Phoniebox - DIY Jukebox

Here is a collection of notes, guides, and photos documenting the process of building a Phoniebox for our son.

This was a collaborative effort, and we'd like to express our thanks to everyone who contributed.

- Photos
- Hardware
- Software
- Notes

Photos

Here are some photos of the finished Phoniebox.

Front



Top



Site (right)



Site (left)

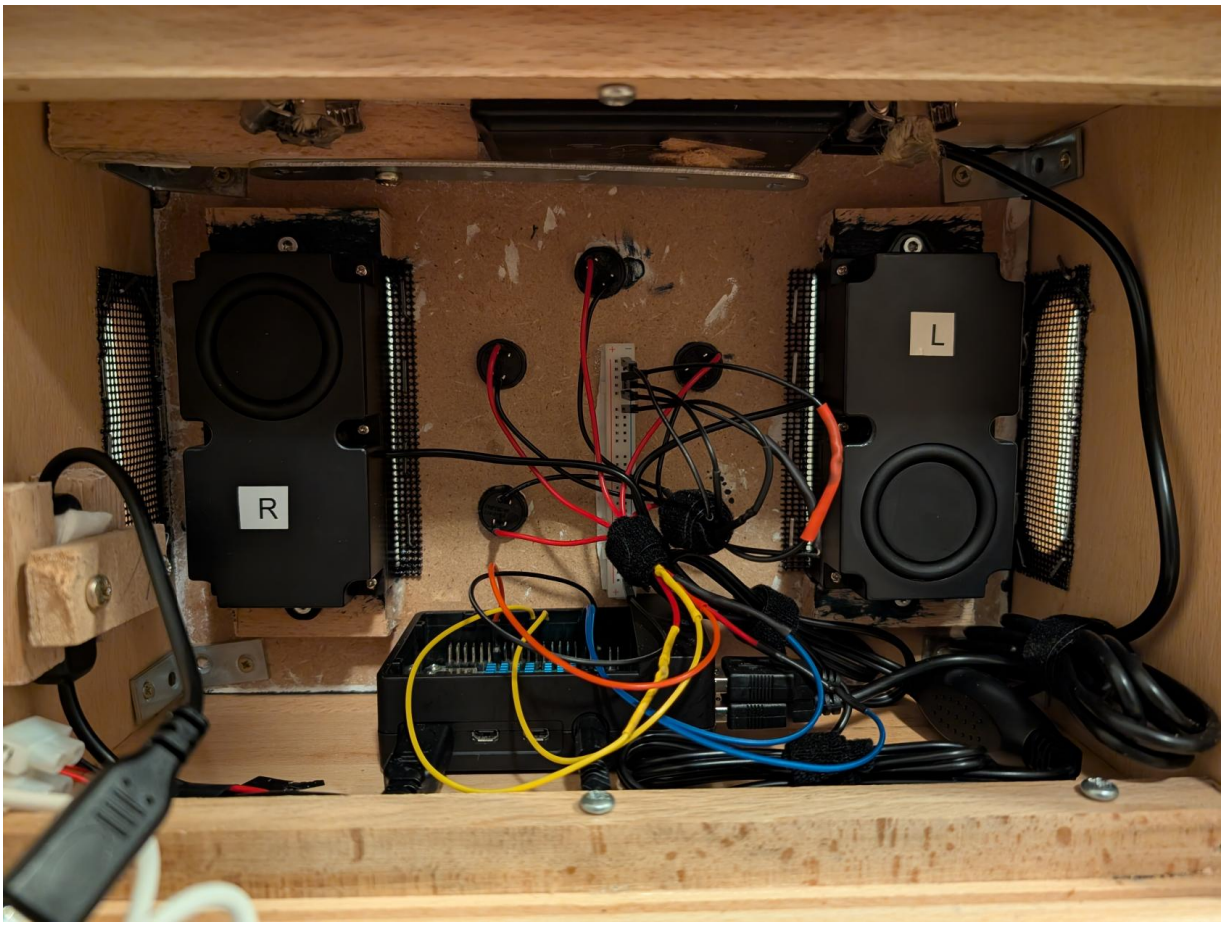


Back



Inside


R
L

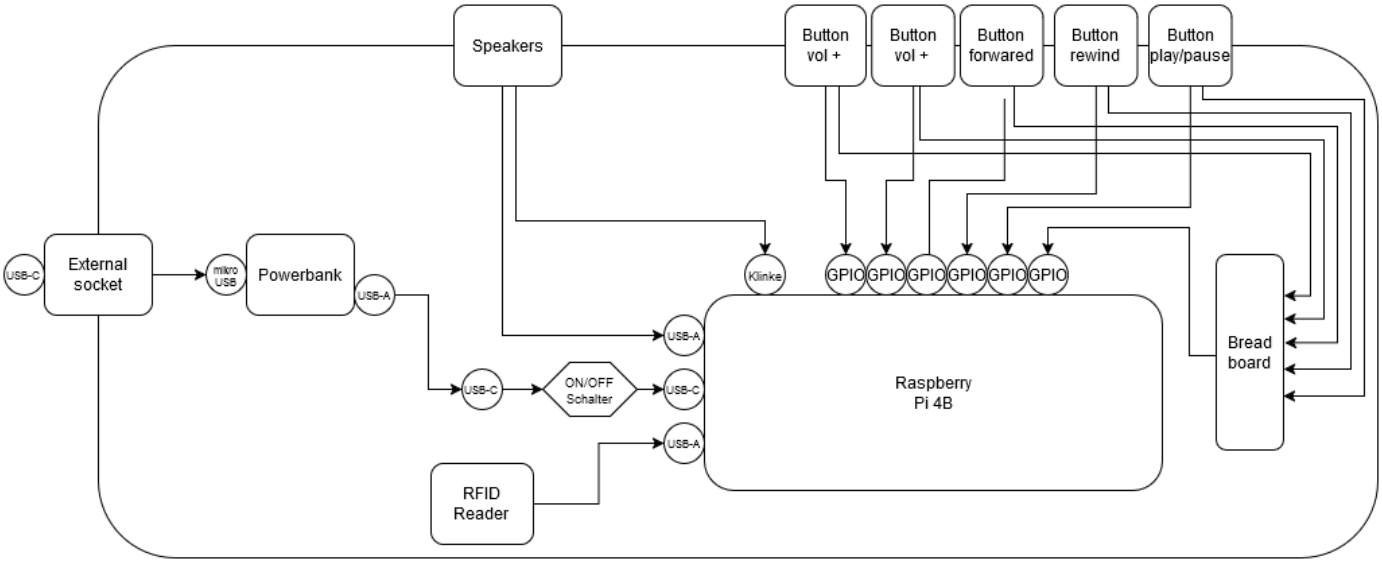

R
L

Hardware

Here is a overview about all the hardware used to build Phoniebox.

The price we paid for materials we did not already own is in displayed **square brackets** behind the materials.

Rough diagram how everything should be connected:



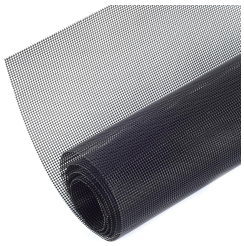
Case

- Wodden box [12€]



  - 30 x 20 x 15 cm
  - 1,3 kg
  - glazed surface
- Wodden boards (top and bottom)
- Rope
- Wodden strips
- Angle connectors
- Screws

- Stainless Steel Car Grill Mesh Screen [20€ for 100x33]



  - Coated 304SS Grid
  - 1mm round hole
- Edding (permanent markers) white and black

Technic

- Raspberry Pi 4 Modell B (4 GB)



- GINTOOYUN USB C Cable with On/Off Button [10€]



- MEIRIYFA Speaker 2.0 [20€]



  - USB A powered
  - 3.5mm AUX Jack
  - power can be turned permantly on
- Neuftech USB RFID Reader (EM4100) [12€ includes 5 chips]



