Car rpi 3 hw Version 0.9

Project: Car interface to Raspberry2/3
Version: 0.9
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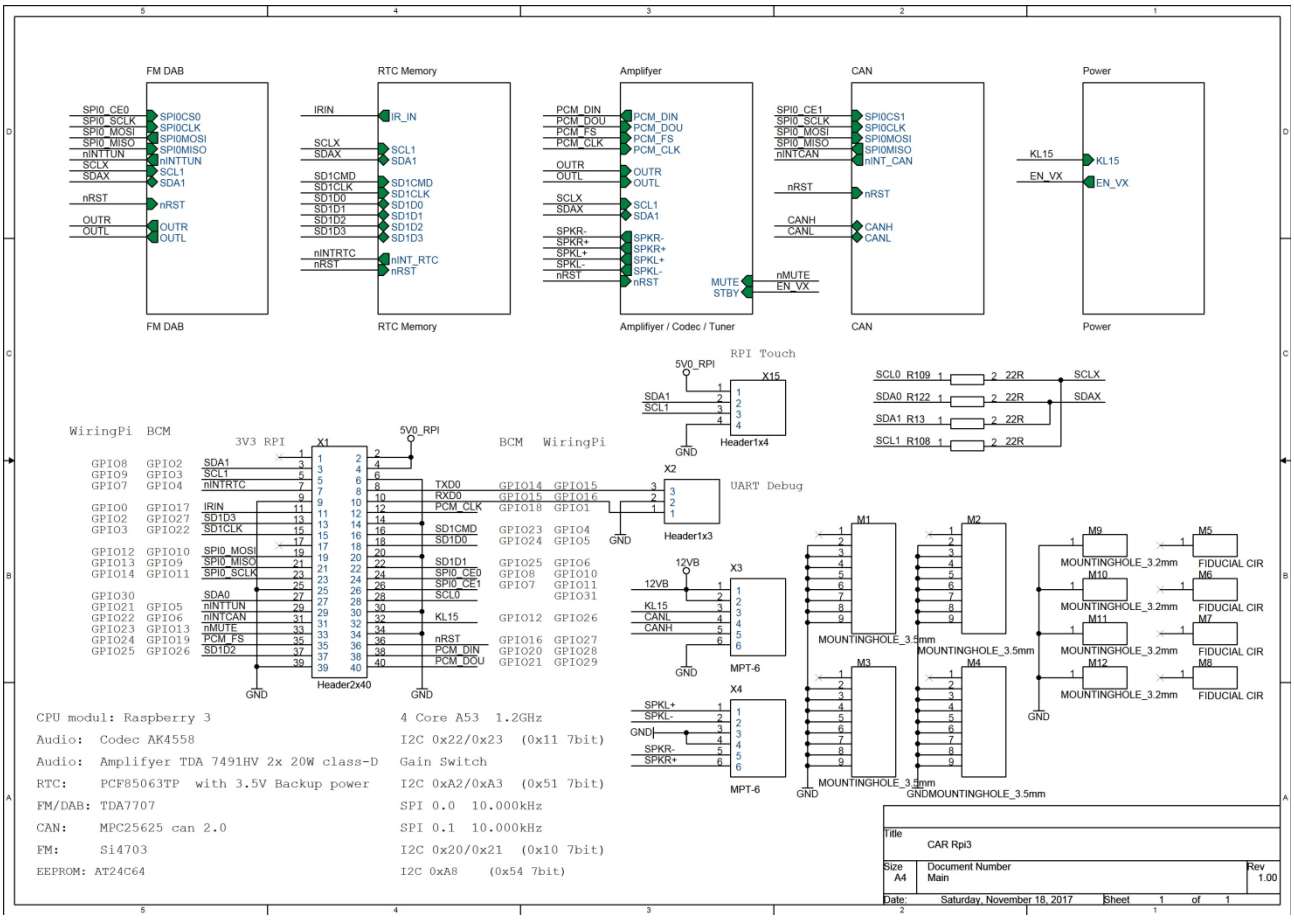
Objective: Create an interface to use the Raspi3 as a car radio or similar application.

