

Project Tools

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WebGL

- A 3D library to build cross-platform web-based 3D applications
- Programming with HTML and JavaScript
- Platform independent and no deployment required – simply a 3D webpage!
 - Playable in most browsers in most hardware devices
- Tons of extensions for connecting different hardware
 - Mobile phone, Kinect, etc.
- Open source
- A low-level language though...
 - https://developer.mozilla.org/en-US/docs/Web/API/WebGL_API/Tutorial/Using_shaders_to_apply_color_in WebGL
 - <https://github.com/mdn/webgl-examples/blob/gh-pages/tutorial/sample3/webgl-demo.js>



three.js

- Application Programming Interface (API) that provides high-level functions for WebGL
- Wrapping-up WebGL low-level functions for a much more user-friendly development experience
 - Providing functions for efficient 3D programming
 - Providing mathematics classes and functions
 - Providing structures for lights, meshes, materials, etc.
- Open-source
- Drawing a box
 - <https://threejs.org/docs/index.html#manual/en/introduction/Creating-a-scene>
- More examples
 - <https://threejs.org/>

three.js

Chrome – as a Development Platform

- “*Use an IDE for programming, not notepad!*”
- A browser, but coming with all tools required for developing and debugging a webpage
- Magic key: ctrl + shift + I
 - Accessing the source code of a page
 - Updating source code and checking out changes in real-time
 - Providing debugging facilities
 - Stepping through source code line by line
 - Setting break-points
 - Examining parameter values
 - Outputting debugging information in the console window



Kinect v2

- One of the most popular RGB-D cameras in the world
- Consisting of both color and depth camera
- Powerful development tools that can identify human body, color image and depth image
 - Easy to work with
 - Free to use
- An excellent learning tool for learning natural user interfaces
- More precise and stable than v1



Kinectron

- A software interface to implement Kinect application
 - Consisting of a server application that allows connection to multiple client Kinect applications
- Features
 - Publishing Kinect data using TCP/IP connections and therefore...
 - Supporting remote and cross platform application usage
 - Supporting save and load of captured data
 - Only supporting Kinect v2...
- <https://kinectron.github.io/docs/intro.html>

Kinectron

A Realtime Peer Server for Kinect 2

Conclusion

- Assignment
- WebGL
- **three.js**
- **Chrome**
- **Kinect v2**

Further Reading

- WebGL Tutorials
 - https://developer.mozilla.org/en-US/docs/Web/API/WebGL_API/Tutorial
- three.js examples
 - <https://threejs.org/>
- Wikipedia
 - <https://en.wikipedia.org/wiki/WebGL>
 - <https://en.wikipedia.org/wiki/Three.js>
 - <https://en.wikipedia.org/wiki/Chrome>
 - <https://en.wikipedia.org/wiki/Kinect>
- Kinect Development
 - <https://kinectron.github.io/docs/server.html>

The End

Any Questions?