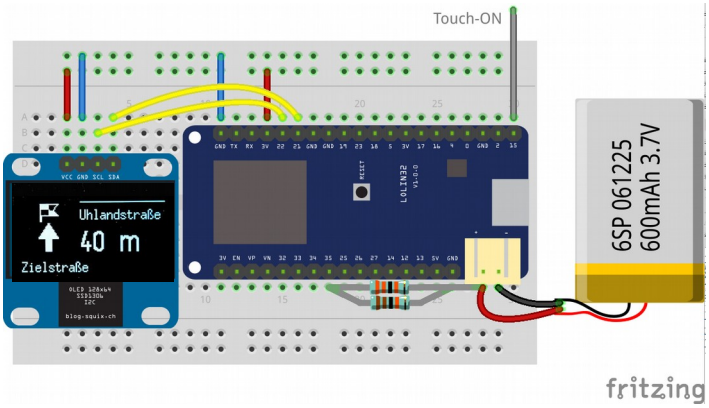
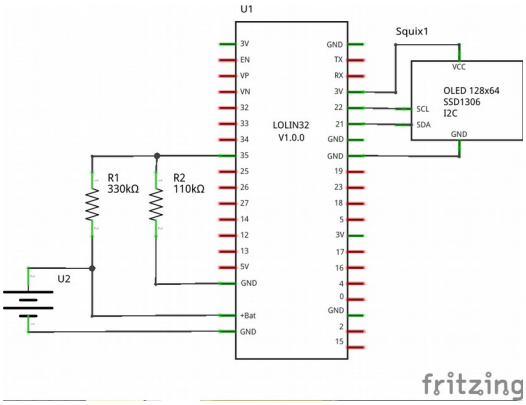
Komoot Navi Display

Small Bluetooth Low Enegergy (BLE) receiver to display the navigation information from the Komoot app (Android or iPhone).

Breadboard wiring:



Schematic:



The bar at the top right of the display indicates the remaining power of the LiPO battery.
Below this bar the previous street name is show, which is usually the current street.
At the bottom the name on the street name after the next junction is displayed.

The display orientation can be rotated by the value of the “rotation” variable in the code.

The device automatically enters deep sleep mode if there is no BLE signal or update for more than 30 seconds. It can be switched on by touching pin 15 (default, can be changed in source code).

The code was originally developed with Arduino IDE, but then I changed to Atom/Platform IO deu to better integration with Git and faster code complilation.

Hardware components:

- ESP32 board, e.g. LOLIN32 (clones still available on Ebay)
- OLED display 128x64 with SH1106 or SSD1306 controller
- LiPo battery 3.7 V, 600 mAh

Development

The code was originally developed with Arduino IDE, but then moved to Atom editor with PlatformIO (faster compiling, integration with Github).

On PlatformIO the “Expressif 32” platform needs to be installed and the additional libraries “ESP32 BLE Arduino” for the Bluetooth Low Energy support and “U8g2” for the display driver.

The symbols have been converted and edit with Gimp to the required XBM format. For the navigation symbols I used the nav-icons provided in PNG format on the Komoot BLE Github [1]. The down-sizing required some manual corrections for smooth edges. I copied the xmb files in two C-libraries, one for the nav-icons and the second for some extra symbols.

References

[1] Komoot BLE specification: https://github.com/komoot/BLEConnect
[2] PlatformIO ESP32 http://docs.platformio.org/en/latest/platforms/espressif32.html
[3] Neil Kolban's BLRexample file: https://github.com/nkolban/ESP32_BLE_Arduino
[4] Adreas Spiess Polar receiver video https://youtu.be/osneajf7Xkg