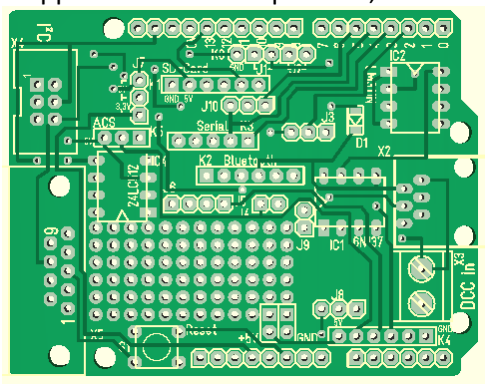
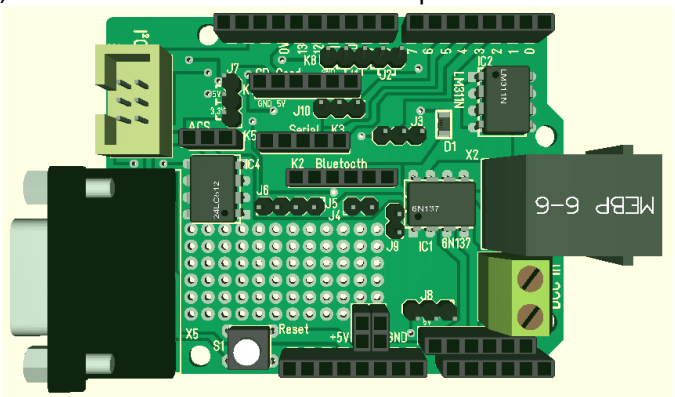
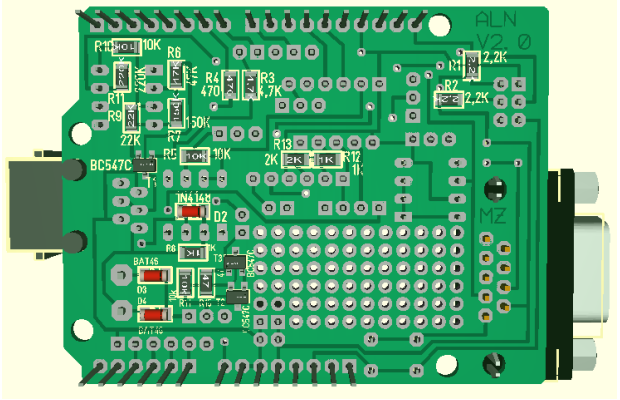
Arduino-LocoNET®-Shield(SMD) V2

Notes

This is an experimental board for various modules; not all options can always be used at the same time. All information is provided without guarantee, any liability for material defects is excluded. The board is supplied without components; transistors, resistors and diodes are SMD components.







Meaning, assignment and use of the plugs and jumpers

X1 = Connector strips for the Arduino Uno
S1 = (additional) reset button

LocoNet®-Interface

X2 = Connection for LocoNET® via RJ12 connector
X3 = Alternative connection via screw terminals for the DCC signal (the DCC signal is also fed in via X2)
J1 and J2 = Close jumpers if the LocoNET® signal is to be evaluated
J3 (1-2) = close jumper if the DCC signal is to be evaluated
The library I used can be downloaded here: https://github.com/mrrwa/LocoNet

I²C-Interface

X4, X5 = I²C-Interface
X4 = Tub connector 2x3pole
X5 = SUB-D9-socket
J3 (2-3) = Close jumper if INT is to be used by the I²C interface

SD-Card

K1 = Socket connector 1x6-pin for connecting an SD-card adapter Catalex Micro SD-card

After using my SD card module from Catalex for the first time, I discovered that the module blocks the SPI bus due to a hardware design error, i.e. other devices connected to this bus do not work. This error is well known and has been discussed extensively in numerous Internet forums - including suggested solutions.
My way out of this situation: I developed my own small SD card module, shown here: https://github.com/Kruemelbahn/SDCard.
There are numerous other modules available in the vastness of the WWW, so please pay attention to the pin assignment!

The SD library of the Arduino IDE can be used as software for the SD card module.

HeartBeat

D1 = LED for free use, I use it as a "heartbeat" = pulsating indicator that the program is running "smoothly". A small Arduino library is available for this purpose.

Bluetooth bzw. serielle Schnittstelle

K2, K3 = Connection options for serial adapters (only one adapter CAN and MAY be connected at a time!)
K2 = Socket connector 1x6-pin, suitable for Bluetooth module HC-05 or HC-06. For this purpose, J4 and J5 must be closed, the required supply voltage is set with J7 (3.3V or 5V)
K3 = Socket connector 1x5-pin suitable for serial adapter, e.g. for an additional USB connection. J5 and J6 must be closed for this purpose.
(https://shop.ulrichradig.de/Projekte/Kits-Boards/USB-zu-RS232-TTL-Konverter.html)

Not-Aus

K4 = Socket connector 1x6-pin, connection of e.g. two buttons and two LEDs, was used by me for emergency stop purposes on the model railroad, can be used as required, J4, J5 and J6 must be left open.

ACS712

K5 = Socket connector 1x3-pin, connection suitable for an ACS712 current sensor

Since Hardware-Version V2

EEPROM

IC4 = I^2C-EEPROM with address 0x57h

15mA-Stromquelle für LocoNET®

J9 = Activation of the 15mA current source for the LocoNET®.
For the power supply of the power source
- either close J8 (1-2) (= power supply from the LocoNET®)
- or close J8 (2-3) (= power supply from the Arduino; only possible if the Arduino is connected via an external voltage [not USB!])