Hardware: Additional printed circuit board (2 layer) with contact to the 40-pin interface plug of Raspberry 2/3. The following assemblies are included:

- Power 3,3 Volt / 3A to supply the interface circuits
- Power 5,0 Volt / 3A to supply the raspberry it self.
- RTC real time clock PCF 8563T with 3,3 Volt battery
- Eeprom AT24C64 8192 Byte nv memory for parameter settings
- 2. SD card interface and connector, alternativ eMMC 8 GB
- IR infra red receiver LIRC compatible
- Audio codec AK4558, I2S interface, ADC to FM radio analog R/L, DAC to amplifyer
- Audio amplifyer 2 x 20W TDA 7491HV D-class
- CAN interface MCP25625
- FM / DAB radio connector: support TDA7707 Evaluation board
  support SI4703 Sparcfun breakout
- FAN controller to pwm input of fan.
- Connector 4 pin to supply at Touchscreen, 5,0 Volt
- Connector 3 pin to UART debug, 3V3 level

Overview:



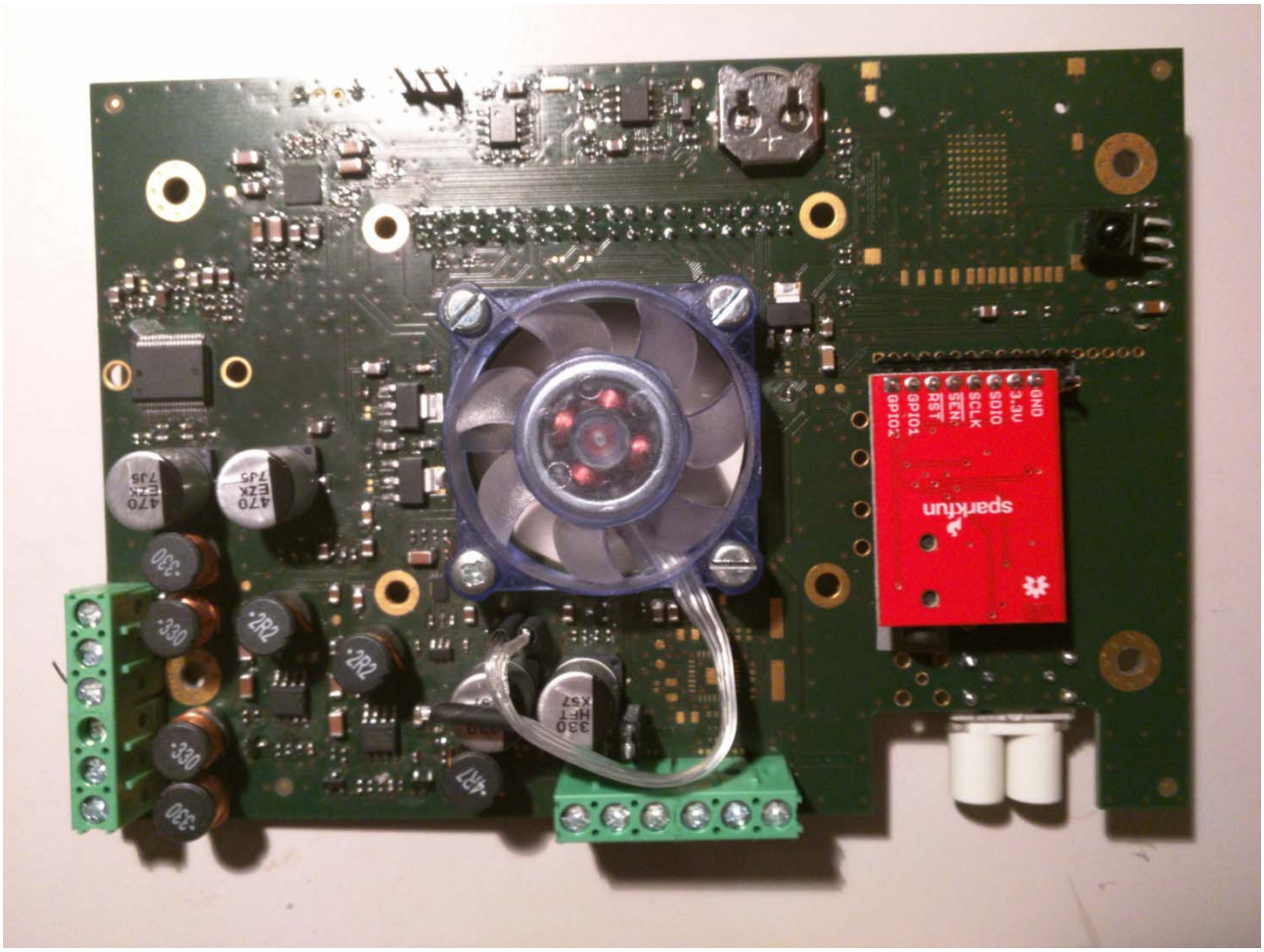
Software:

