

Cyberdeck: Part Two

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As parts start arriving, I continued to research other builds and review the list of radios and devices I plan to include in the initial configuration. One area that particularly interested me was the software defined radio (SDR).

I currently own an [RTL-SDR](#), which is a very capable little USB device that can receive a wide range of frequencies and will be included in the build. However, another SDR that continues to show up in my searches is the [HackRF One](#) from Great Scott Gadgets. It has a few significant advantages over my current radio:

- 1 MHz—6 GHz frequency range
- 20 MHz bandwidth
- Transmit capability

However, at a cost of \$350—\$400, I don't think I could justify spending that much on another SDR. So I gave up on that idea (almost).

Rabbit hole. Even deeper...

It turns out, I'm not the only one who feels this way about the price. I discovered that the HackRF One is actually an [open source](#) design, and a fairly large community has grown up around extended the device's capabilities, which has attracted the attention of a few Chinese manufacturers. One group of developers that particularly interest me is the [Mayhem project](#):

- Extends the HRF board with an LCD screen board and click wheel
- Packaged in a more portable handheld case
- Custom open source firmware, including a lot of very "interesting" applications (for educational purposes only of course)
- Available from Chinese manufacturers for less than \$200. One in particular, , which has a very good reputation in the community

So, design update...

The current plan is to mount a Mayhem edition H4M Portapack on the Pelican case custom plate, between the power section and the antenna SMA group (build steps in a future article). I opted for the "Clifford Heath" version, which is an upgraded design by someone in the open source community, that fixes a few problems with the original HRF design. It also swaps a

few components for higher spec parts, but still stays well below the \$200 price point. The Mayhem edition is also very cool looking, printed on a white PCB, and silk screened with the GitHub usernames of the projects top contributors.



I've also created a GitHub [repository](#) for the project that will contain:

- Configuration files for the various OS and applications
- A full bill of materials in csv format, including all the misc screws and cables used in the build

Follow for future articles to see how the whole thing is assembled, and I'll be adding an article to the series reviewing the Mayhem's features. In the meantime, check out the first [article](#) in the series for an overview of the project.