BabiaXR
Virtual Reality Data Visualizations for the browser

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BabiaXR, a toolset for 3D/VR data visualization in the browser.

Lastest Content

Deploying a WebRTC (easyrtc) server
Jun 7, 2021

Multiuser
Jun 7, 2021

How to test with Cypress
https://babiaxr.gitlab.io/aframe-babia-components/examples/charts/barsmap/
https://babiaxr.gitlab.io/aframe-babia-components/examples/demos/1.0.11/
```html
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Hello, WebVR! • A-Frame</title>
  <meta name="description" content="Hello, WebVR! • A-Frame">
  <script src="https://aframe.io/releases/0.8.2/aframe.min.js"></script>
</head>
<body>
<a-scene background="color: #ECECEC">
  <a-box position="-1 0.5 -3" rotation="0 45 0" color="#4C3D09" shadow/></a-box>
  <a-sphere position="0 1.25 -5" radius="1.25" color="#EF205E" shadow/></a-sphere>
  <a-cylinder position="0 0.75 -3" radius="0.5" height="1.5" color="#FCC65D" shadow/></a-cylinder>
  <a-plane position="0 0 -4" rotation="90 0 0" width="4" height="4" color="#7BC8A4" shadow/></a-plane>
</a-scene>
</body>
</html>
```
**Entity** - `<a-entity>`

**Components** - HTML attributes on `<a-entity>`‘s

**System** - Systems are similar to components in definition

https://aframe.io/docs/1.2.0/introduction/entity-component-system.html
Component

```javascript
AFRAME.registerComponent('foo', {
  schema: {
    bar: {type: 'number'},
    baz: {type: 'string'}
  },
  init: function () {
    // Do something when component first attached.
  },
  update: function () {
    // Do something when component's data is updated.
  },
  remove: function () {
    // Do something the component or its entity is detached.
  },
  tick: function (time, timeDelta) {
    // Do something on every scene tick or frame.
  }
});
```

```
<a-entity foo="bar: 5; baz: bazValue"></a-entity>
```
Queriers

babia-queryjson

```
<a-entity id="data"
babia-queryjson="url: ./data.json;">
</a-entity>
```

babia-queryes

babia-querygithub
babia-filter

Work In Progress

<a-entity babia-filter="from: data; filter: age=2017"></a-entity>
Visualizations

1. Pie
2. Doughnut
3. 3D/2D bars
4. 3D/2D cylinders
5. Bubbles
6. Network
Visualizations

1. Pie
2. Doughnut
3. 3D/2D bars
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5. Bubbles
6. Network

City
Examples

babiaxr-vismapper
(maps data properties to visualization properties)

https://babiaxr.gitlab.io/aframe-babia-components/

Charts

Pie chart  Bars chart  3D Bars chart  Bubbles chart  Multiple charts

Mixing of different type of charts

Cylinder charts  3D Cylinders chart  Doughnut chart
Guides

Components API
https://babiaxr.gitlab.io/apis/

Tutorials
https://babiaxr.gitlab.io/tutorials/
Metrics

Layout
  Tree structure for districts/buildings

Building Geometry
  height
  area (depth/width)

Other
  Color map for numeric field
Metrics

- Treemap - Tree structure for districts/buildings
- Building Geometry - height, area (depth/width)
- Other - Color map for numeric field
Quick full example

```xml
<a-entity id="quiertest" babia-queryjson="url: ./data.json;"></a-entity>
<a-entity id="treetest" babia-treebuilder="field: id; split_by: /; from: quiertest"></a-entity>
<a-entity scale="0.4 2 0.4" babia-boats="from: treetest; area: area" position="0 1 0"></a-entity>
babia-city=
```
Quick full example

```xml
<a-entity id="queriertest" babia-queryjson="url: ./data.json"></a-entity>

<a-entity id="treetest" babia-treebuilder="field: id; split_by: /; from: queriertest"></a-entity>

<a-entity scale="0.4 2 0.4" babia-boats="from: treetest; area: area" position="0 1 0"></a-entity>

babia-city=
```
Quick full example

```xml
<a-entity id="queriertest" babia-queryjson="url:.data.json"></a-entity>
<a-entity id="treetest" babia-treebuilder="field: id; split_by: /; from: queriertest"></a-entity>
<a-entity scale="0.4 2 0.4" babia-boats="from: treetest; area: area" position="0 1 0"></a-entity>

