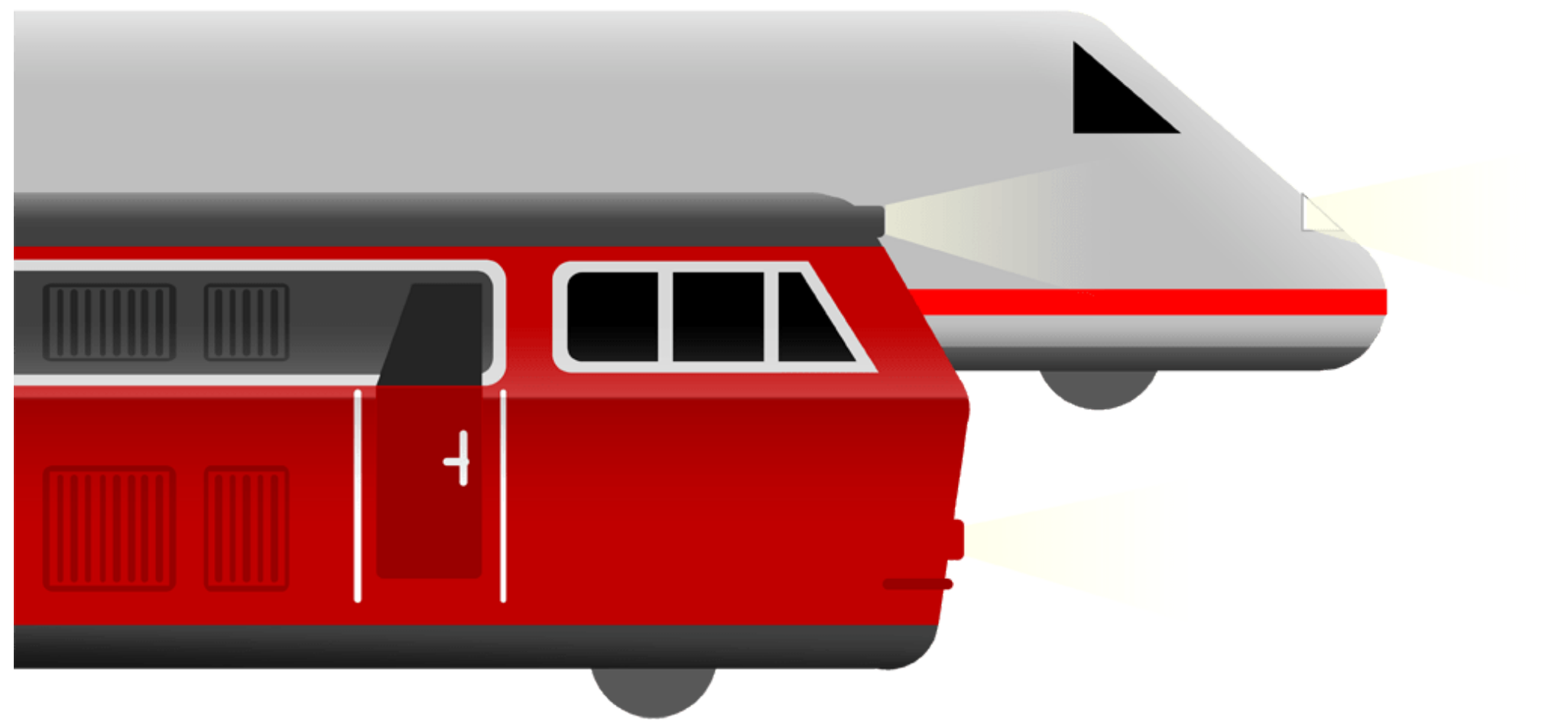


Maerklin 292xx Gateway for Arduino IDE and ESP32/ESP8266/ESP8285

ESP32/ESP8266/ESP8285 WiFi to IR gateway for Märklin IR model trains for kids for example using ESP32 at ATOM Lite with TailBat from M5Stack.

The gateway offers a webserver and REST API via `http://maerklin292xx_gateway.local` or `http://192.168.4.1` port 80 and a WiThrottle server via port 2560.

