Adding Hardware-based shutdown button in IIAB device

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IIAB (Internet In A Box)

Based on Raspberry Pi Zero W and Raspberry Pi 4
Problem

Only Software Based Shutdown (main Webpage)

Someone can accidentally or intentionally (for fun) shutdown the IIAB device
Solution

Add a Hardware based safe shutdown button

Prototyping and Hardware testing during Wikimania Hackathon 2021
How to Do?

A python script (iiab_shutdown.py) allow to safely shutdown A device through a momentary push-to-on button connected to GPIO pin. A LED (optional) helps to indicate proper startup of IIAB device and also indicate status of button press.

It needs only three components and connecting wires costing **INR 30.00 ($0.40)** (1)Push to on button (2) LED (3) Resistance (1000 ohms) (4)connecting wires (5) PCB (optional)
How to use

- Set python script (iiab_shutdown.py) in Autorun Mode
- Holding down the button for about 5 seconds (You can change) LED fill flash and IIAB will be shutdown safely.
Circuit
Circuit

3V3 power
GPIO 2 (SDA)
GPIO 3 (SCL)
GPIO 4 (GPCLK0)
  Ground
GPIO 17
GPIO 27
GPIO 22
3V3 power
GPIO 10 (MOSI)
GPIO 9 (MISO)
GPIO 11 (SCLK)
  Ground
GPIO 0 (ID_SD)
GPIO 5
GPIO 6
GPIO 13 (PWM1)
GPIO 19 (PCM_FS)
  Ground
GPIO 26
  Ground

5V power
GPIO 14 (TXD)
GPIO 15 (RXD)
GPIO 18 (PCM_CLK)
GPIO 23
GPIO 24
GPIO 25
GPIO 8 (CE0)
GPIO 7 (CE1)
GPIO 1 (ID_SC)
GPIO 12 (PWM0)
GPIO 20 (PCM_DIN)
GPIO 21 (PCM_DOOUT)

Momentary Push Button

LED
Resistance
470-1000 ohms
Aha!

**Add on PCB**

This Small pcb consisting LED and Switch can help to use without any expertise of electronics
Links to Codes and PCB

- https://github.com/Suyashdwivedi/IIAB_hardware
- https://commons.wikimedia.org/wiki/Category:Wikimania_2021_Hackathon
Thank You

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