SRTM + OSM + WebGL = flight simulator

A new approach to implement a flight simulator

- Old idea:
    FlightGear scenery from OSM / SRTM
- New insight:
    WebGL is fast enough and simple to use

OSM

- High resolution vector data available
- Renderer e.g. Maperitive
- Resolution adapted to distance
- Very high zoom level for airfields
- Map is used as texture

OSM extended

- Elevated objects as polygon set
- E.g. buildings have tags for
  - height
  - roof shape
  - wall color
- Objects with special shape inserted as STL files
- Already demonstrated in various 3D maps

SRTM

- Shuttle Radar Topography Mission
- Radar Scan of Earth Topography
- Resolution lat / lon: 1" / 3" / 30"
- Resolution elevation: 1 m
- Resolution adapted to distance
- There are voids due to bad reflection (e.g. water)
- Preprocessed (void filled) data is available

WebGL

- High performance (GPU)
- Easily usable via library like Three.js
- Simple mapping of SRTM grid on polygon mesh
- Simple mapping of texture
- Texture can use different coordinate mapping
- Very simple perspective projection
- Allows for different lighting situations
- Clouds and fog can be handled

Flight Dynamics

- JBSim is open source flight dynamics simulator
- Emscripten allows to run C-code in JavaScript
- Performance sufficient
- Joysticks