

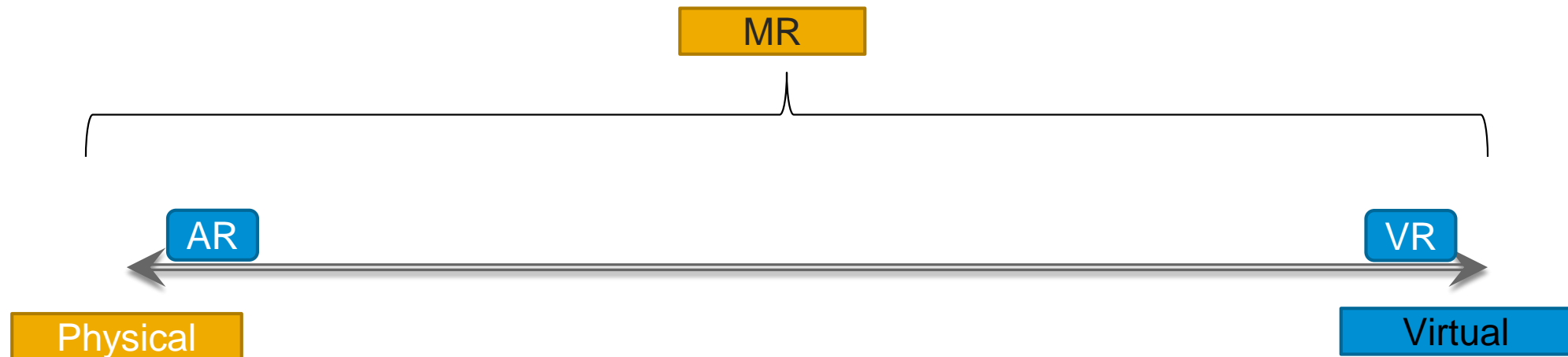
Mixed Reality with OpenUI5

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Introduction

- Virtual reality (VR) – is a technology that simulates a user's physical presence in a virtual or imaginary environment
- Augmented reality (AR) – is a physical, real-world environment whose elements are *augmented* by virtual objects (looks like holograms)
- Augmented virtuality (AV) – is a virtual environment whose elements are augmented by real objects.
- Mixed reality (MR) – is merging of real and virtual objects to produce new environments and visualizations where physical and digital objects **co-exist and interact** in real time.



VR and Web

WebVR is an experimental JavaScript API that provides support for virtual reality devices, such as the HTC Vive, Oculus Rift or Google Cardboard, in a web browser.

There are some VR frameworks:



– React VR (Facebook framework for creating UIs and 3D scenes in virtual reality)



– A-Frame (Mozilla VR framework for WebVR content)



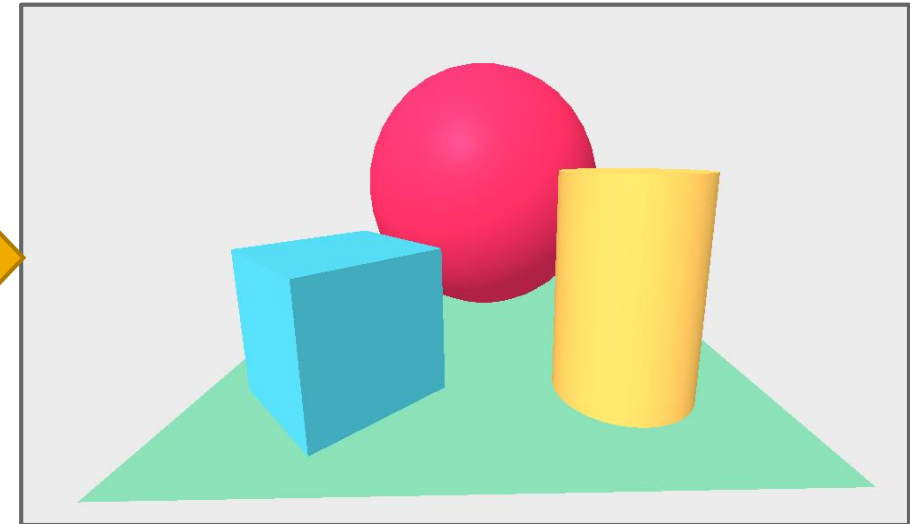
– WebGL and Three.js (Low level)

