



Earth L.A.T. 12:00

<https://EarthLAT1200.org>

Watch the Rotating Earth

statement



The earth is rotating.

Due to the relative slow motion with respect to human observation this dynamic can only be checked by active closer inspection. This rotation can abstractly be described by formulas, simulations, and technical data as a hint but not representing reality.

aim of the project

This project aims to visualize the rotation and therefore produce a real sense of the rotation at the observer: Via a website live web camera streams of shadows or sun projections crossing static local lines, are displayed.

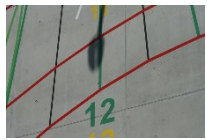
The according time definition is “Local Apparent Time” (L.A.T.):

*When the sun is south it is 12:00 L.A.T. at this position on earth -
Midday is High Noon.*

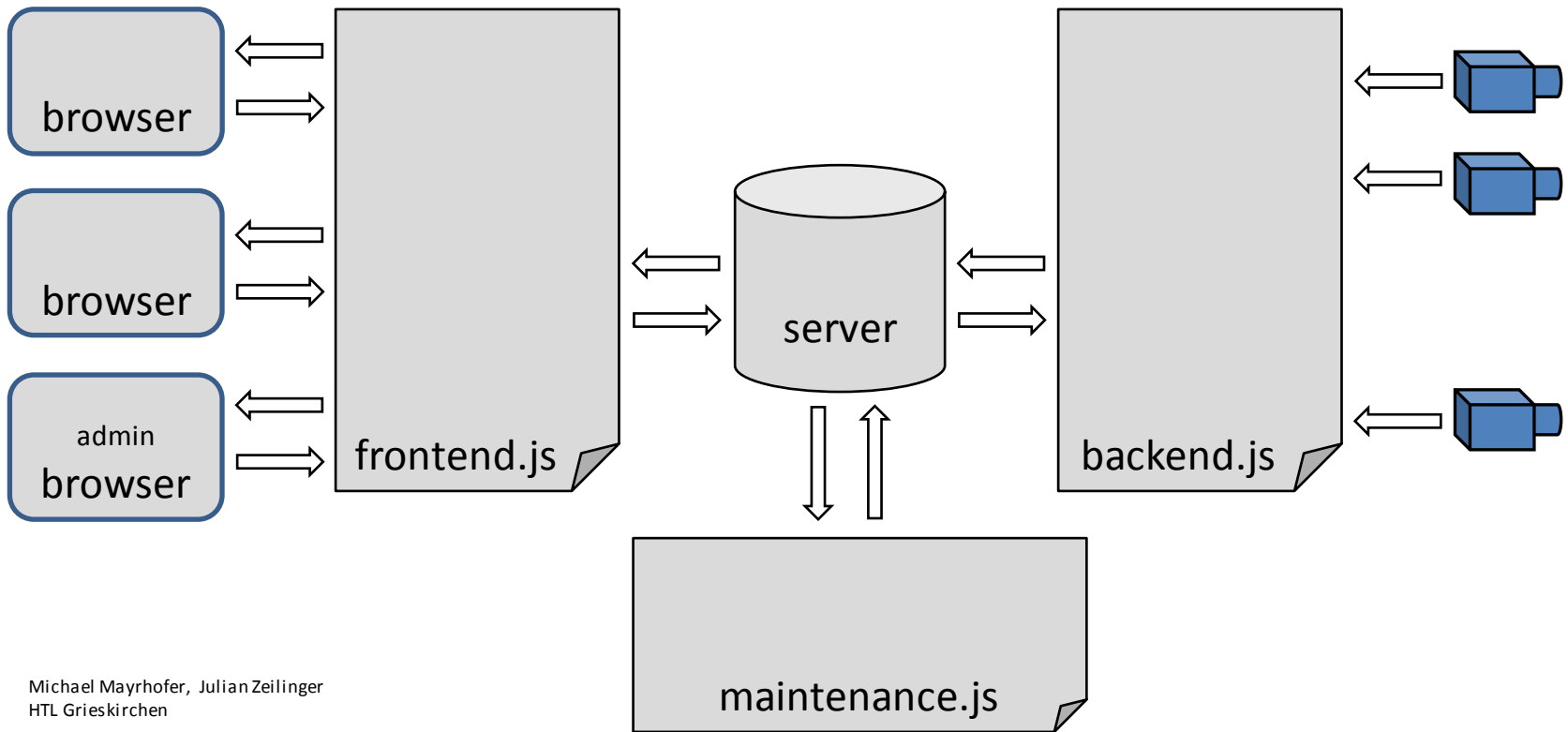
Within one day this 12:00-L.A.T.-line goes round the earth from east to west.

core meeting point

<https://EarthLAT1200.org>



The website displays the live stream of an automatically selected web camera. The selection is based on the actual availability, according L.A.T., and weather condition. The partner stations transfer their live stream to the server.

