Institut für Telenautik

Werkstatt Mixed Media / Netzkunst

https://telenautik.de
https://42loop.de/garage
https://code.hfbk.net/42loop

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difference between computer & microcontroller

computer usually has

- operating system(OS), multi tasking !
- graphical user interface(GUI)
- input / output:
  - keyboard, (mouse)
  - screen
  - network
  - audio
  - usb / (bluetooth)
  - raspberry pi: SD Card slot
  - raspberry pi: General Purpose Input/Output (GPIO)
  - raspberry pi: connector for raspicam

disclaimer & addendum

disclaimer / addendum

~~- supply chain problems !~~

~~-- http://rpilocator.com~~

- beware: advertisement:

-- tutorials and sensors:

https://funduino.de/

- open source software:

https://42loop.hfbk-hamburg.de/garage/366

Philosophy of the Raspberry Platform

about philosophy

https://raspberrypi.org

- open source (almost)

- RaspberryPi Foundation is a charity

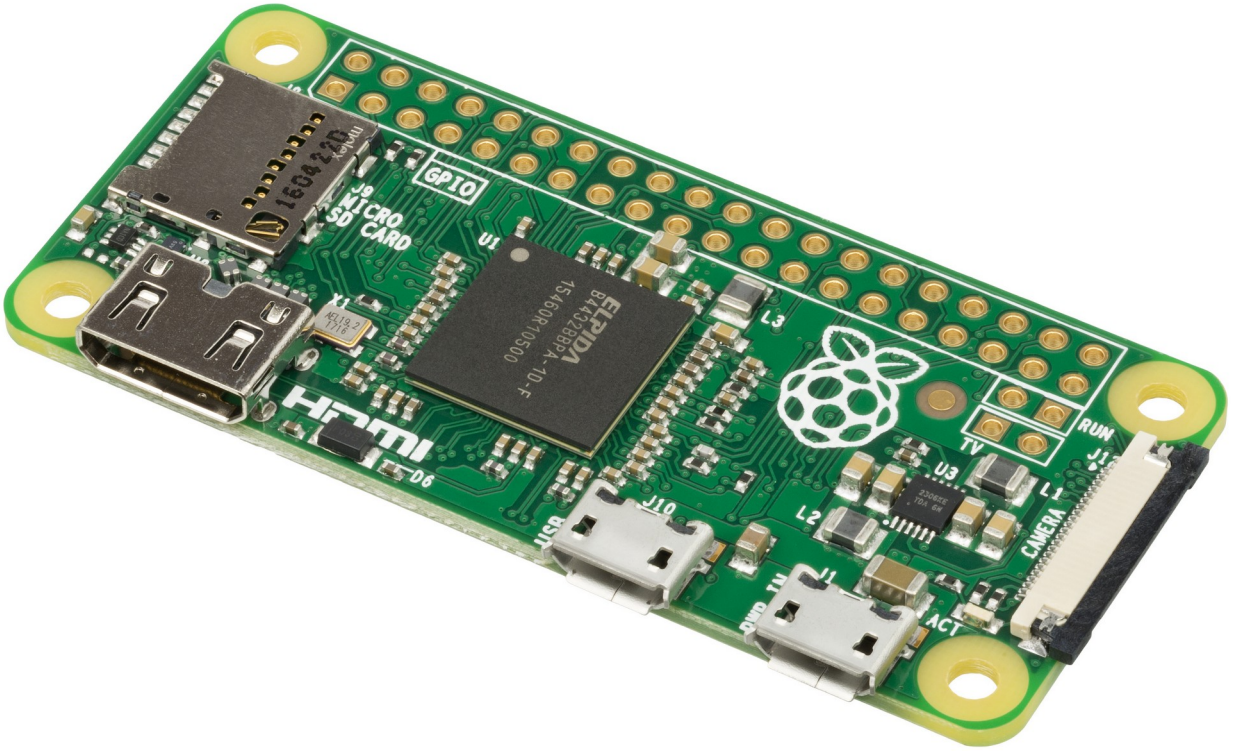
-- manufactured in UK

- aim: provide cheap computers to everyone,

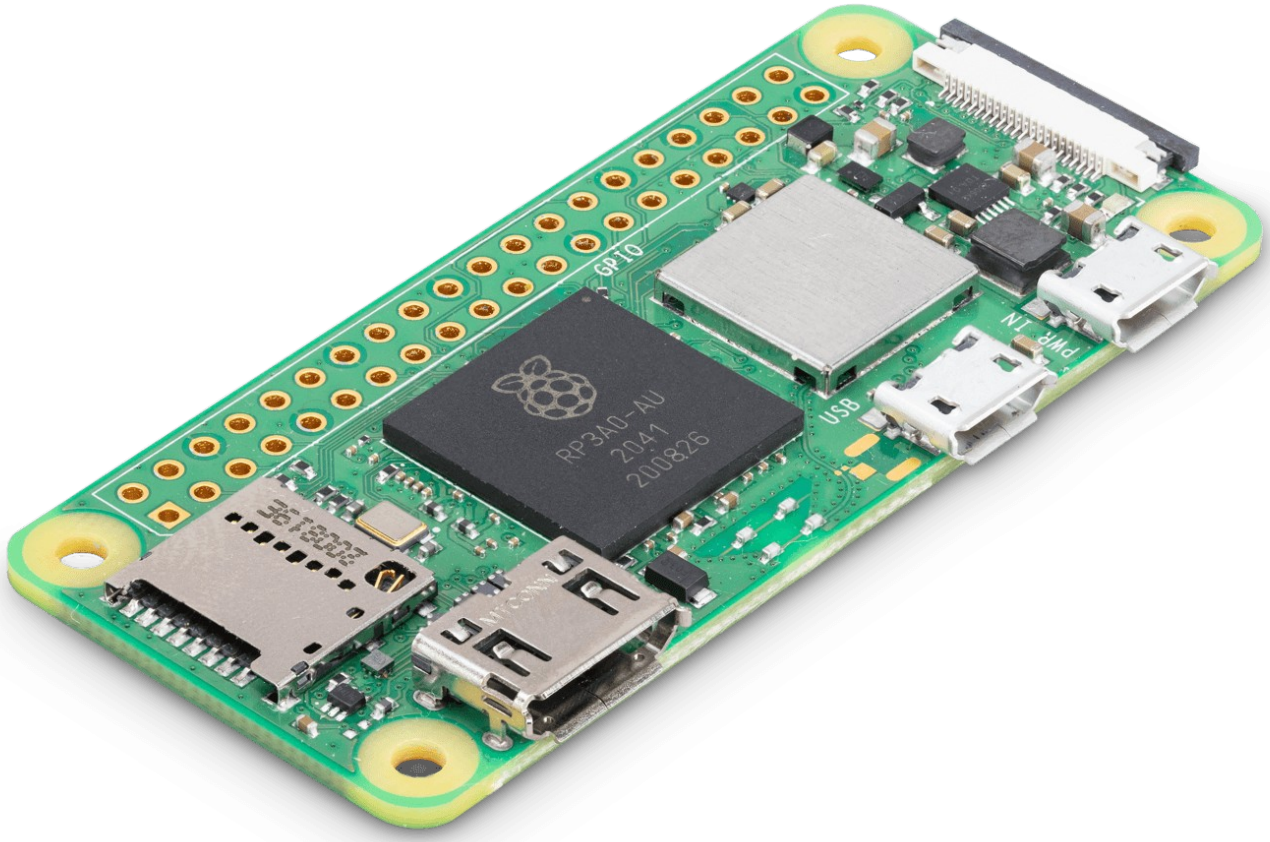
-- even in Africa or so: tv-output, battery power

alternatives: odroid, ...

