Coordinator (CO) Sequence of Events

1. Setup Phase

- Initialize pins, I2C, and serial.
- Set `relayPin` and `fanPin` to OFF.
- Attach interrupt on D2 (`wdAlertPin`) for emergency signal from Watchdog (WD).
- At end of `setup()`, set `coReadyPin` (D6) HIGH to notify WD that CO is ready.

2. Serial Command Handling

- `start`:
    - Sets `testRunning = true`
    - Sets `pwmValue = 0`
    - Turns relay ON (load connected)
- `stop`:
    - Stops test
    - Turns relay OFF, fan ON
    - Waits 60 sec, then fan OFF

3. Main Loop

- If `emergencyShutdown == true`:
    - Turn relay OFF, fan ON
    - Continue logging sensor data
- If test is running:
    - Sends Vgs PWM to controller
    - Reads Vbus, Vshunt, current, temp
    - Logs all data over serial
    - Increments PWM until max
    - Delays between steps

4. Auto-Shutdown (CO-controlled)

- If `current_mA` exceeds limit (e.g., 5000 mA):
    - Same shutdown sequence
    - Continues logging

5. Emergency Shutdown (WD-triggered)

- If WD sets D4 HIGH (CO sees rising edge on D2):
    - CO disables load, enables fan
    - Continues logging for diagnostics