



## Attention – we are living on a sphere

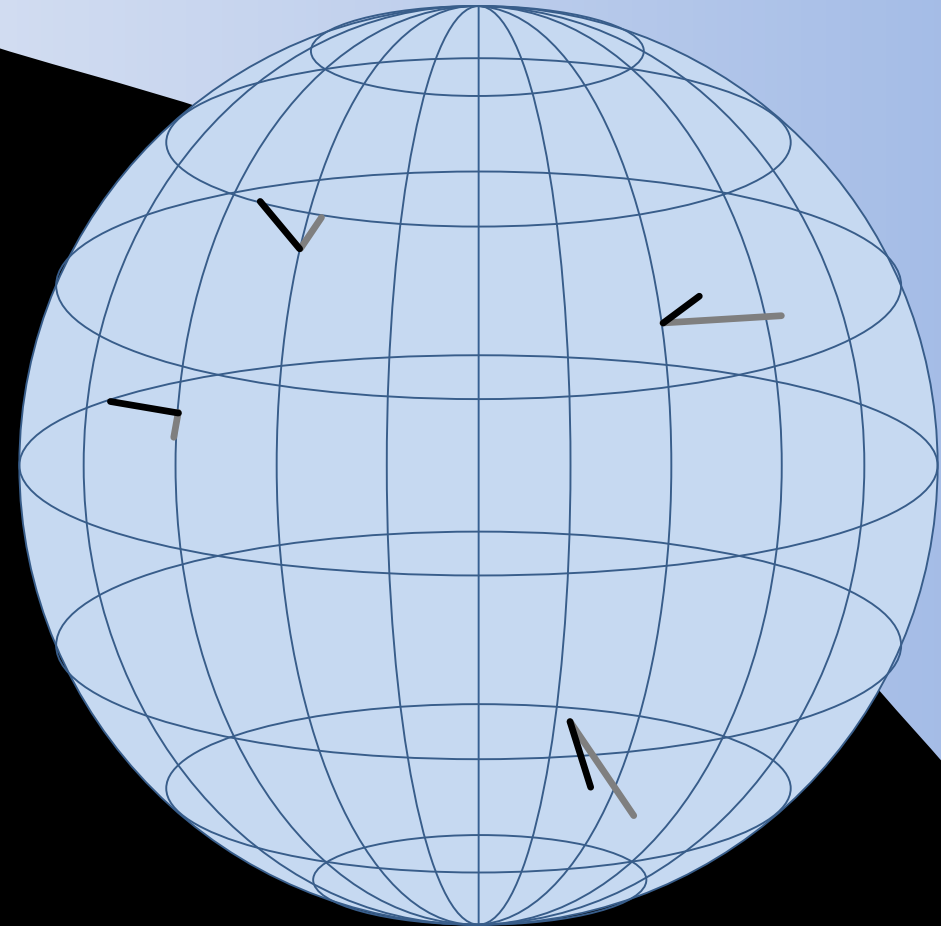
As far as we can walk, independent of the direction you go there is no end. Once you go all the way round, you're back where you started because the earth is a sphere.

As the earth continuously rotates round its axis, the sun seems to wander across the sky. This produces moving shadows, which for thousands of years humans have used in sundials as a measure of time due to its constant motion.

Get a true sense of the earth's rotation by watching these slowly moving shadows.

Earth L.A.T. 12:00

Watch the Rotating Earth



## Watch the Rotating Earth – How?

The planet on which we are standing rotates around its own axis and is orbiting the sun (that's common sense - but there are plenty of non-believers out there). Because the earth is so huge in relation to our bodies and most of our direct environment, e.g. the desks, trees, houses, mountains, rivers around us, take on the same movement we do, so we hardly realize the rotation.

We can figure out the rotation with calculations alone:

- the earth has a diameter of some 12,700 km (7,900 mi)
- one 360° rotation takes 23 h 56 min 04 sec
- it takes a year for one orbit around the sun
- at the equator the speed of rotation is supersonic and at the pole it is zero.