```

```json
{
    "id": "Root/BlockA/BlockA0/A0A",
    "area": 2,
    "height": 1
},
{
    "id": "Root/BlockA/BlockA1/A1A",
    "area": 2,
    "height": 1
},
{
    "id": "Root/BlockA/BlockA1/A1B",
    "area": 5,
    "height": 4
},
{
    "id": "Root/BlockA/BlockA1/A1C",
    "area": 4
}
```
Quick
full example

```xml
<a-entity id="queriertest" babia-queryjson="url: .data.json"></a-entity>
<a-entity id="treetest" babia-treebuilder="field: id; split_by: /; from: queriertest"></a-entity>
<a-entity scale="0.4 2 0.4" babia-boats="from: treetest; area: area" position="0 1 0"></a-entity>
```
Boats and City
### Full Configuration

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
<th>Type</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>from</td>
<td>The treebuilder entity ID where is the data for the chart</td>
<td>string</td>
<td>-</td>
</tr>
<tr>
<td>area</td>
<td>Field in data items to represent as building area. <strong>DON'T USE IT WITH WIDTH/DEPTH PARAMETERS.</strong></td>
<td>string</td>
<td>-</td>
</tr>
<tr>
<td>width</td>
<td>Field in data items to represent as building area. <strong>DON'T USE IT WITH AREA PARAMETERS.</strong></td>
<td>string</td>
<td>width</td>
</tr>
<tr>
<td>depth</td>
<td>Field in data items to represent as building area. <strong>DON'T USE IT WITH AREA PARAMETERS.</strong></td>
<td>string</td>
<td>depth</td>
</tr>
<tr>
<td>height</td>
<td>Field in data items to represent as building height</td>
<td>string</td>
<td>height</td>
</tr>
<tr>
<td>color</td>
<td>Field in data items to represent the color of the buildings as HSL heatmap</td>
<td>string</td>
<td>-</td>
</tr>
<tr>
<td>building_separation</td>
<td>Separation of the buildings by a numeric factor</td>
<td>number</td>
<td>0.25</td>
</tr>
<tr>
<td>border</td>
<td>Size of border around buildings (streets are built on it)</td>
<td>number</td>
<td>0.5</td>
</tr>
<tr>
<td>extra</td>
<td>Extra factor for total area with respect to built area</td>
<td>number</td>
<td>1.0</td>
</tr>
<tr>
<td>zone_elevation</td>
<td>Zone: elevation for each &quot;depth&quot; of quarters, over the previous one</td>
<td>number</td>
<td>0.3</td>
</tr>
<tr>
<td>building_color</td>
<td>Color of the buildings</td>
<td>color</td>
<td>#E6B9A1</td>
</tr>
<tr>
<td>base_color</td>
<td>Quarter color</td>
<td>color</td>
<td>#98e690</td>
</tr>
<tr>
<td>data</td>
<td>Data to show with the chart. <strong>Important:</strong> Using this attribute will disable the from attribute.</td>
<td>JSON (list of objects)</td>
<td>-</td>
</tr>
</tbody>
</table>
Get the Data

Tutorials: https://gitlab.com/babiaxr/aframe-babia-components/-/tree/master/tools

Boats API: https://babiaxr.gitlab.io/apis/charts/#babia-boats-component
Each building represents a file in the source code of the system. Each quarter represents a folder. Quarters can be nested to represent nested folders. On each building, we mapped the values of three software metrics:

- Area: Number of functions
- Height: LOC per function
- Color: Cyclomatic Complexity (CCN)

Hover over a building to discover more.
Time evolution
Multiuser

Networked component: https://github.com/networked-aframe/networked-aframe
Multiuser

Desert:
https://tinyurl.com/babiaFOSDEM22

With avatar selection:
https://tinyurl.com/babiaAvatars
Other components

**babia-terrain**

**Terrain Examples**

- Terrain Elevation
- Terrain Elevation Filled

**babia-lookat**

More coming soon!
bonus
WebRTC + Aframe + NPM upload

WebRTC + npm + A-FRAME

hubs

moz://a
Contribute

GPLv3 License

Contributing guide

https://gitlab.com/babiaxr/aframe-babia-components/-/blob/master/docs/CONTRIBUTING.md
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