Arduino and RPis

ECE1528

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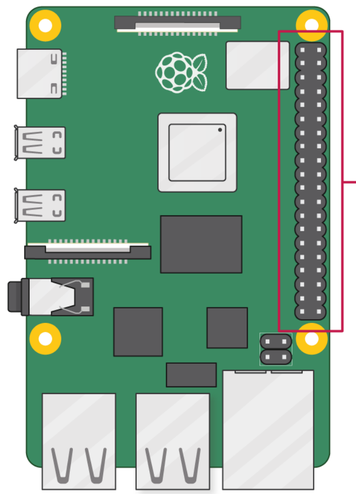
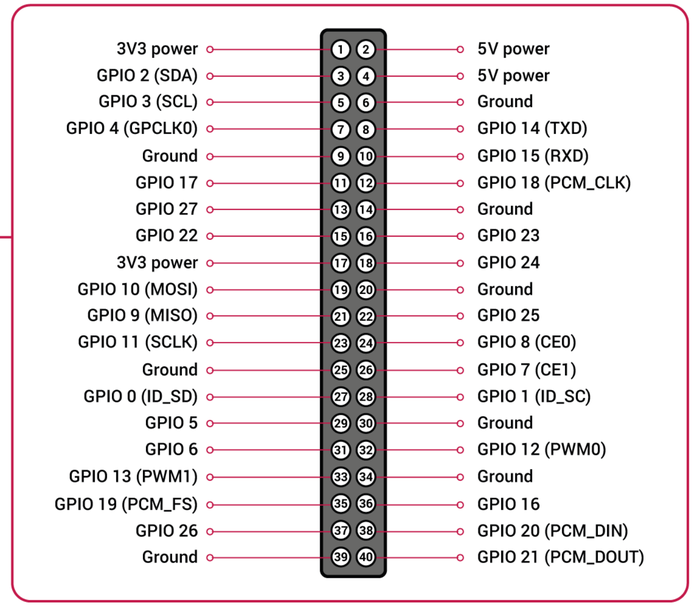
RPi Shutdown and Reboot

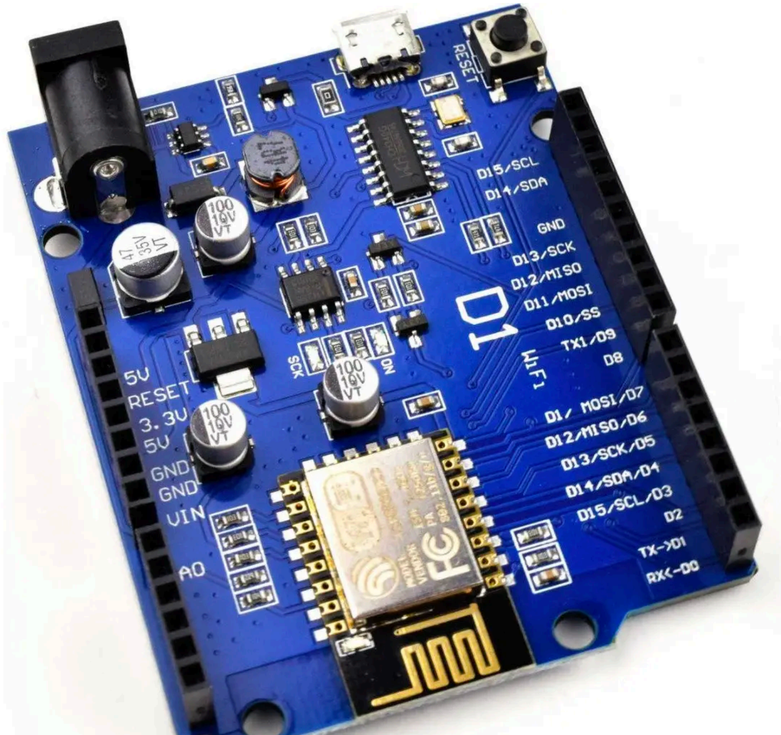
- Command line
  - **Shutdown (immediately):** sudo shutdown -h now
  - **Reboot:** sudo reboot
- When shutting it down, make sure that **the green light is completely off before unplugging the power cable**
  - Usually the green light blinks quickly -> stays on for 1~2 seconds -> off completely
  - Otherwise, your SD card can be corrupted (no longer bootable)

Board Voltages

- RPi can supply 3.3V (< 50mA) and 5V
- Wemos ESP8266 can supply 3.3V (< 1A) and 5V when connected to USB
- The digital pin voltage for both RPi (< 16mA) and Wemos (< 12mA) is always 3.3V

