

# How to build a Pirate Radio?

## Introduction

Hacking is fun. Hardware and software tinkering in common even more! That's what the **Pirate Radio** is about. Combining a some parts with a few lines of codes and off you go to be your own radio station.

Basically the Pirate Radio is not too much of magic as it may seem at a first glance. A Raspberry Pi, a few common electronic tinker parts and a software called PiFM, enable you to air whatever content you would like to over radio waves. Low in budget, short time in realization, wast effect(s).

May be [Video Killed The Radio Star](#), however the Pirate Radio is a hackers' answer, on how to reanimate the Radio culture!



Please note, some frequencies are reserved for specific services **only**. Do not overmodulate these services with the help of the Pirate Radio. Consider [4].

## Parts / Tools List

### Parts

Item	Quantity
Raspberry Pi (Model A <b>or</b> B)	1
Micro USB cable or adapter (5V 1200 mA)	1
(Micro) SD Card (8GB recommended)	1
Female Jumper Wire Connector (2.54mm)	1
Heat Shrink Wire Cable	1

### Tools

Item	Quantity
Soldering Iron Station	1
AWG 12 Cooper Wire	1

## Flash the SD card

Flashing the card with your favourite operating system is crucial for the radio to work, as you've probably imagined already. We recommend to install [Arch Linux](#) though. Why? Because, it's (1) light weighted, (2) well structured, (3) it has a very resourceful [wiki](#) and (4) is simply awesome.

Find the image file and installation instructions [here](#).

## PiFM

Log on to your system and download the [PiFM](#) software you need to transmit your sound!

```
<sxh bash> [user@hostname ~]$ mkdir pifm; cd pifm [user@hostname ~]$ wget -no-check-certificate https://download.c3i.lu/dlbase/scripts/Pifm.tar.gz </sxh>
```

Extract the content from its archive and enter the directory.

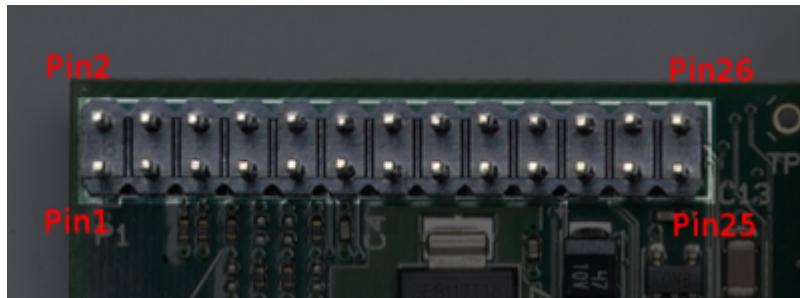
```
<sxh bash> [user@hostname ~]$ tar xfv Pifm.tar.gz </sxh>
```

Let's kick-off some waves!

```
<sxh bash; title:Playing a wav file> [user@hostname ~]$ sudo ./pifm sound.wav 103.3 22050 stereo </sxh>
```

```
<sxh bash; title:Playing a mp3 file> [user@hostname ~]$ ffmpeg -i sound.mp3 -f s16le -ar 22.05k -ac 1 - | sudo ./pifm - </sxh>
```

## Increase the range



## Tuning in!

## References

- [0] <http://www.raspberrypi.org/>
- [1] <http://makezine.com/projects/make-38-cameras-and-av/raspberry-pirate-radio/>
- [2] <http://myhowtosandprojects.blogspot.com/2014/04/raspberry-pi-make-your-own-pirate-radio.html>
- [3]
- [4] Frequency distribution and attribution plan of Luxembourg provided by Institut Luxembourgeois de Régulation (ILR)

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