- EMOS Powerbank BetaQ [21€]



    - 10,000 mAh
    - 22.5 W Quick-Charge
    - Charger with Passthrough (important!)
    - 2x USB-A and 1x USB-C out
- RUNCCI-YUN USB-C socket [6€ for 6 sockets]



    - waterproof
    - Rated voltage: DC 5V/9V maximum current: 2.0A
    - 12 mm diameter for the hole
    - includes nuts
- RUNCCI-YUN Mini Round Momentary Push Button [9€ for 10 buttons]



    - Rated voltage and current: AC250V/3A AC125V/6A
    - Mounting cut-out: approx. 15.6mm/0.6"; Head Diameter: 19.2mm/0.75"; 2 Ports
- Jumper cable



Software

We are using Phoniebox as the main software to control and configure the Raspberry Pi.

- Operating system: Rasbian (Bullseye)
  - outdated OS version recommended because of GPIO issues with newer one
- Phoniebox: RPi-Jukebox-RFID (v2)
  - install guide: https://github.com/MiczFlor/RPi-Jukebox-RFID/wiki/INSTALL
  - we decided to use v2 mainly because the device should be as stable as possible

After the setup the device can be controlled and configured via web UI.

Notes

Improvements

Here are some thoughts I have about updates to the current device or for a version 2:

- add OnOff SHIM as improved power management
- bigger buttons (I was not really thinking about the size when I ordered them)
- make it lighter, the whole thing is pretty heavy and not super easy for a young child to move