But these numbers do not really give us a sense of the movement.

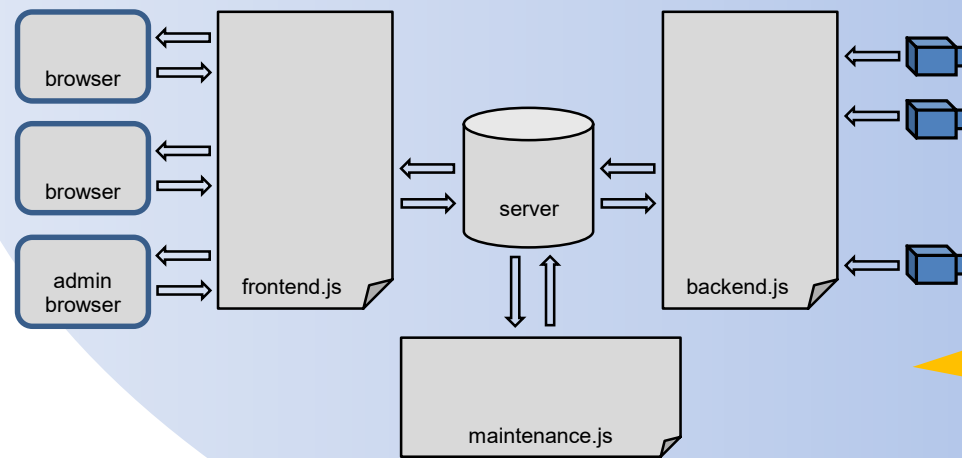
You can view this rotation by watching moving shadows caused by wandering light sources. This appears to us as a moving shadow cast by a stick fixed in position illuminated by a moving light source. In fact, it is the sun, which is stationary, and the stick, which is attached to the surface of the earth, that is rotating.

It is precisely this movement that we want to show. To give you a live visualization of sundials around the world - each of them displaying 12:00 L.A.T. in real time. After a few minutes the live view switches automatically to the next-westerly sundial. With enough partners worldwide you could watch sundials 24 h per day/7 days a week, each showing high noon at their respective location.

## CALL FOR PARTICIPATION

Become a partner station and register via:

<https://EarthLAT1200.org> > Register



## Data flow structure

A central server collects webcam images from a series of partner stations - up to 500. The user's view is continuously switched to the appropriate webcam showing L.A.T. 12:00 at the respective sundial.

As the earth rotates we can see the virtual movement of the sun across the sky. The aim of the project **Earth L.A.T. 12:00** is to visualize this rotation.

*The local apparent time (L.A.T.) 12:00 is defined as the time the sun appears on the local south meridian – at which point the sun's position is at its south-most point. Sundials show L.A.T. by the moving shadow.*

Our goal is to produce a **24/7 live video stream of shadows crossing the 12:00 line** all over the world. Every few minutes the live stream switches to the next sundial – so one can follow L.A.T. 12:00 as the earth rotates and get a real sense of our spinning globe.

To do this we need to have as many webcams as possible delivering live images of sundials. The different live images are displayed consecutively at local apparent time 12:00. That is, if no clouds get in the way. This procedure will work automatically.

With regard to the project:

**There is still a lot to be done!**

We already have one partner sundial: <https://KEPLERUHR.eu> - you can watch its livestream at <https://EarthLAT1200.org>.

## Single Partner Station

- (1) Sundial showing a moving shadow across the noon line.
- (2) Camera taking live images.
- (3) Device transferring these live images to the server.

Anyone can create a sundial, which is basically a stick casting a shadow on a flat surface. The camera and transfer hardware required to do this could be, for instance, a RaspberryPI+Cam (US\$ 100 + US\$ 5/month for transfer costs). The system also has to be correctly set up and programmed. The images are then transferred via SFTP to the server, which automatically selects the displayed image.