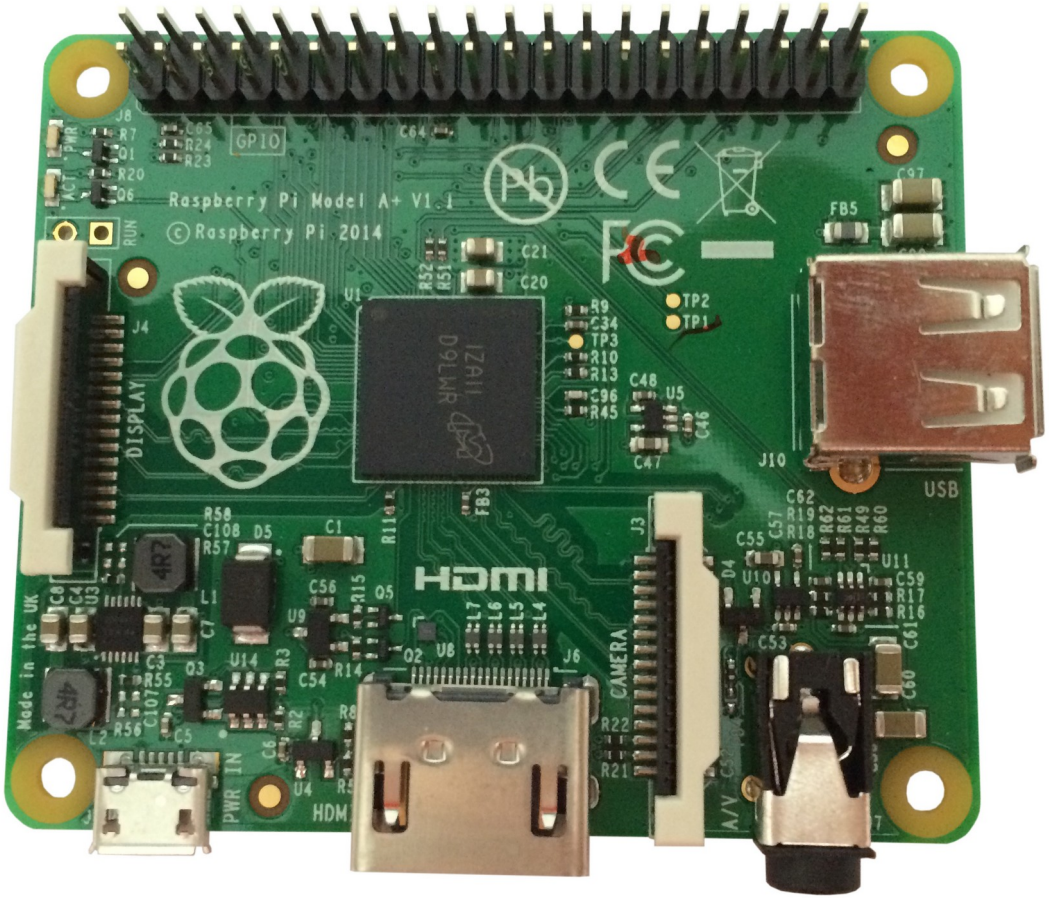
Raspberry ZeroW



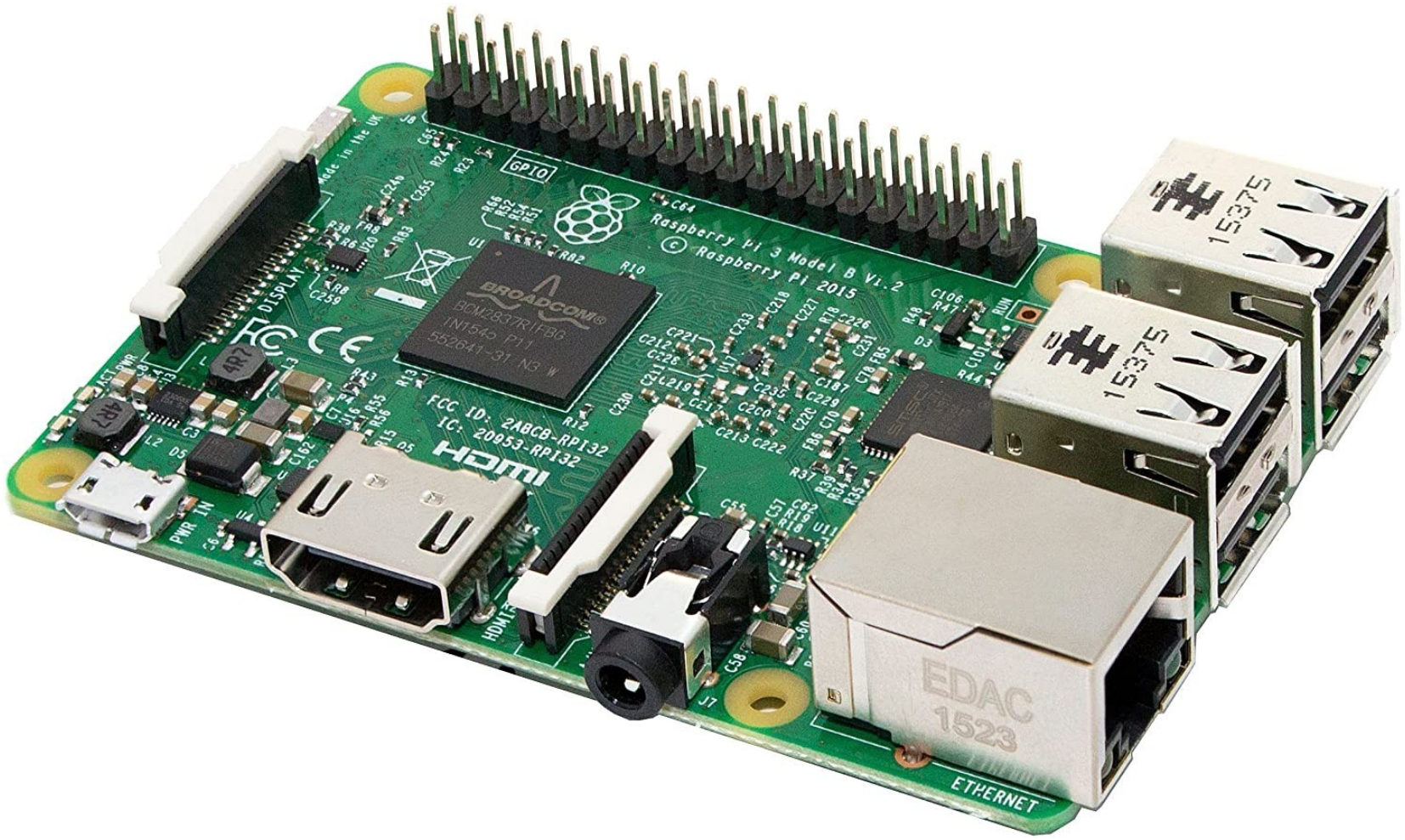
Raspberry Zero 2W



Raspberry 3 A+



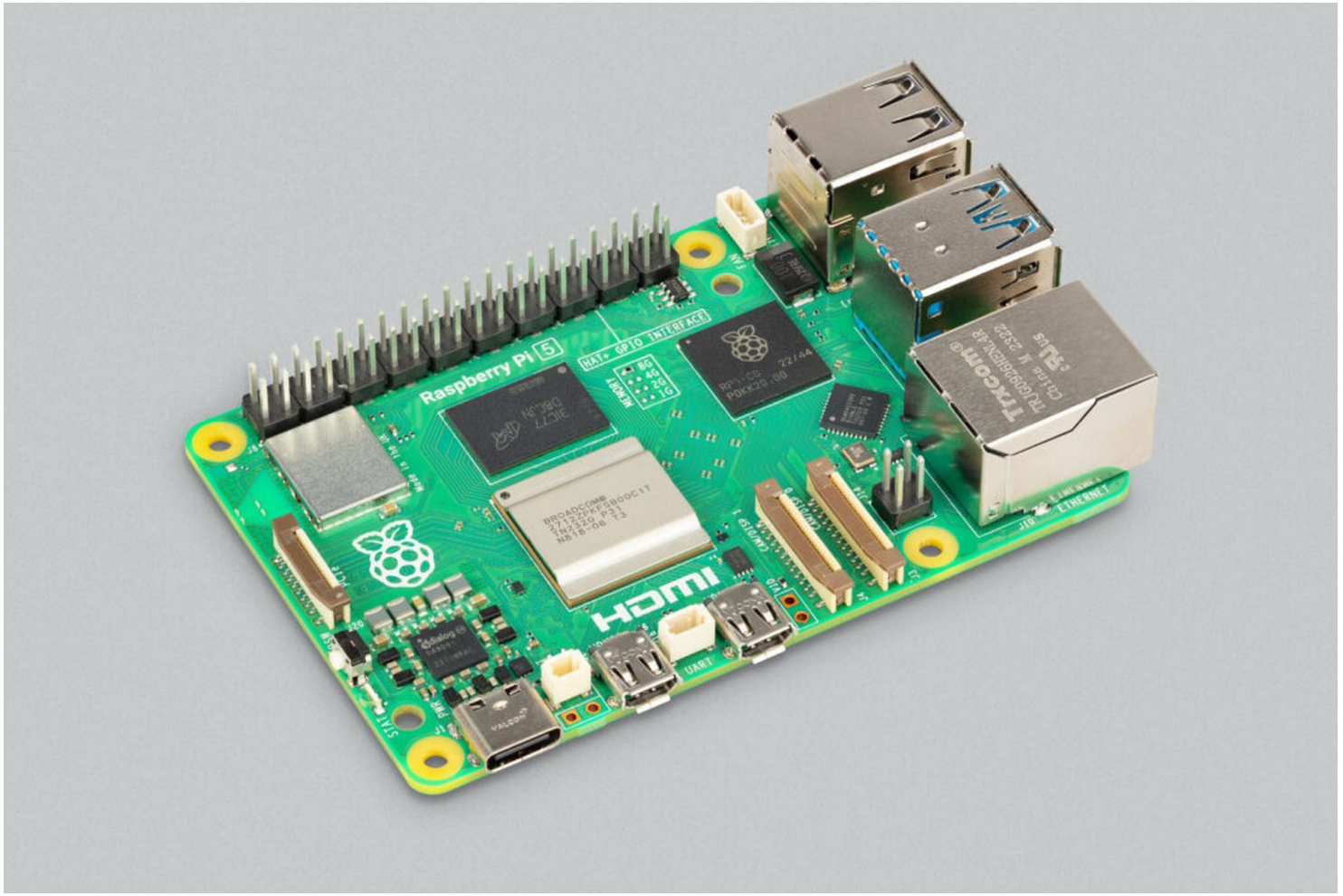
Raspberry 3B+



Raspberry 4


DISPLAY
GPIO
ACT
RUN
GLOBAL_EN
POWER_IN
Raspberry Pi 4 Model
© Raspberry Pi 2018
FCC ID: 2ABCB-RPI4B
IC: 20953-RPI4B
EDAC
USB2

Raspberry 5



what to buy to get started:

raspberry

sd-card (maybe with noobs preinstalled)

micro-usb power supply (usb-c for rpi4)

5V, 2.5A for Raspberry 3

(micro hdmi to hdmi adaptor for rpi4)

case (optional)

