



Augmented and Virtual Reality

marker based AR using A-Frame

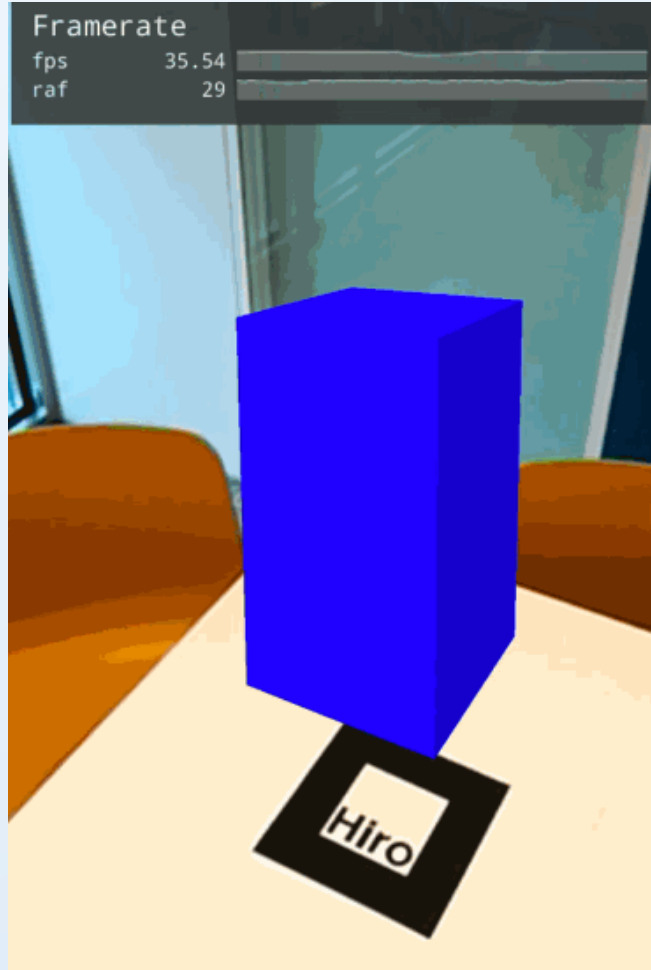
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NIELIT Chandigarh





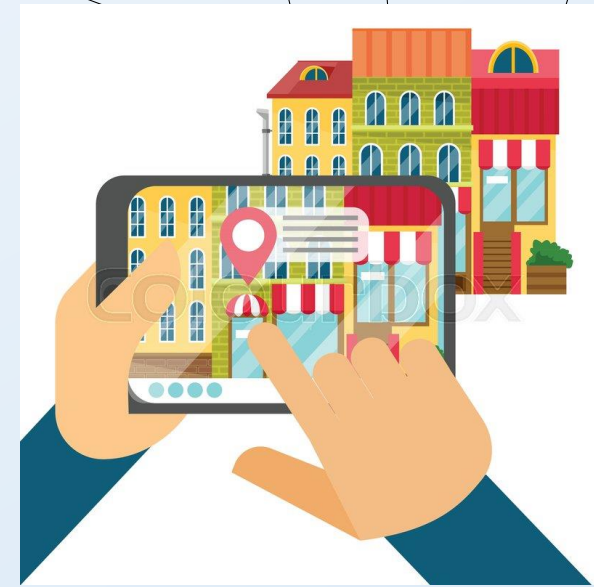
Agenda

- A-Frame: Marker
 - Hiro Marker
 - Custom marker



sarwan@NIELIT Chandigarh

*Write AR.js app
once and run on
all platforms*



*Underneath,
A-Frame is an entity-component
framework for three.js that is exposed
declaratively.*





