

# Build Your Own Coffee Roaster with Raspberry Pi

Designing, Wiring, and Controlling



Matthew Beard

*This document prepared COMPLETELY  
using open-source software in Linux*

*Edition 1.2, 2025*

*If you don't have what you want,*

*Try to create it.*

*If it doesn't work the way you want it to,*

*change it.*

*And repeat.*



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Hello, Friends.

This document will walk you through building a simple coffee roaster, using various parts from online sources, hardware stores, and salvaged appliances.

Despite the simple construction, the roaster can automatically follow roasting profiles, to roast your coffee exactly the way you want.

You can buy small coffee roasters, of course. But they are expensive, and I would rather make something myself if I can. That way I can spread out the cost, and also have total control over what the machine does. Plus, if something I build breaks, I know I can always fix it.



This machine, the “Cobra”, was built for around \$120 USD and uses the same operating system I created for my larger coffee roaster. I call this system the Open-Roaster-Controller, or ORC for short. It’s a Linux-based program that runs within the Node-Red environment, more on that later.

This software is free, with no subscription cost per month. I've formatted this as a complete operating system for the Raspberry Pi, with an easy setup method. And building the machine isn't difficult, as long as we are careful and don't get in a hurry.

Follow me, I'll show you what to do.

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