

| Interface-komponente           | Detail  | Library  | Lizenz | Name der Autoren  |
|--------------------------------|---|--|--------|---|
| Umweltdaten<br>Bosch BME       | Bosch BME280  | Sparkfun BME280 V1.0.0<br><a href="https://github.com/sparkfun/SparkFun-BME280-Arduino-Library">https://github.com/sparkfun/SparkFun-BME280-Arduino-Library</a>  |        | Marshall Taylor @ SparkFun Electronics                      |
|                                | Bosch BME680  | <a href="https://github.com/adafruit/Adafruit_BME680">https://github.com/adafruit/Adafruit_BME680</a>  |        | Limor Fried/Ladyada   |
|                                | Adafruit_Unified_Sensor   | <a href="https://github.com/adafruit/Adafruit_Sensor">https://github.com/adafruit/Adafruit_Sensor</a>  |        |   |
| Beschleunigung<br>Bosch BMO055 | <a href="https://www.adafruit.com/product/2472">https://www.adafruit.com/product/2472</a>   | <a href="https://github.com/adafruit/Adafruit_BNO055">https://github.com/adafruit/Adafruit_BNO055</a>  |        | Kevin (KTOWN)   |
| Grove<br>MMA7660               | <a href="http://wiki.seeed.cc/Grove-3-Axis-Digital-Accelerometer-1.5g/">http://wiki.seeed.cc/Grove-3-Axis-Digital-Accelerometer-1.5g/</a>   | <a href="https://github.com/Seeed-Studio/Accelerometer-MMA7660">github.com/Seeed-Studio/Accelerometer-MMA7660</a>  |        | Frankie Chu   |
| RGB-LED                        | Neopixel  | <a href="https://github.com/adafruit/Adafruit_NeoPixel">https://github.com/adafruit/Adafruit_NeoPixel</a>  |        | Phil Burgess, PJRC, Michael Miller                          |
|                                | WS2801  | <a href="https://github.com/adafruit/Adafruit_WS2801-Library">https://github.com/adafruit/Adafruit_WS2801-Library</a>  |        | Limor Fried/Ladyada   |
| Touch                          | <a href="https://www.adafruit.com/product/1982">https://www.adafruit.com/product/1982</a>   | Adafruit_MPR121<br><a href="https://github.com/adafruit/Adafruit_MPR121">https://github.com/adafruit/Adafruit_MPR121</a>   |        | Limor Fried/Ladyada   |
| NFC/RFID                       | <a href="http://wiki.seeed.cc/Grove-NFC/">http://wiki.seeed.cc/Grove-NFC/</a>   | <a href="https://github.com/Seeed-Studio/PN532">https://github.com/Seeed-Studio/PN532</a><br><a href="https://github.com/Seeed-Studio/Grove-NFC-libraries-Part">https://github.com/Seeed-Studio/Grove-NFC-libraries-Part</a> |        | @Don, @JiapengLi, @awieser<br>Kevin Townsend<br>Don Coleman |
| Control App                    | Blynk   | <a href="https://github.com/blynkkk/blynk-library/releases/latest">https://github.com/blynkkk/blynk-library/releases/latest</a>  |        | Volodymyr Shymansky   |
| Gassensor<br>Multichannel      | <a href="http://wiki.seeed.cc/Grove-Multichannel-Gas-Sensor/">http://wiki.seeed.cc/Grove-Multichannel-Gas-Sensor/</a>   | <a href="https://github.com/Seeed-Studio/Mutichannel-Gas-Sensor">https://github.com/Seeed-Studio/Mutichannel-Gas-Sensor</a>  |        | Grove system  |
| Dreh/Drück<br>Rotary-Encoder   | <a href="https://www.pjrc.com/teensy/td_libs_Encoder.html">https://www.pjrc.com/teensy/td_libs_Encoder.html</a>   | Encoder by Paul Stoffregen V1.4.1<br><a href="https://github.com/PaulStoffregen/Encoder">https://github.com/PaulStoffregen/Encoder</a>   |        | Paul Stoffregen   |
| LED-Matrix<br>Charlieplex      | <a href="https://learn.adafruit.com/adafruit-15x7-7x15-charlieplex-led-matrix-charlieplexing-featherwing/">learn.adafruit.com/adafruit-15x7-7x15-charlieplex-led-matrix-charlieplexing-featherwing/</a> | <a href="https://github.com/adafruit/Adafruit-IS31FL3731">https://github.com/adafruit/Adafruit-IS31FL3731</a>  |        |   |
|                                | Textausgabe   | Adafruit GFX V1.1.5<br><a href="https://github.com/adafruit/Adafruit-GFX-Library">https://github.com/adafruit/Adafruit-GFX-Library</a>   |        |   |