Adjustment of the kernel devtree has been made, regardless of overlays. User space drivers to QT in C style are provided. Github is set up and is being updated soon.
A Demo application is based on Raspian Pixel LXDE.
https://www.raspberrypi.org/blog/introducing-pixel/ Other distributions are possible.

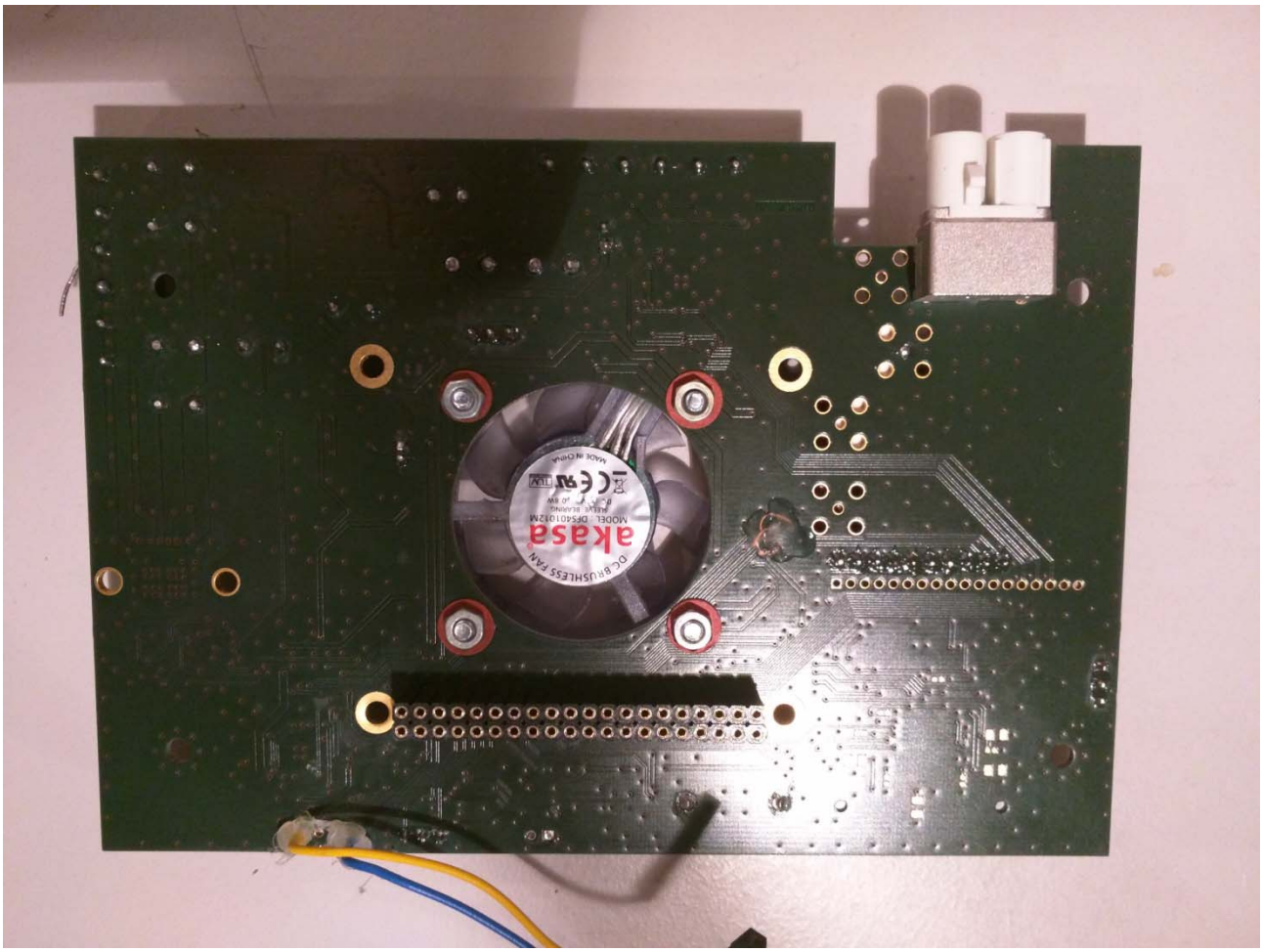
- GITHUB: https://github.com/hj-arlt prepared