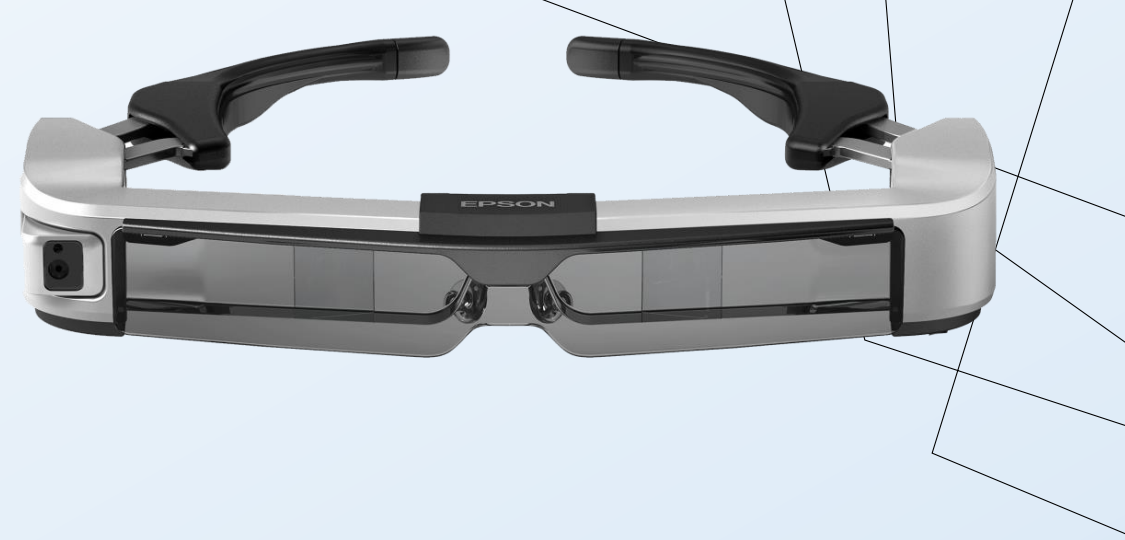
References

Websites :

- developers.google.com/ar,
- dev.to/arunkumarvallal, mobidev.biz,
gerardfriel.com/ar/the-history-of-ar
- Aframe.io, theodo.com

Books

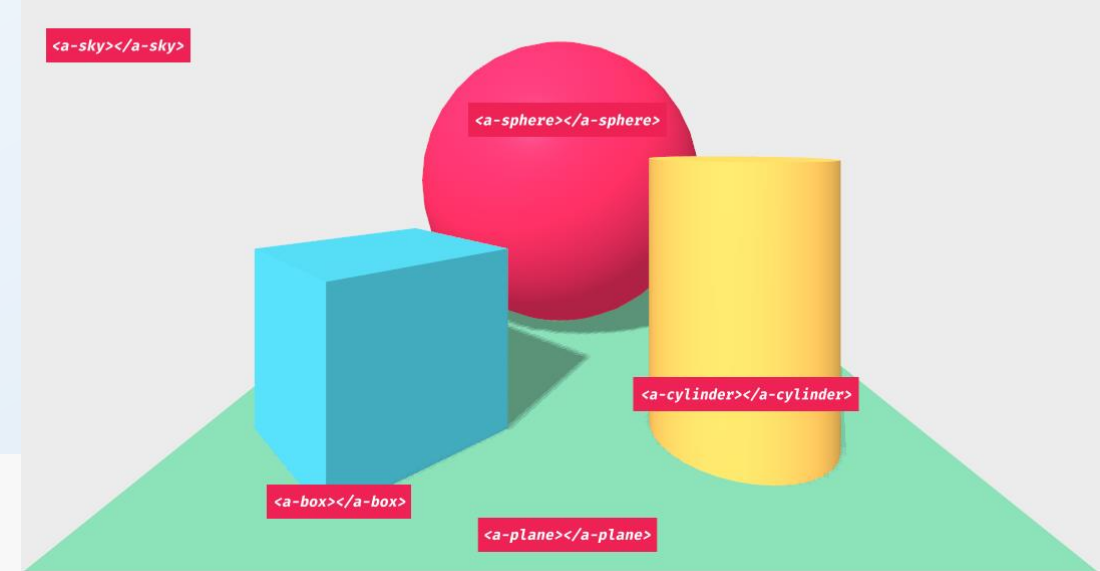
- “Theory and applications of marker-based augmented reality” – Sanni Siltanen
- “Computer graphics”- Hearn and Baker

