a chart displaying the pin mapping for the Raspberry Pi, showing the correlation between the three major pin numbering schemes:

Physical, BCM (Broadcom), and WiringPi.

For instance, WiringPi pin 0 corresponds to Physical pin 11 on the Raspberry Pi GPIO header.

This chart provides a clear and comprehensive guide for understanding the different numbering systems used to reference the GPIO pins.



Connecting the Switch

To connect the switch to your Raspberry Pi, you need to wire it between Physical Pin 9 (Ground) and Physical Pin 11 (GPIO 17) on the GPIO header.

Enabling the Halt Script

The Halt Script is built into the HamVoIP software but may be disabled by default.

To enable it, follow these steps:

Open the allstar.env file located at:

/usr/local/etc/

Look for the line that says:

SHUTDOWN_MONITOR

Ensure the line reads:

SHUTDOWN_MONITOR="enabled"

After the system reboots, if you wish to shut it down, simply press and hold the button for at least 8 seconds.

You will hear a confirmation message over the radio, indicating that the shutdown process has been initiated.

Approximately 10 seconds later, the system will safely halt and power down.