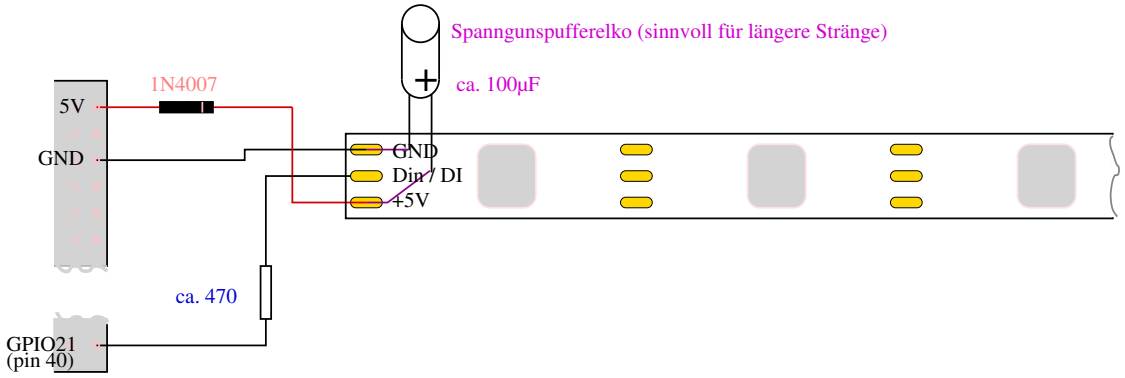
One sheet instructions for ws2812b_rpi

Wiring:



Driving WS2812B pixel from a Raspberry Pi makes use of two libraries: rpi_w281x by J. Garff (for low level functions) and ws2812b_rpi (for matrix addressing, common interface shared with other instances for AVR or Arduino). I install both of them, so that they are both available for new projects. Maybe I have to type `sudo apt-get install cmake` on a freshly installed RPi, before I'm ready to do these steps::

```
cd /tmp
git clone https://github.com/jgarff/rpi_ws281x.git
cd rpi_ws281x
mkdir build ; cd build ; cmake .. ; sudo make install
cd /tmp
git clone https://github.com/Mattscheibe/ws2812b_rpi.git
cd ws2812b_rpi
sudo make install
cp Examples/Makefile /tmp/Makefile ; cp Examples/main5.c /tmp
```

Now there's a Makefile im /tmp as a template for new projects, and a program file example. I copy this example to my project's directory, I type `make make` (and change the file name), then `make edit` (and type in my program) and then `make run` (to start it).

- I either connect my strand to pin 40 (GPIO**21**) (which is the default). I need not change anything on the RPi (except for that I must not try to run digital audio via I2S) and I initialize my strand with `initLEDs(width,length,type,21);` or with `initLEDsPCM(width,length,type);` this way I can drive up to 5400 pixels (...).
- Or I connect my strand to pin 12 (GPIO**18**). In that case, I have to switch off headphone socket PWM audio:
  - I create a file /etc/modprobe.d/snd-blacklist.conf with the following content:

    ```
    blacklist snd_bcm2835
    ```
  - I comment the corresponding module in file /etc/modules.
  - I edit /boot/config.txt to contain:

    ```
    hdmi_force_hotplug=1
    hdmi_force_edid_audio=1
    ```
  - I reboot my Pi.

  I initialize my strand with `initLEDs(width,length,type,18);` or with `initLEDsPWM(width,length,type);` this way I can drive up to 2700 pixels.
- Or I connect my strand to pin 19 (GPIO**10**). In that case, if running on a Pi 3 or a Pi 4 (or Pi 400), I have to set its core_freq to a fixed value:
  - I add to /boot/cmdline.txt an entry like:

    ```
    spidev.bufsiz=32768
    ```
  - On a Pi 3 I will add to /boot/config.txt something like:

    ```
    core_freq=250
    ```
  - On a Pi 4 or a Pi 400 I will add to /boot/config.txt something like:

    ```
    core_freq=500
    core_freq_min=500
    ```
  - I add user „pi“ to group „gpio“: `sudo adduser pi gpio`
  - I reboot my Pi.

  I initialize my strand with `initLEDs(width,length,type,10);` or with `initLEDsSPI(width,length,type);` this way I can drive up to 5400 pixels. (If I use more than 96 pixels, RPi will use DMA transfer which, again, imposes this on me...)