The PyBinaryClock

User manual, version 2019.1

Introduction

This is a binary clock with a specially designed circuit-board and a raspberry pi zero.

How to read the time

The clock is in binary code with each figure as a column as HH:MM:SS.

A green led in the lowest row means '1' and in the next '2', '4' and '8' respectively. A red led means that this position is '0' and to get the correct time each figure is a sum of the positions with green leds in that row.
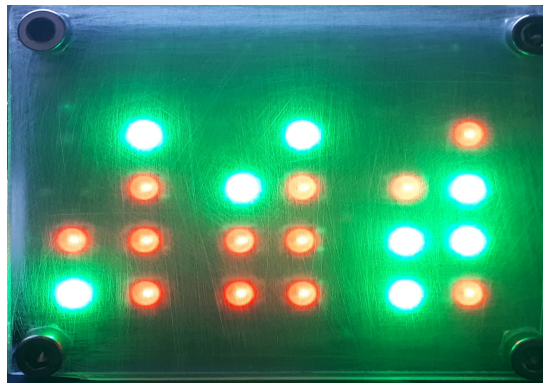
Example: The time is 18:48:36

Connections, on the backside of the raspberry pi:

Power: 5V micro USB (phone charger)
I/O: Micro USB to USB, OTP cable for connecting keyboard/LAN/etc via USB
HDMI: Micro HDMI for a screen

Buttons, on the backside of the circuit-board:

            'Long-press'
S1:   Set WiFi-connection-mode,
S2:   not used yet
S3:   not used yet

Simple set-up of WLAN

This method can be used if you have a router with a 'WPS' button.

1. Start the clock and wait until a time-pattern is shown
2. Press S1 for at least 3 seconds .
3. The display switch to 'WPS-connection-mode' (all yellow for a short time) and starts to count by lighting one blue led at a time.
4. Press the 'WPS-button' on your router for a couple of seconds.
5. When the connection is established (it can take a minute), a led turns green and the the clock starts with the correct time for central European time.
6. The battery powered real-time clock is now also set to the correct time.

Github project page: https://github.com/teddycool/BinaryClock

License:

The PyBinaryClock is released under the …. license.
In short this means that you can use, edit and distribute it freely as long as you always refer to the original creator and the github project page: https://github.com/teddycool/BinaryClock .
It is NOT allowed to charge any fee or use it in any kind of commercial set-up whithout the explicit permission from the creator.

Configuration via WEB interface <TBD>

This method requires that the clock has network. Either set up via WPS or BT or connected via a USB-LAN and an OTP-cable.

Depending on the setup of your network and router it might be enough to point a web-browser to http:\\pybinaryclock from a device connected to the same network as the clock. Otherwise you have to find the ip-adress of the clock (named PyBinaryClock in the router ip-table) and use http:\\ip-address

Timezone
Brightness calibration
Color-scheme for the time loop

Configuration via mobile app and BT <TBD>

Install the PyBinaryClock app from here: <TBD>

Press S3 for 3 seconds to activate bluetooth on the clock.

Pair you mobile device with the clock (bt-device named PyBinaryClock)

Start the app....

Network

Timezone

Brightness calibration

Color-scheme for the time loop
<TBD>

Manual setup via push buttons <TBD>

Press S2 for 3 seconds and the clock enters time setting mode. You can now set the time by using S1 to increase the number shown for each column. The setting starts with the 10th of hours. When done with one column, press S3 to move settings to the next column. When all 6 columns are set, press S2 to start the clock with the new time.