

Build Your Own Portable Gaming System – PreWork

Updated 2021-12-30

What to Bring

There will be a limited number of soldering stations provided at the session. **If you have your own soldering iron, you are strongly encouraged to bring it.** Soldering irons should be the “pen” style, not the gun/pistol style.

- Required: Fully-charged **laptop** with an **accessible USB port**. (If your company locks down the USB ports on their employee laptops as part of their security policy, bring a different laptop.) See below for the required and suggested software.
- Required: **MicroUSB cable** that works with your laptop.
- Optional: A micro SD card slot on your laptop or a USB micro SD card adapter.
- Optional: **Soldering iron**, tools, stand/helping hands, magnifier, fan, etc.
- Optional: **USB keyboard** (useful for some of the games)
- Optional: **1/8” audio cable** sound source (cell phone, microphone, electric guitar ;-)
- Optional: **5V 1-2A DC charger** with USB port (i.e. a standard cellphone charger)
- Optional: A **CR18650 li-ion battery** if you want to use the game system in disconnected mode. Note that due to supply chain issues, these are currently expensive and difficult to come by. Many that are available are low-quality, and often only provide a fraction of the rated power. Many rechargeable flashlights use CR18650 batteries, so bring ‘em if you have ‘em.

Please mark or label anything you bring with your name!

Software

In an effort to minimize the amount of group time spent waiting for large downloads and installs to complete, please install the following items **before** arriving at the workshop. You’ll need VS Code with the PlatformIO extension AND the Arduino IDE. You’ll also need the Teensy platform.

VS Code

Download and install from <https://code.visualstudio.com/>

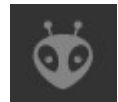
PlatformIO

1. Launch VS Code and click the Extensions icon on the left.
2. Enter “PlatformIO” in the search box.
3. Select “PlatformIO IDE” from the results.
4. Click the [Install] button.



Teensy Platform

1. After you’ve installed PlatformIO in VS Code, click the PlatformIO icon on the left.
2. Click the Platforms icon on the PlatformIO vertical toolbar.
3. Enter “Teensy” in the search box.
4. Click the [Install] button on the Teensy search result. It should be v.4.13.1 or higher.



Other Libraries

1. Click on the Libraries icon on the PlatformIO vertical toolbar.
2. Use the “Search libraries...” text box to find and install the following libraries:
 - Adafruit BusIO (by Adafruit)
 - Adafruit GFX Library (by Adafruit)
 - ILI9341_t3n (by Limor Fried)

Arduino IDE

Download and install from <https://www.arduino.cc/en/software>

Teensyduino Platform

Download and install from https://www.pjrc.com/teensy/td_download.html

Misc Files

Doom WAD

<https://www.wad-archive.com/wad/Doom-Shareware-v1.9>

Recommended Utilities

These are not strictly required for the session, but will enhance your experience and allow some additional options when creating and personalizing the hardware sketches.

- Git client (any will do)
- Unzip utility
- Image editor (Paint, GIMP, Photoshop, Paint.NET, etc.)
- Audacity (or other similar audio file processing software)