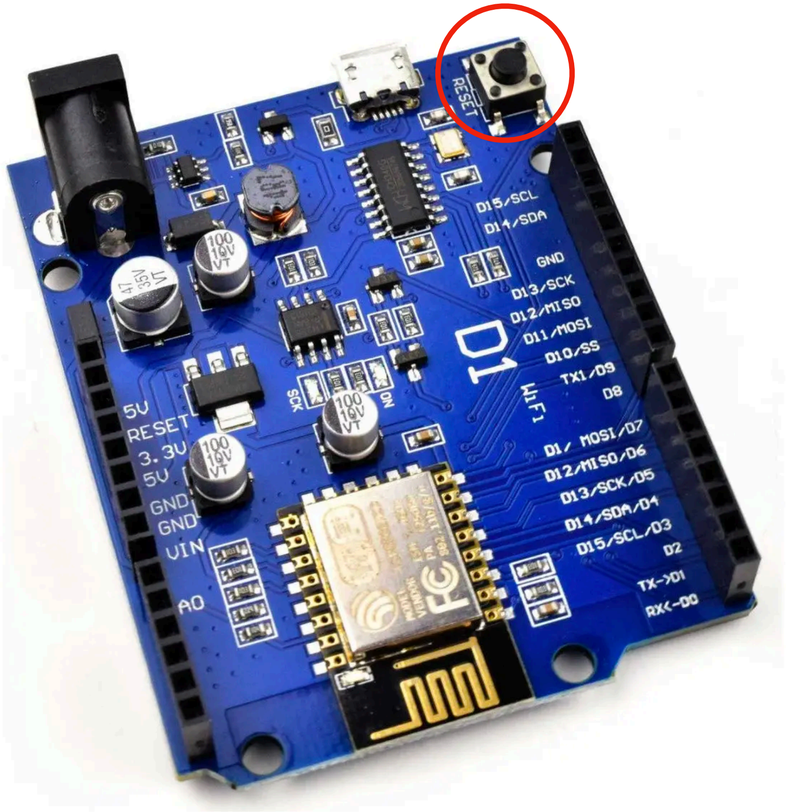






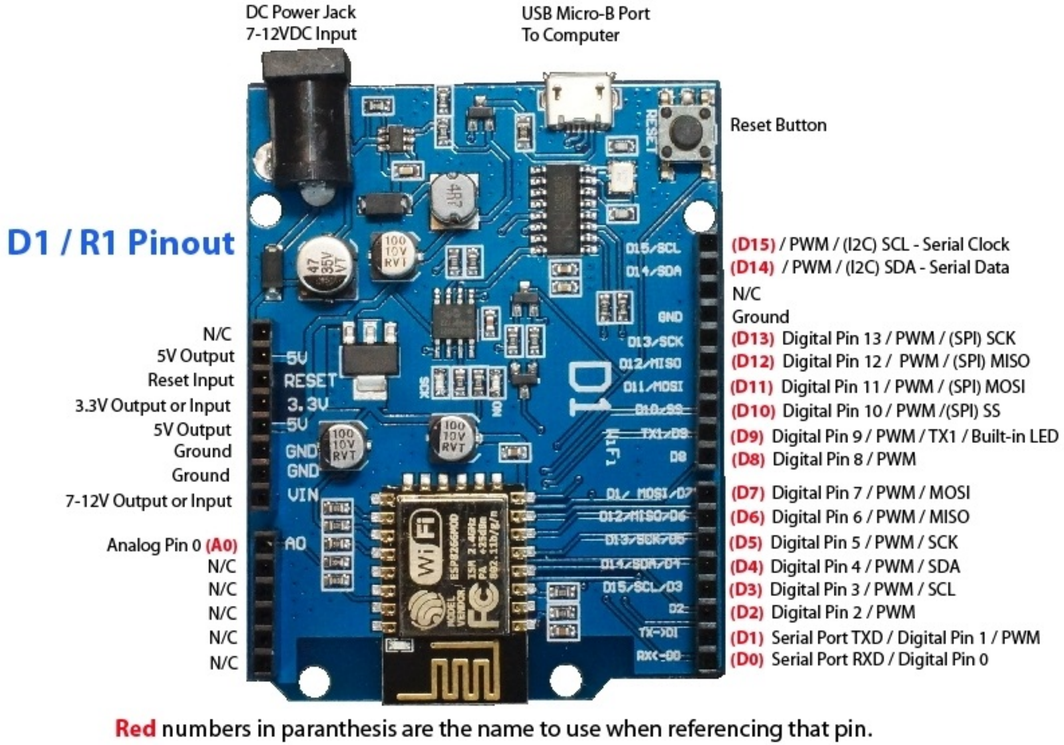
Wemos Boards: Reset

- There is a reset button on the Wemos ESP8266 board
- You can reset the program (i.e. restart the program execution) by pressing it



Wemos Boards: Pin Mapping

- Some pins on the Wemos board are duplicates
  - Pin D3 and D15
  - Pin D4 and D14
  - Pin D5 and D13
  - Pin D6 and D12
  - Pin D7 and D11



Arduino IDE

- For Window users, it is not recommended to install the Arduino IDE from the Windows App Store.
- Usually a running Arduino IDE instance can only control one microcontroller at a time. If you want to monitor multiple serial outputs, you can simply run multiple Arduino IDE instances
    - Easy to do on Windows
    - For MacOS users, clicking the Arduino app does not open a second instance.
    - Write `alias arduino="/Applications/Arduino.app/Contents/MacOS/Arduino"` to the ".bash_profile", and open Arduino by calling `arduino` on command line

Arduino IDE External Libraries

- You might want to use libraries (e.g., on Github) in your project
- Two ways
    1. Go to Arduino IDE -> Tools -> Manage Libraries, and install the library you want
    2. Download the library from the Github, and place it into the "libraries" directory (and restart the Arduino IDE)
        - MacOS(Default): Documents/Arduino/libraries/

Wemos Boards: Boot Messages

- Setting the baud rate to 74880 on the serial monitor of Arduino IDE, you can notice the boot messages.
- Those messages can be very helpful in debugging crashes and sleep mode.