- kernel 4.4.47-v7, devtree and config
- AudioControl.cpp / .h - audio interface, source control, volume,..
- TunerControl.cpp / .h - tuner interface, tune, scan, quality..
- CanControl.cpp /.h - can interface, send and receive messages
- NvMemory.cpp /.h - eeprom interface, read, write memory
- RdsList.c / .h - RDS station list
- alsaloop.c /.h - capture / playback switch of I2S codec
  Link: https://github.com/zonque/simple-alsa-loop

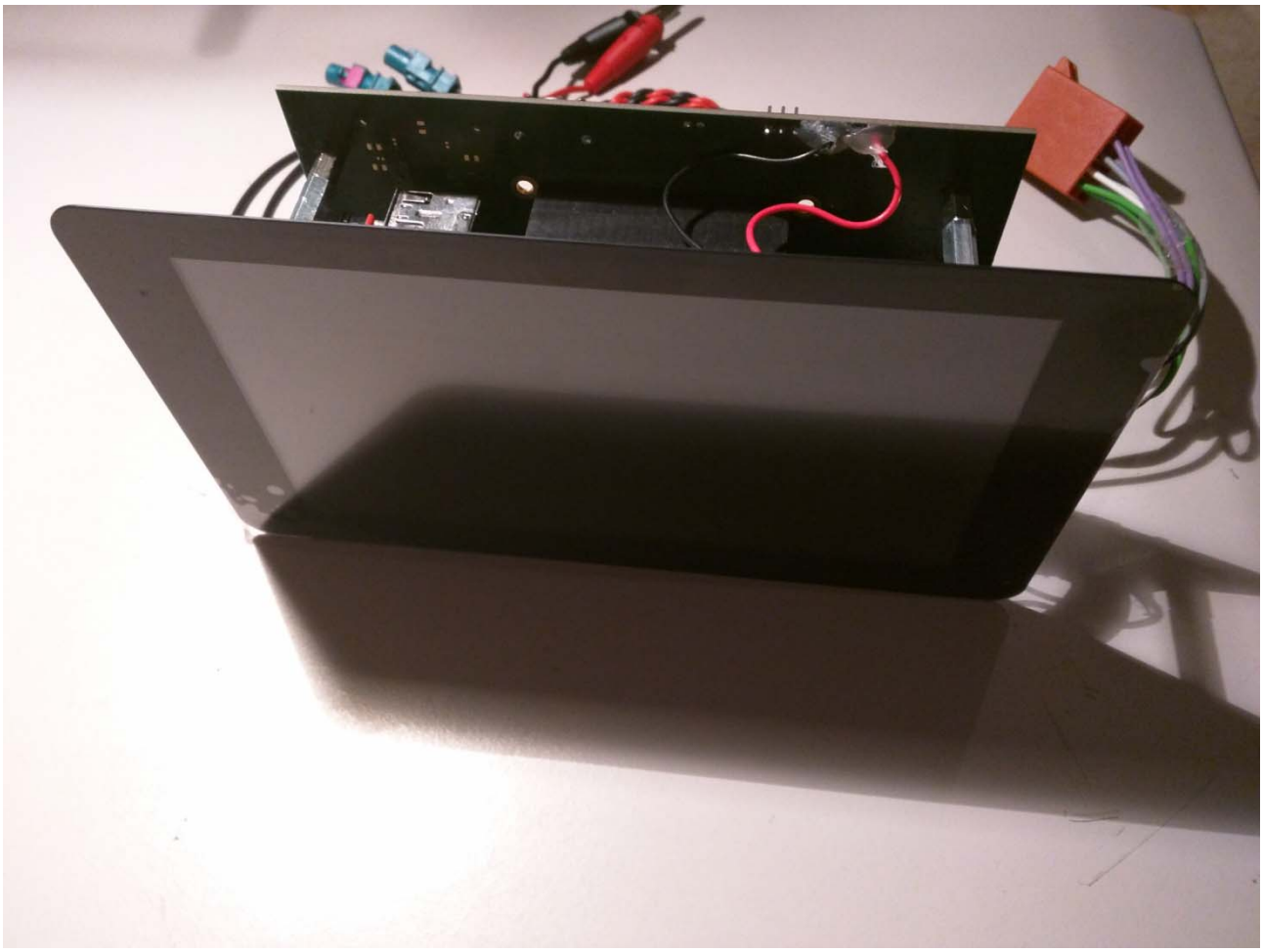
Pictures:

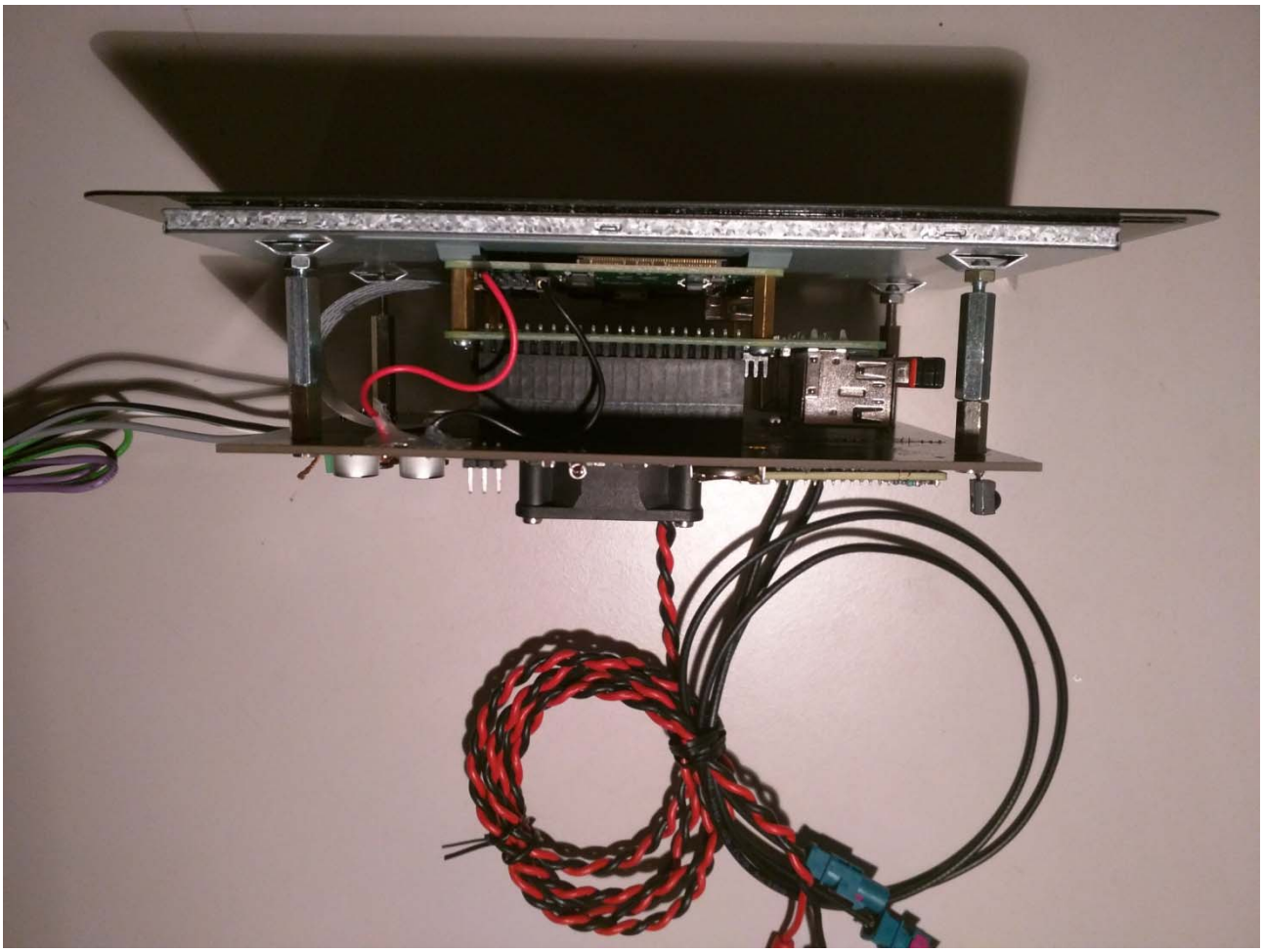


Interface Board top view

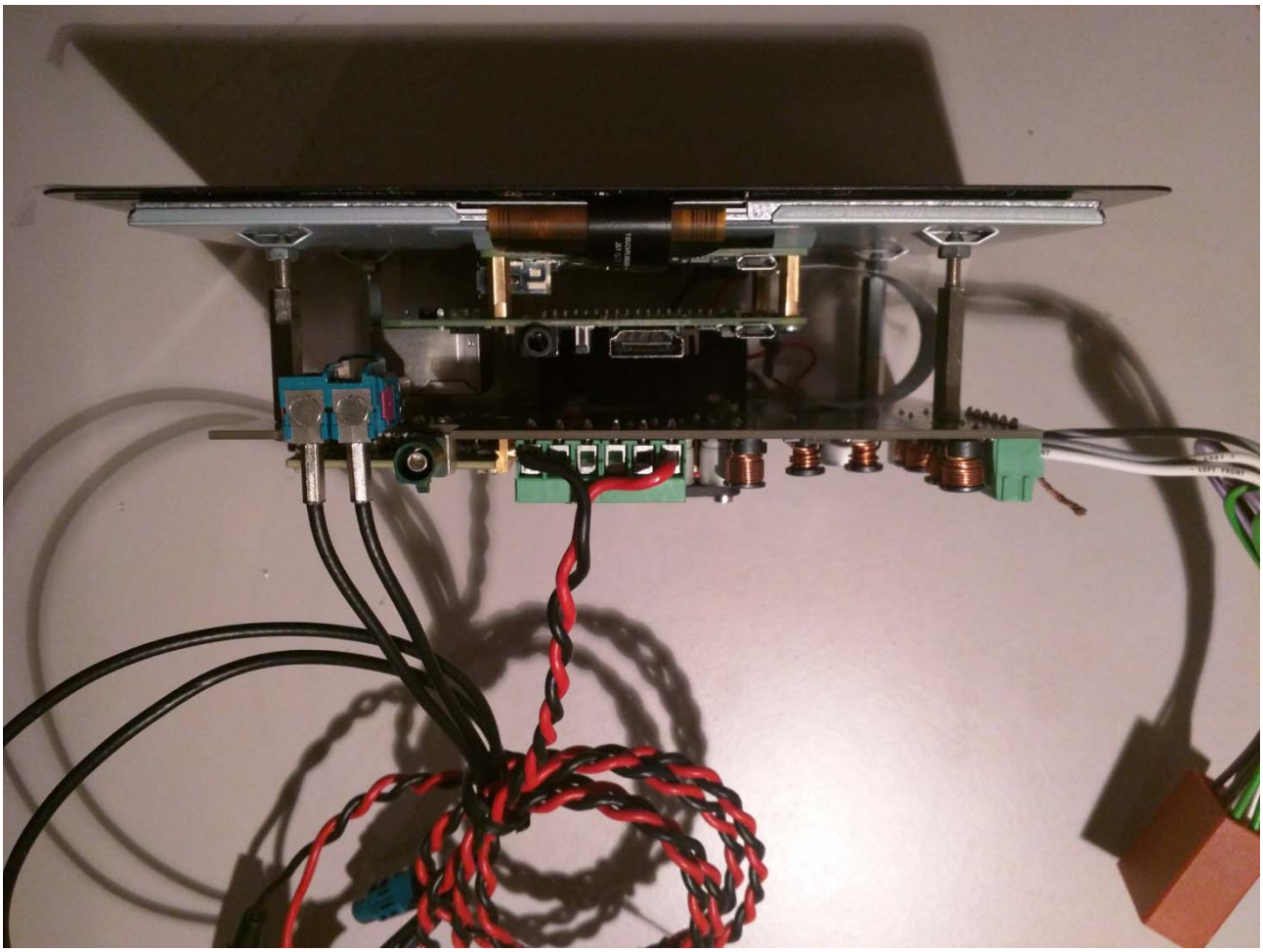