A-Frame

Academy – <https://aframe.io/aframe-school/#/>

```
<html>
<head>
  <title>Hello, WebVR! - A-Frame</title>
  <meta name="description" content="Hello, WebVR! - A-Frame">
  <script src="https://aframe.io/releases/0.5.0/aframe.min.js"></script>
</head>
<body>
  <a-scene>
    <a-box position="-1 0.5 -3" rotation="0 45 0" color="#4CC3D9"></a-box>
    <a-sphere position="0 1.25 -5" radius="1.25" color="#EF2D5E"></a-sphere>
    <a-cylinder position="1 0.75 -3" radius="0.5" height="1.5" color="#FFC65D"></a-cylinder>
    <a-plane position="0 0 -4" rotation="-90 0 0" width="4" height="4" color="#7BC8A4"></a-plane>
    <a-sky color="#ECECEC"></a-sky>
  </a-scene>
</body>
</html>
```

Code



Result

Source – <https://aframe.io/examples/showcase/helloworld/>

Examples

A-Frame @aframevr · 21 anp.
A Week of **A-Frame** 57. WebScreenVR, MathWorldVR, AR in 8 lines of HTML, #redux-powered menus. aframe.io/blog/awoa-57/

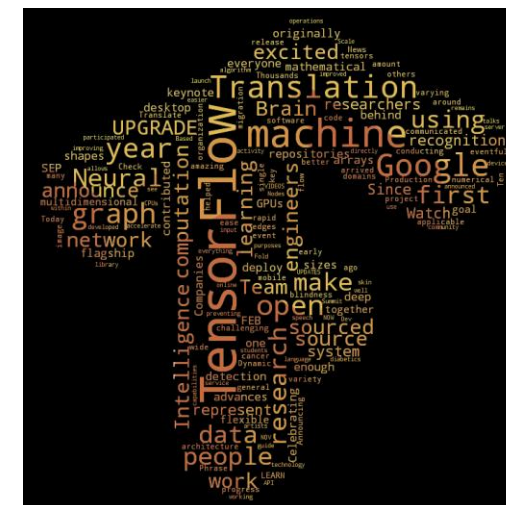
Язык твита: английский

Michal Takac, Jerome Etienne, Alexandra Etienne и еще 4

#skyTexture



#boxTexture



#groundTexture
With yellow light

VR 

How to MixedIt?

Shape Detection API

Accelerated Shape Detection in Images
Editor's Draft, 10 May 2017

- Face Detection API
 - Detection human faces on images
- Barcode Detection API
 - Detection QR codes and barcodes on images
- Text Detection API
 - Detection text in images

After enable `chrome://flags/#enable-experimental-web-platform-features`

```
> new BarcodeDetector()  
< ▼ BarcodeDetector {} ⓘ  
  ▾ __proto__: BarcodeDetector  
    ▶ detect: function detect()  
    ▶ constructor: function BarcodeDetector()  
      Symbol(Symbol.toStringTag): "BarcodeDetector"  
    ▶ __proto__: Object  
>
```

```
"Boo, Barcode Detection failed: NotSupportedError: Barcode Detection not implemented."
```

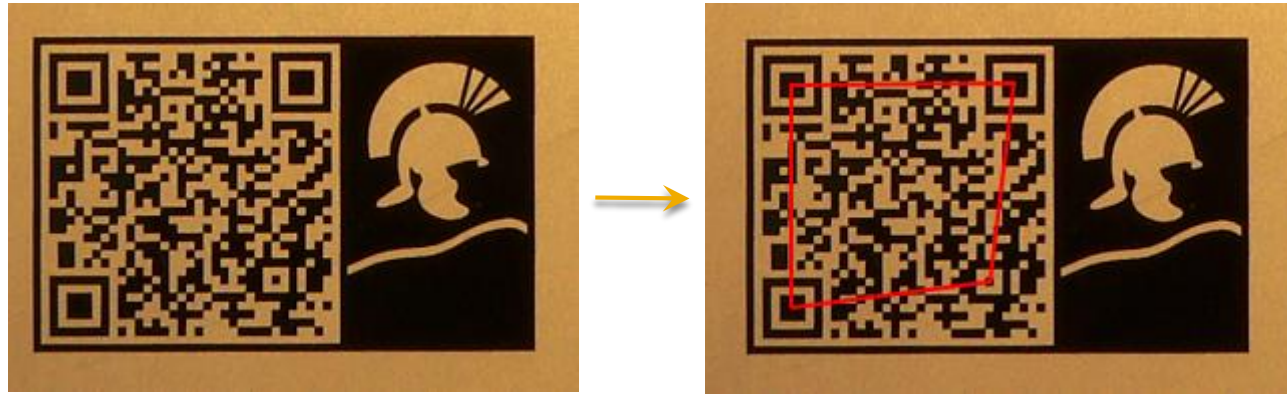
Status in Chromium

Blink components: [Blink>Image](#)