Default SSID: Maerklin292xxGateway, Password: Maerklin292xxGateway



Currently supported addresses A,B,C,D,G,H,I,J

See following list as reference (without warranty or guaranty)

Name	Adresse	Akku	URL
Märklin 29100 Nahverkehrszug LINT	G-H	USB/Lilon	https://www.maerklin.de/de/produkte/details/article/29100
Märklin 29200 ICE	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29200
Märklin 29201 TGV	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29201
Märklin 29202 Belgischer Hochgeschwindigkeitszug	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29202
Märklin 29203 ICN	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29203
Märklin 29204 Amerikanischer Hochgeschwindigkeitszug	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29204
Märklin 29206 Mauszug	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29206
Märklin 29207 Ferien-Express	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29207
Märklin 29208 Eurostar	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29208
Märklin 29209 Regional Express	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29209
Märklin 29210 Güterzug	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29200
Märklin 29212 TGV Duplex	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29212
Märklin 29300 ICE	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29300
Märklin 29302 Intercity	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29302
Märklin 29303 ICN	C-D	4x AA	https://www.maerklin.de/de/produkte/details/article/29303
Märklin 29304 TGV Lyria	A-B	4x AA	https://www.maerklin.de/de/produkte/details/article/29304
Märklin 29306 TGV	I-J	4x AA	https://www.maerklin.de/de/produkte/details/article/29306
Märklin 29307 Airport Express - Hochbahn	G-H	USB/Lilon	https://www.maerklin.de/de/produkte/details/article/29307
Märklin 29308 Landwirtschaft	I-J	4x AA	https://www.maerklin.de/de/produkte/details/article/29308
Märklin 29309 Güterzug	G-H	USB/Lilon	https://www.maerklin.de/de/produkte/details/article/29309
Märklin 29330 ICE 3	I-J	4x AA	https://www.maerklin.de/de/produkte/details/article/29330

Name	Adresse	Akku	URL
Märklin 29334 Italienischer Schnellzug	M-N	4x AA	https://www.maerklin.de/de/produkte/details/article/29334
Märklin 29335 Schweizer Schnellzug	M-N	4x AA	https://www.maerklin.de/de/produkte/details/article/29335
Märklin 36100 Nahverkehrszug LINT	G-H	USB/Lilon	https://www.maerklin.de/de/produkte/details/article/36100
Märklin 36101 Diesellokomotive BR 212	G-H	USB/Lilon	https://www.maerklin.de/de/produkte/details/article/36100

After upload to ATOM Lite, the locomotive can be controlled placed up to 10cm beside the IR sensor. An external IR transmitter diode can be used by chaning the GPIO at the configuration website http://maerklin292xx_gateway.local/config . For example chaning to 25 makes it possible to use some external IR transmitters for having a wide range conection at the bottom connector. Best is to use GND, 5V for the power supply of the IR transmitter. For example using: RM-024 LDTR. See some example here: <https://blog.io-expert.com/improving-ir-transmitter-at-atom-lite>

The ESP32 will automatically log into the specified SSID/password, otherwise it will initiate as SoftAP.

Default SSID: Maerklin292xxGateway, Password: Maerklin292xxGateway

The website can be found at http://maerklin292xx_gateway.local

Requirements

Board/Platform Support Packages:

- https://dl.espressif.com/dl/package_esp32_index.json
find a setup guide here: https://docs.m5stack.com/#/en/arduino/arduino_development

The following library has to be installed as library and can be found in the Arduino repository:

- IRremoteESP8266
find a setup guide here: <https://github.com/crankyoldgit/IRremoteESP8266>

Main Module

is the Arduino File `maerklin292xx_gateway.ino`

IrGatewayWebServer module

is providing the webservice and creates following enry points:

- http://maerklin292xx_gateway.local/ Webpage
- http://maerklin292xx_gateway.local/cmd/speed/N N =-3...0...3, Speed in 3 steps for backward, forward, 0 = stop
- http://maerklin292xx_gateway.local/cmd/light toggle light on or off
- http://maerklin292xx_gateway.local/cmd/sound/horn play horn sound
- http://maerklin292xx_gateway.local/cmd/sound/motor play motor sound
- http://maerklin292xx_gateway.local/cmd/sound/coupler play coupler sound

additionally the channel can be defined:

- http://maerklin292xx_gateway.local/cmd/CHANNEL/CMD CHANNEL=A,B,C or D, CMD as described above.

Example:

- http://maerklin292xx_gateway.local/cmd/A/light toggled the light via channel A

HtmlFs module

contains the web content and is automatically generated via `create_web_store.py`.
To update the webpage change files in the html folder and navigate to the root folder of this repository and execute

```
pip install htmlmin
python create_web_store.py
```

ESP32Wifi module

handles setup of Station or SoftAP mode and going into sleep mode for station mode, so power can be saved

See more information at: <http://blog.io-expert.com/modernisiert-marklin-kinderspielzeug>

Protocols:

--

=====