get an Operating System

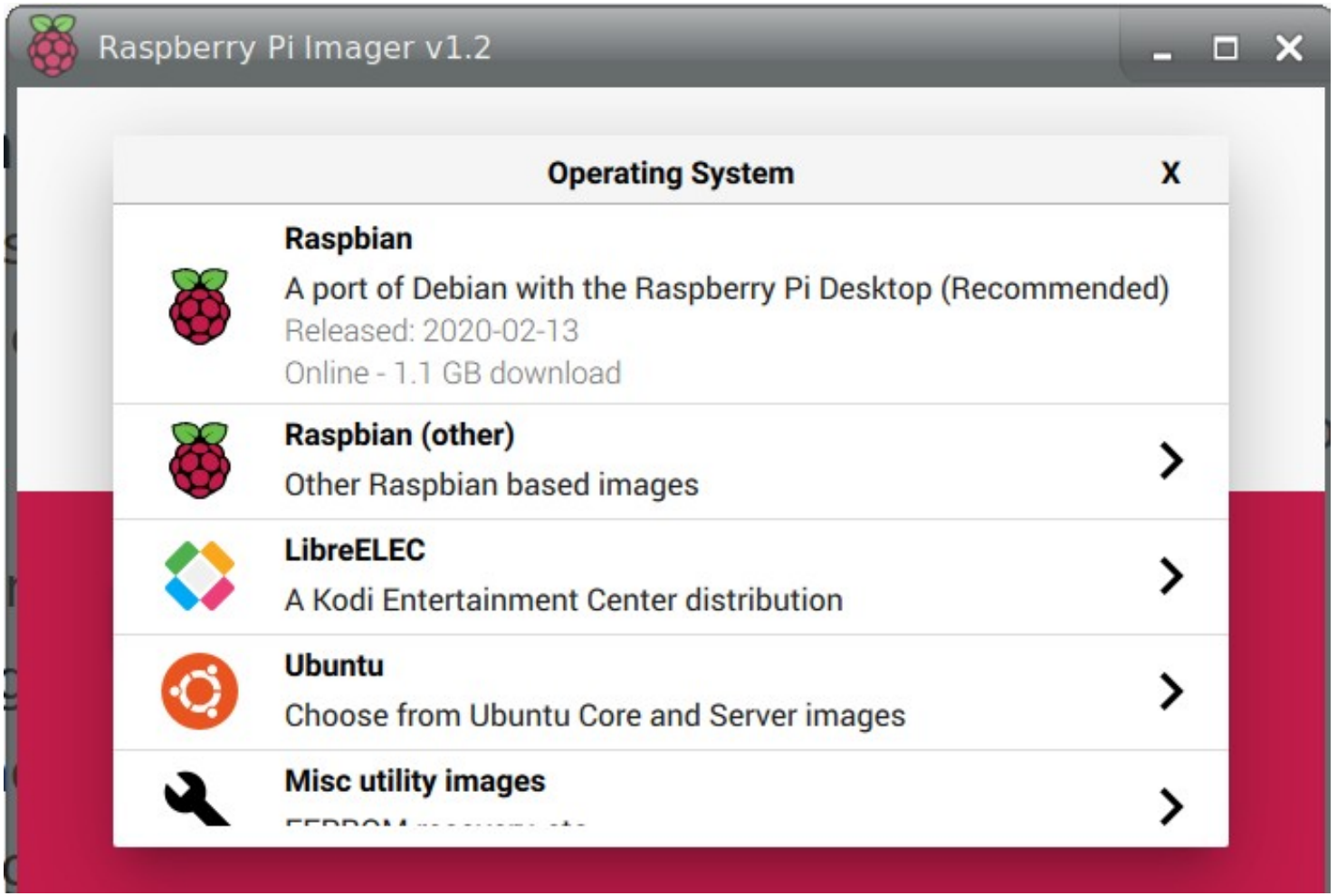
- download a current ‘Raspbian’ image from

https://www.raspberrypi.org/software

[an image is a complete OS to put onto an SD-Card]

- **or**: download the raspberrypi imager for your platform
- put SD-Card into your Computer / SD-Adaptor
- start the imager and follow instructions to
-- download and copy the download to the SD-Card
-- copy the .img file to the SD-Card
- (be patient, this will take some time)
- eject SD-Card

alternative OS
(maybe you want a media center ?)



Start it up (RaspiOS):

- insert SD Card
- plug in HDMI cable !
- connect to power supply

will start into regular Desktop Environment

- configure Country/Language/Timezone
- configure Screen settings
- configure Wifi
- update Operating System
- restart

Congratulations !

You now have a fully functional Desktop Computer for [~45€]

besides ‘fancy Desktops’

use ssh: ‘secure shell’

ssh pi@1.2.3.4 (default password: ‘raspberry’)

additional software:

- e.g. sudo apt install omxplayer

Use Cases

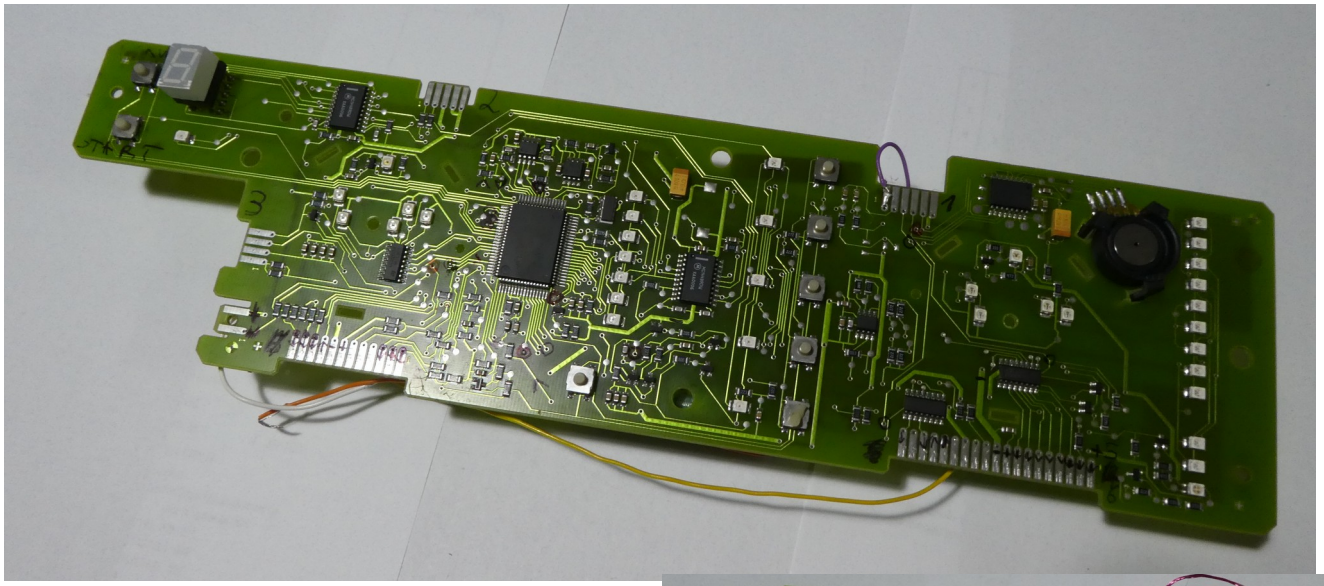
most popular:

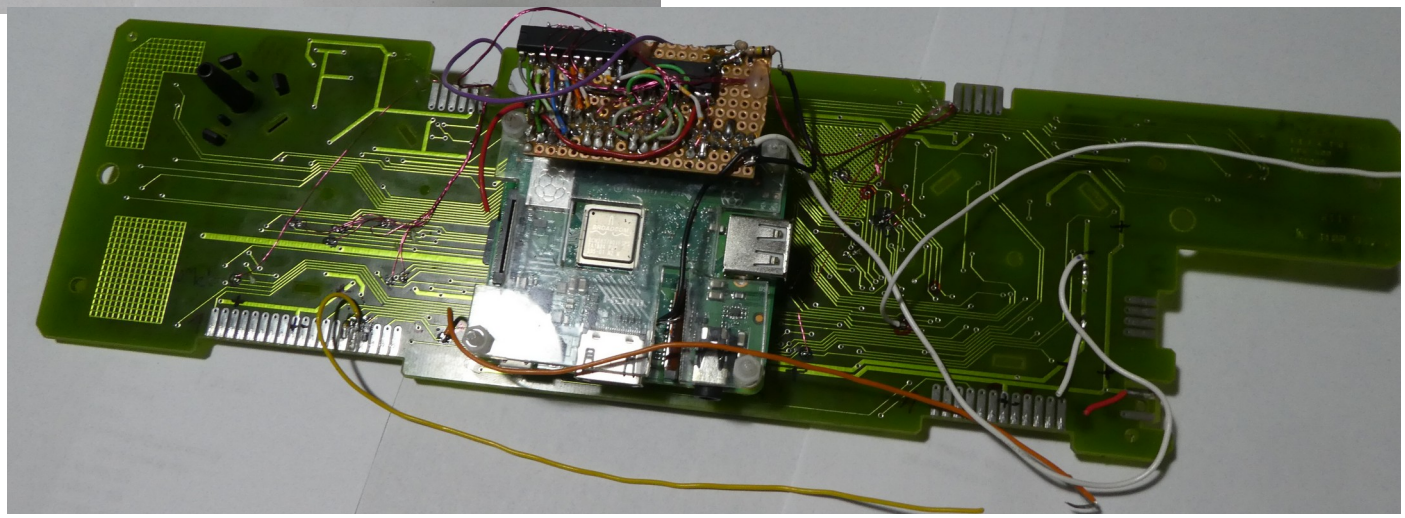
- OSMC based media player for use in video presentations (no buttons/logos, autostart, loopable, synchronizable, extendable)