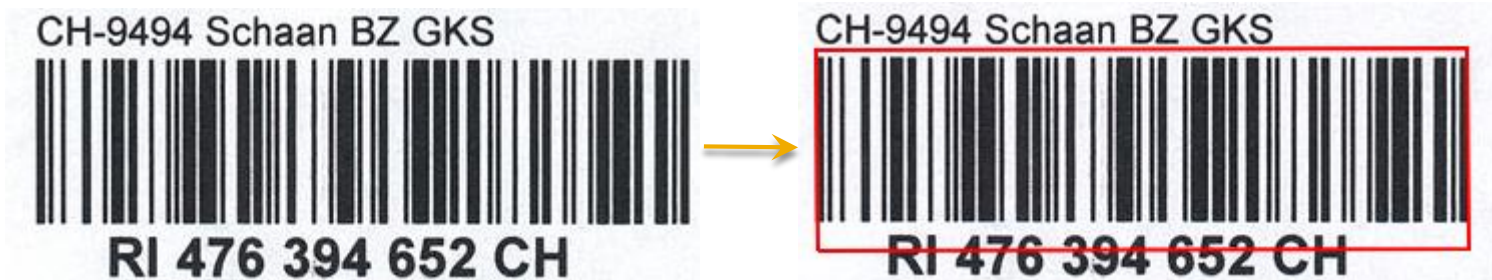
Behind a flag (launch bug) in:
Chrome for desktop release 57
Chrome for Android release 57
Chrome for iOS release 57
Android WebView release 57
Opera release 44
Opera for Android release 44

Shapedetection-polyfill

<https://github.com/yellowdoge/shapedetection-polyfill>



- Capability to detect QR and barcodes without native functions
- There are some problems with catching promises



A-Frame -> OpenUI5

A-Frame in OpenUI5

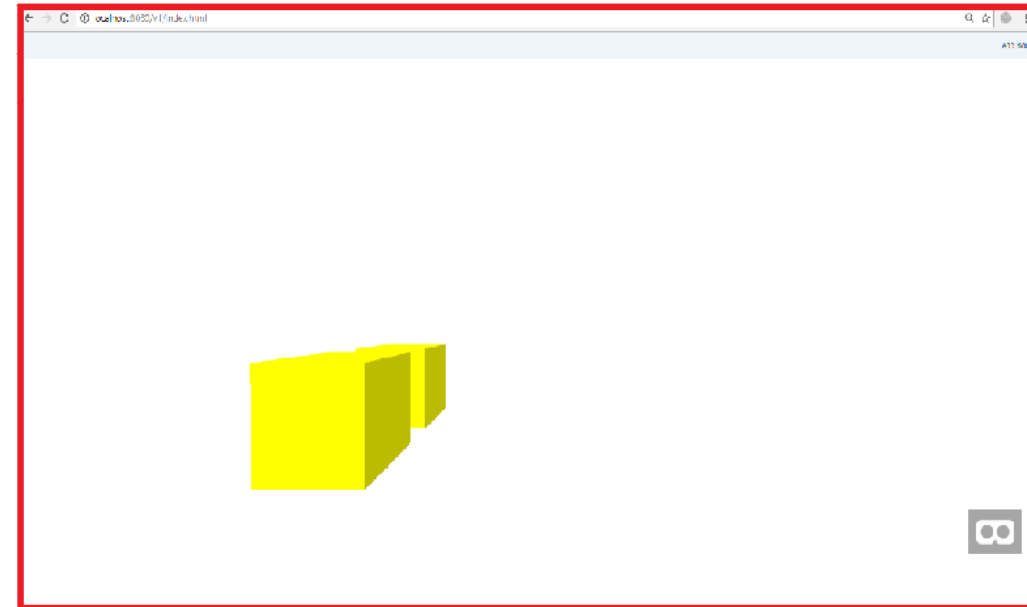
View:

```
7 <Page showHeader="true">
8   <headerContent>
9     <Button text="Add Box" press="addBox" />
10  </headerContent>
11  <content>
12    <vr:AFrame id="aframe" childs="{/boxes}">
13      <vr:childs>
14        <vr:ABox color="{color}" scale="{scale}" position="{position}"></vr:ABox>
15      </vr:childs>
16    </vr:AFrame>
17  </content>
18 </Page>
```

Controller:

```
addBox: function (oEvent) {
  var aBoxes = this.oGeometryModel.getProperty("/boxes").push({
    color: "yellow",
    scale: "2 2 2",
    position: "0 0 " + this.counter
  });
  this.counter -= 3;

  this.oGeometryModel.updateBindings();
}
```