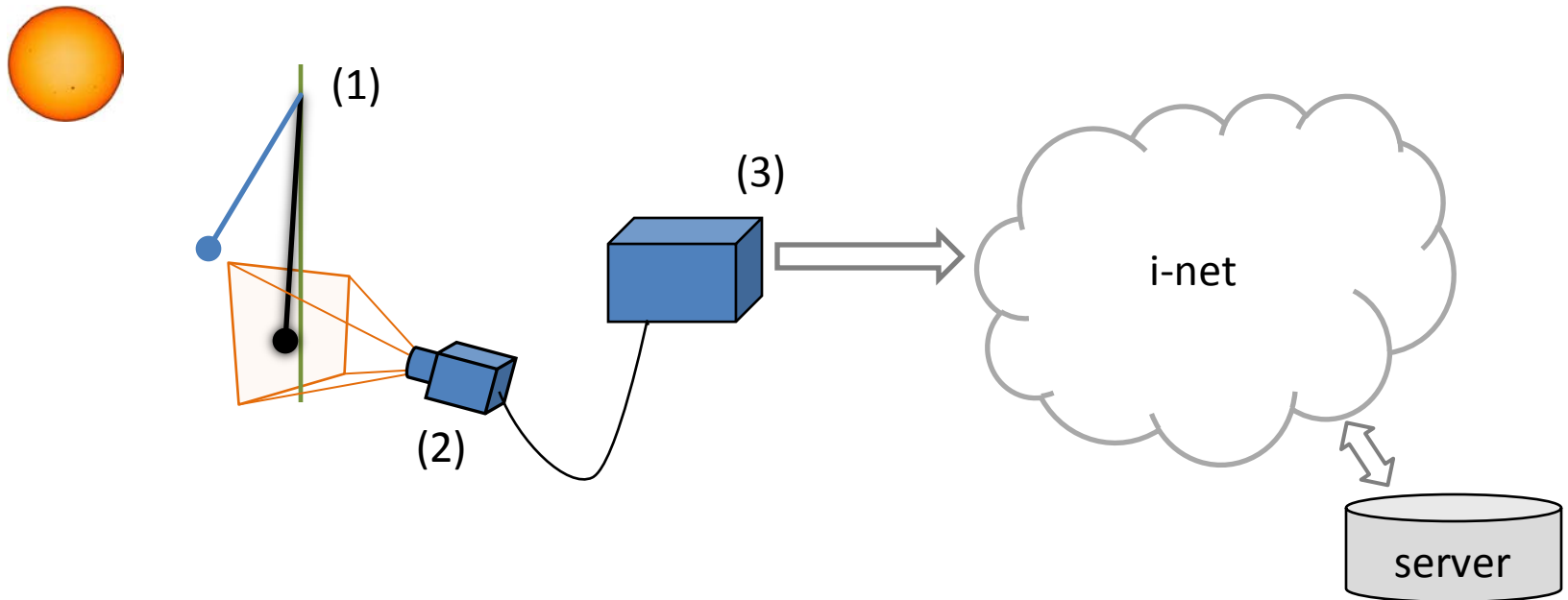


Michael Mayrhofer, Julian Zeilinger
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Three items have to be fulfilled by a partner station:

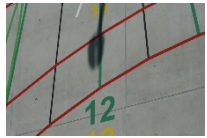
- (1) A sundial which shows a moving shadow/reflection of the gnomon/nodus/sun across a noon line (meridian).
- (2) A fixed camera producing a live stream of the shadow/reflection moving across the noon line.
- (3) A device sending this live stream via ftp or similar to the server.





There are different contribution levels for the partner stations – the partners can choose which level they want to fulfil:

Contribution	Base	Supplemented	Advanced	Full	Remark
frequent (≤ 5 min) upload of webcam images total					full image of the dial
frequent (≤ 5 min) upload of webcam images detail					selected crop of actual shadow
insert UTC, LAT into image					calculated by position parameter and EoT, EoL
single upload of station info					description, team, type, e.g. website
measure and frequent upload of camera temperatures					embed and read in- and outcast sensors
detect and upload status sunny/cloudy/night, online/offline					check brightness and contrast for automated evaluation of weather conditions
accept remote commands					change crop window and upload frequency by server



The upper limit of costs cannot seriously be given. Depending on ideas and realizations regarding sundial and webcam there is no upper limit.

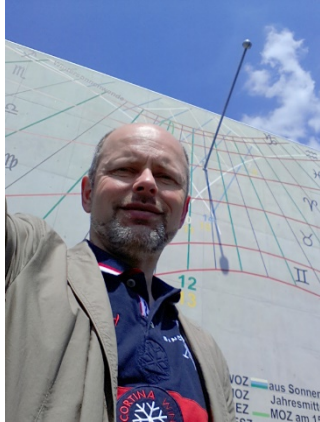
Three parts have to be fulfilled:

- (1) Sundial showing the sun crossing the south meridian
- (2) A camera capturing the L.A.T. 12:00 line and producing a live video stream
- (3) A device connecting to the internet and uploading this live video stream to the server.

(1) The simplest sundial can be any stick orientated parallel to the earth axis producing a shadow line to any flat with a painted L.A.T. 12:00 line → U\$ 0

(2)+(3) The camera plus the device with a connection to the internet can be e.g. a RaspberryPi / PiCam with access to a WLAN or a modem to the internet → U\$ 100

Total HW costs with a simple device e.g. → U\$ 100
Plus monthly costs for data transfer e.g. → + U\$ 5 / month



Kurt Niel, Grieskirchen, Austria

FH-Professor at the University of Applied Sciences Upper Austria
Fields: metrology, image processing, automation engineering

Design & Implementation of the huge sundial <https://KEPLERUHR.eu>
Initiator of a local group volunteering astronomy <https://FHAstros.blog>

Interested in putting STEM to the public.

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