Interface Board bottom view

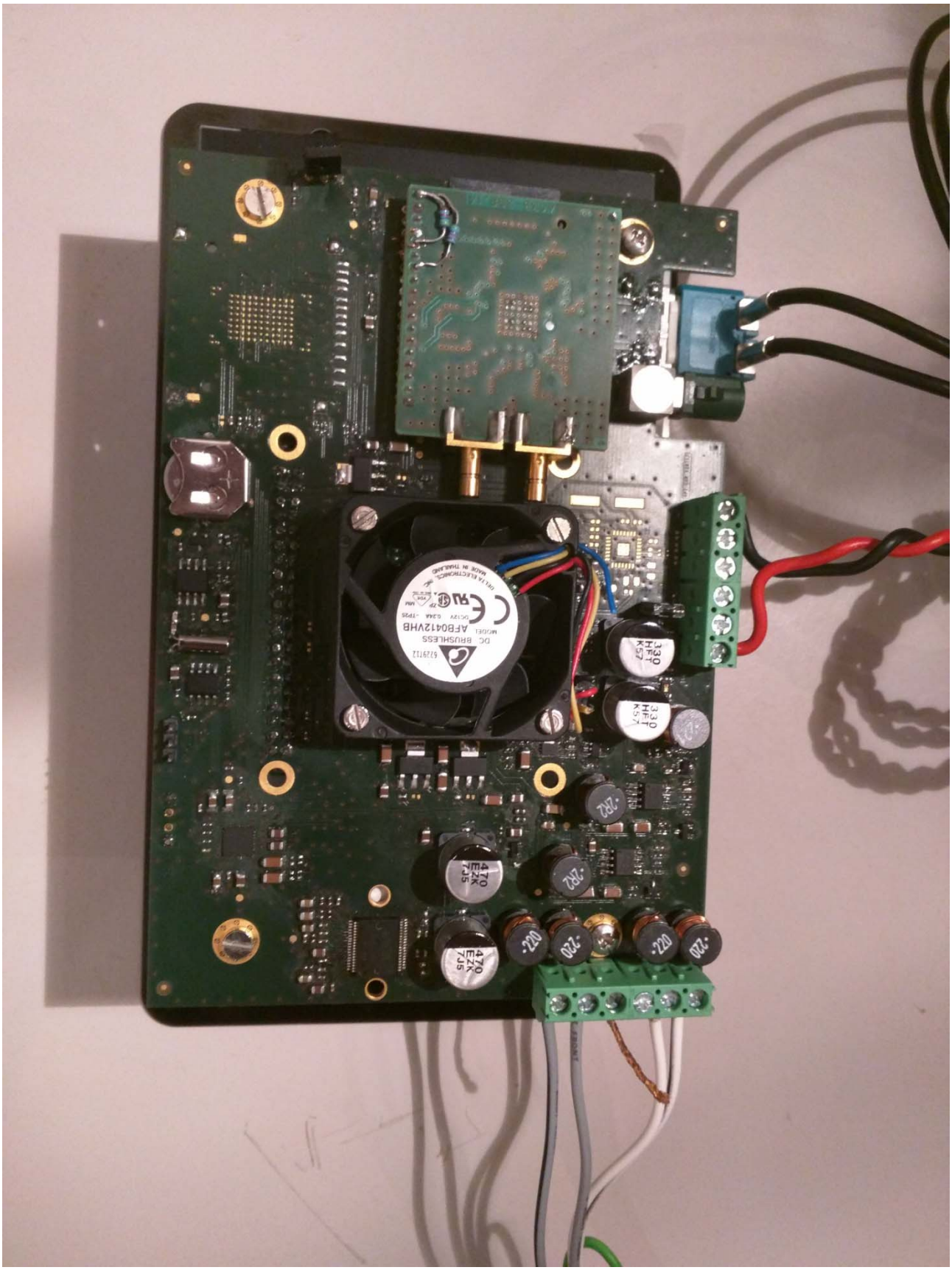

Assembly with Touchscreen and Raspberry3 board



Assembly top view



Assembly bottom view



Assembly back view