use cases: infoprinter

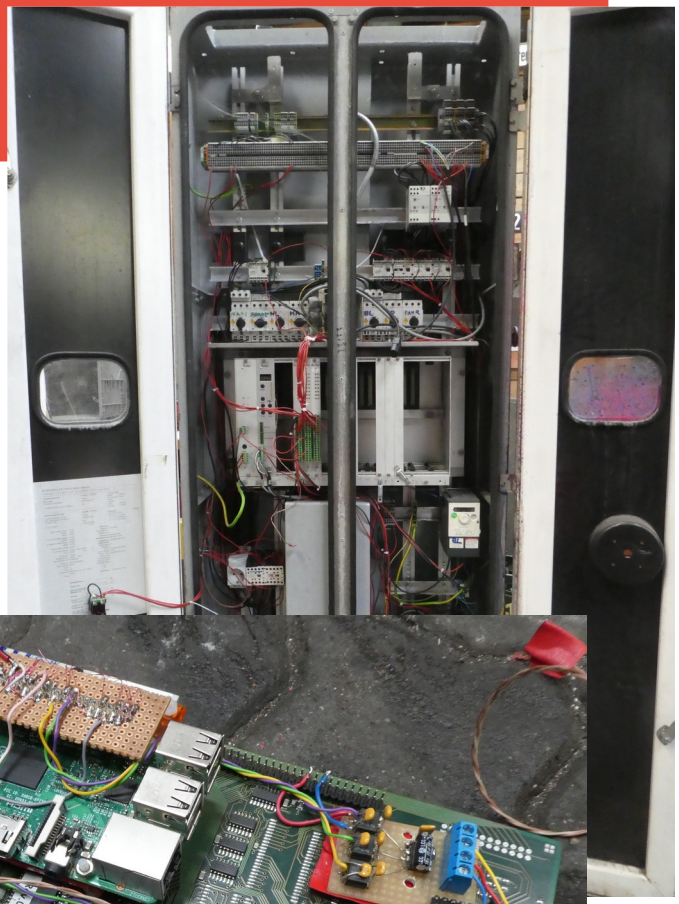
use cases: infoscreens

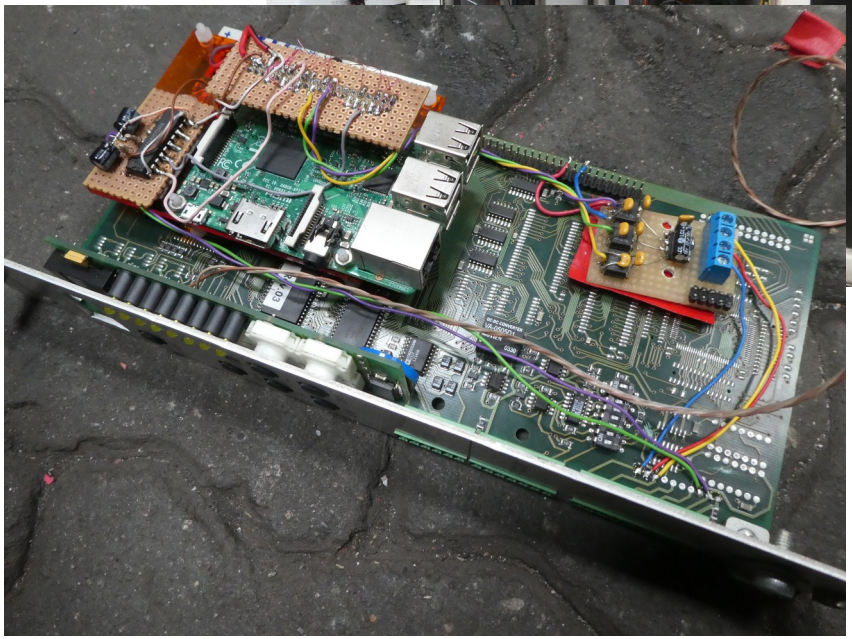
use cases: machinery control [washing machine]





use cases: car wash control [with android app]





use cases:utilities
[SD Card Copier]