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| MQTT                   | <a href="https://pubsubclient.knolleary.net/index.html">https://pubsubclient.knolleary.net/index.html</a>   | PubSubClient<br><a href="https://github.com/knolleary/pubsubclient/releases/tag/v2.6">github.com/knolleary/pubsubclient/releases/tag/v2.6</a>                                       | Nick O'Leary  |
| GSM                    | Mobilfunk   | TinyGSM, 0.1.7,<br><a href="http://tiny.cc/tiny-gsm-readme">tiny.cc/tiny-gsm-readme</a><br>StreamDebugger   | Volodymyr Shymansky   |
| Serielle Schnittstelle | Software Seriell  | <a href="https://github.com/plerup/espsoftwareserial">github.com/plerup/espsoftwareserial</a>   | Peter Lerup   |
| OTA                    | On Air Update   | <a href="https://github.com/esp8266/Arduino/tree/master/libraries/ArduinoOTA">github.com/esp8266/Arduino/tree/master/libraries/ArduinoOTA</a>                                       |   |
| LoRaWAN                | FeatherWing (IBM-LMIC)  | <a href="https://github.com/mcci-catenena/arduino-lmic">https://github.com/mcci-catenena/arduino-lmic</a>   | Thomas Telkamp<br>Matthijs Kooijman<br>MCCI Corporation               |
| Digital I/O Extender   | <a href="https://learn.sparkfun.com/tutorials/sx1509-io-expander-breakout-hookup-guide">https://learn.sparkfun.com/tutorials/sx1509-io-expander-breakout-hookup-guide</a> | <a href="https://github.com/sparkfun/SparkFun_SX1509_Arduino_Library">https://github.com/sparkfun/SparkFun_SX1509_Arduino_Library</a>   | Jim Lindblom  |
| I2C-ADC Extender       | <a href="http://wiki.seeed.cc/Grove-I2C_ADC/">http://wiki.seeed.cc/Grove-I2C_ADC/</a>   |   |   |
| Motoren                | FeatherWing Adafruit Motor-Shield<br><a href="http://www.adafruit.com/products/1438">http://www.adafruit.com/products/1438</a>  | <a href="https://github.com/adafruit/Adafruit_Motor_Shield_V2_Library">https://github.com/adafruit/Adafruit_Motor_Shield_V2_Library</a>   |   |
| 7-Segment              | FeatherWing Adafruit  | <a href="https://github.com/adafruit/Adafruit_LED_Backpack">https://github.com/adafruit/Adafruit_LED_Backpack</a>   |   |
| Gesten, Lichtfarbe     | <a href="https://www.sparkfun.com/products/12787">APDS-9960 Breakout Board (SEN-12787)</a>  | <a href="https://github.com/sparkfun/SparkFun_APDS-9960_Sensor_Arduino_Library/tree/v_1.4.2">https://github.com/sparkfun/SparkFun_APDS-9960_Sensor_Arduino_Library/tree/v_1.4.2</a> |   |
| CO2                    | <a href="https://www.sensirion.com/de/umweltensensoren/kohlen-dioxidsensoren-co2/">https://www.sensirion.com/de/umweltensensoren/kohlen-dioxidsensoren-co2/</a>           | <a href="https://github.com/paulvha/scd30">https://github.com/paulvha/scd30</a>   | Nathan Seidle SparkFun Electronics<br>Modified for esp8266 by paulvha |
| Feinstaub              | <a href="http://wiki.seeedstudio.com/Grove-Laser_PM2.5_Sensor-HM3301/">http://wiki.seeedstudio.com/Grove-Laser_PM2.5_Sensor-HM3301/</a>                                   | <a href="https://github.com/Seeed-Studio/Seeed_PM2_5_sensor_HM3301">https://github.com/Seeed-Studio/Seeed_PM2_5_sensor_HM3301</a>   |   |
| Feinstaub              | <a href="https://www.dfrobot.com/wiki/index.php/PM2.5_laser_dust_sensor_SKU:SEN0177">Honeywell HPMA115S0</a>  | <a href="https://www.dfrobot.com/wiki/index.php/PM2.5_laser_dust_sensor_SKU:SEN0177">https://www.dfrobot.com/wiki/index.php/PM2.5_laser_dust_sensor_SKU:SEN0177</a>                 | Zuyang @ HUST   |

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| Blynk                     | Control App   | Blynk<br><a href="http://www.blynk.cc">http://www.blynk.cc</a>  | Volodymyr Shymanskyy            |
| LIDAR                     |   | <a href="http://en.benewake.com/product/detail/5c345e26e5b3a844c472329c.html">http://en.benewake.com/product/detail/5c345e26e5b3a844c472329c.html</a> |                                 |
| Touch-Sensor              | <a href="https://learn.adafruit.com/adafruit-mp121-12-key-capacitive-touch-sensor-breakout-tutorial">https://learn.adafruit.com/adafruit-mp121-12-key-capacitive-touch-sensor-breakout-tutorial</a> | <a href="https://github.com/adafruit/Adafruit_MPR121">https://github.com/adafruit/Adafruit_MPR121</a>   | Fried/Ladyada                   |
| PaxCounter (WiFi-Sniffer) | <a href="https://www.youtube.com/watch?v=fmhjtzmLrg8">https://www.youtube.com/watch?v=fmhjtzmLrg8</a>   | <a href="https://github.com/SensorsIoT/WiFi-Sniffer-as-a-Human-detector">https://github.com/SensorsIoT/WiFi-Sniffer-as-a-Human-detector</a>           | Andreas Spiess,<br>Ray Burnette |