A-Box in OpenUI5

```
sap.ui.define(["./AFrameComponent"], function (AFrameComponent) {
    return AFrameComponent.extend("bdo.uicon.vr.ABox", {
        metadata: {
            properties: {
                color: "string",
                position: "string",
                scale: "string",
                src: "string"
            }
        },
        init: function () {
            this._componentTechName = "a-box";
        },
        _writeParams: function (oRm) {
            oRm.writeAttribute("color", this.getColor());
            oRm.writeAttribute("position", this.getPosition());
            oRm.writeAttribute("scale", this.getScale());
            oRm.writeAttribute("rotation", this.getRotation());
        },
        renderer: {}
    });
});
```

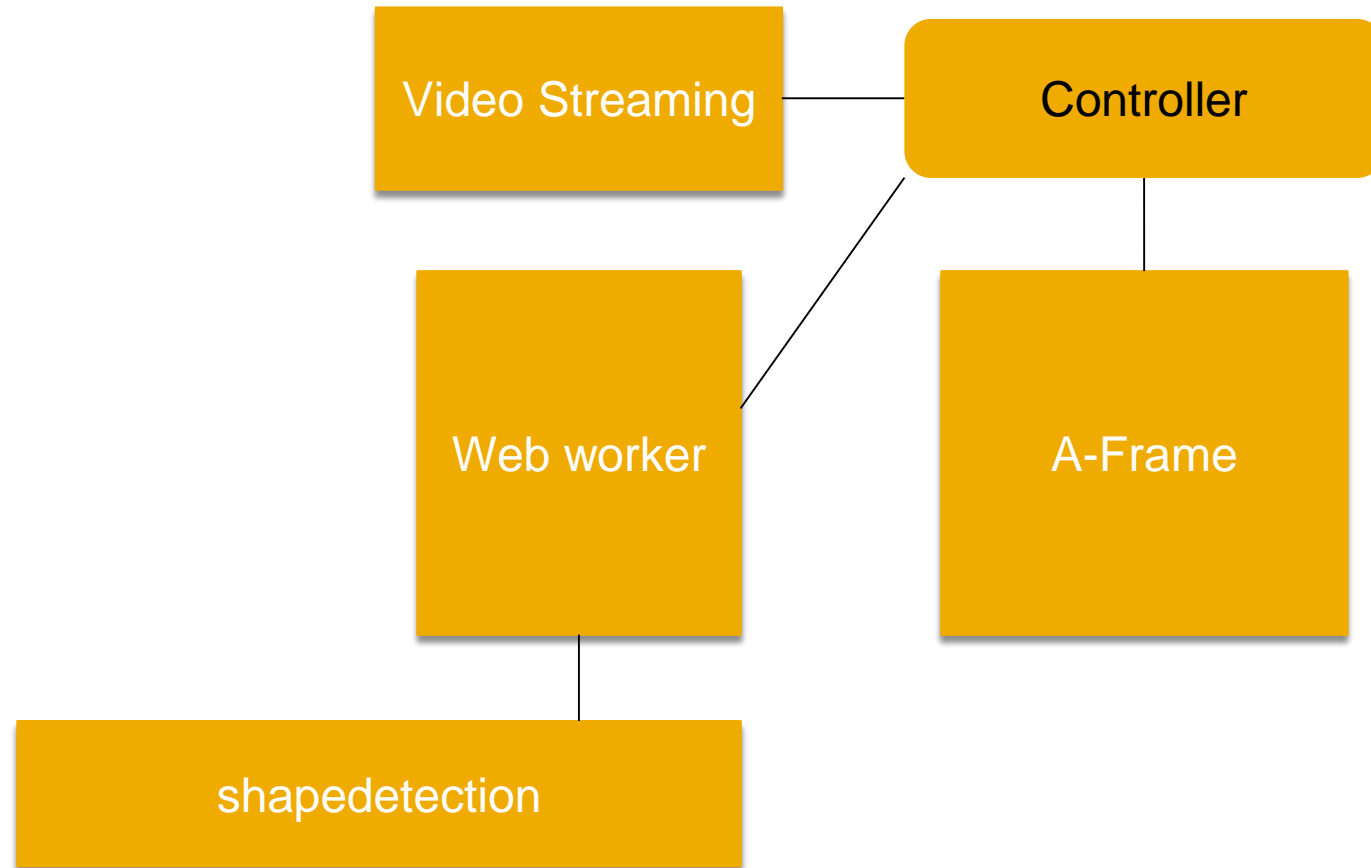
```
rotation: "string",
```

```
oRm.writeAttribute("rotation", this.getRotation());
```



```
this.oBox = new ABox({
    // color: "red",
    src: "#openlogo",
    scale: "2 2 2",
    position: "0 1.7 -10",
    rotation: "45 45 45",
    childs: this.oAnimation
});
```

How it works



Thank you!

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You are welcome to give feedback for this session
in the UI5con Event App