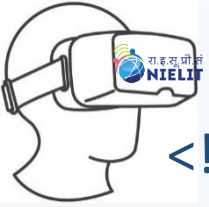




First code

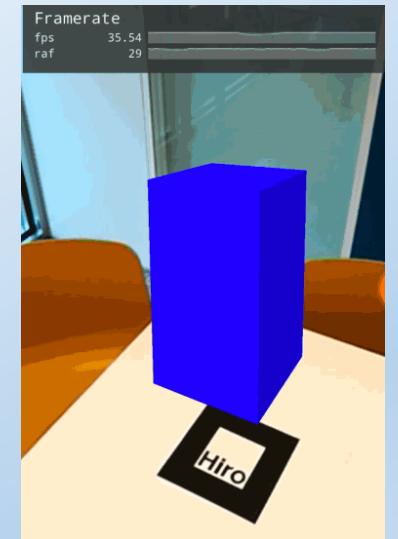
```
<html>
<head>
<script src="https://aframe.io/releases/0.9.2/aframe.min.js"></script>
</head>
<body>
  <a-scene>
    <a-box position="-1 0.5 -3" rotation="0 45 0" color="#4CC3D9"></a-box>
    <a-sphere position="0 1.25 -5" radius="1.25" color="#EF2D5E"></a-sphere>
    <a-cylinder position="1 0.75 -3" radius="0.5" height="1.5" color="#FFC600"></a-cylinder>
    <a-plane position="0 0 -4" rotation="-90 0 0" width="4" height="4" color="#E6E6E6"></a-plane>
    <a-sky color="#ECECEC"></a-sky>
  </a-scene>
</body>
</html>
```





Marker based AR – Hiro Marker

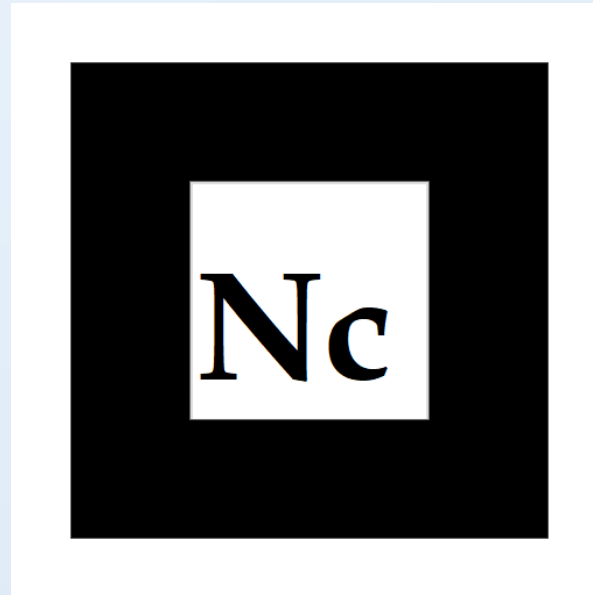
```
<!DOCTYPE html>
<html>
  <head>
    <script src="https://aframe.io/releases/0.6.1/aframe.min.js"></script>
    <script src="https://rawgit.com/donmccurdy/aframe-extras/master/dist/aframe-
extras.loaders.min.js"></script>
    <script src="https://cdn.rawgit.com/jeromeetienne/AR.js/1.5.0/aframe/build/aframe-ar.js"> </script>
  </head>
  <body style="margin : 0px; overflow: hidden;">
    <a-scene stats embedded arjs="trackingMethod: best;">
      <a-marker preset="hiro">
        <a-box position="0 1 0" material="color: blue;"> </a-box>
      </a-marker>
      <a-entity camera></a-entity>
    </a-scene>
  </body>
</html>
```





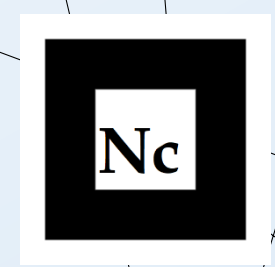
Marker

- use a Hiro marker to start
- *It is a special kind of marker designed for augmented reality*
- It is possible to have custom marker.





Own Marker



```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
```

```
<script src="https://rawgit.com/donmccurdy/aframe-extras/master/dist/aframe-extras.loaders.min.js"></script>
```

```
<script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
```

```
</head>
```

```
<body style="margin : 0px; overflow: hidden;">
```

```
<a-scene stats embedded arjs="trackingMethod: best;">
```

```
<a-marker-camera type="pattern"
```

```
url="https://cdn.glitch.global/b1ffef1c-5ef5-4ee8-b29c-9fefb70c6a60/pattern-avr.patt?v=1646384165406">
```

```
<a-box position="0 1 0" material="color: red;opacity: 0.5;"> </a-box>
```

```
</a-marker-camera>
```

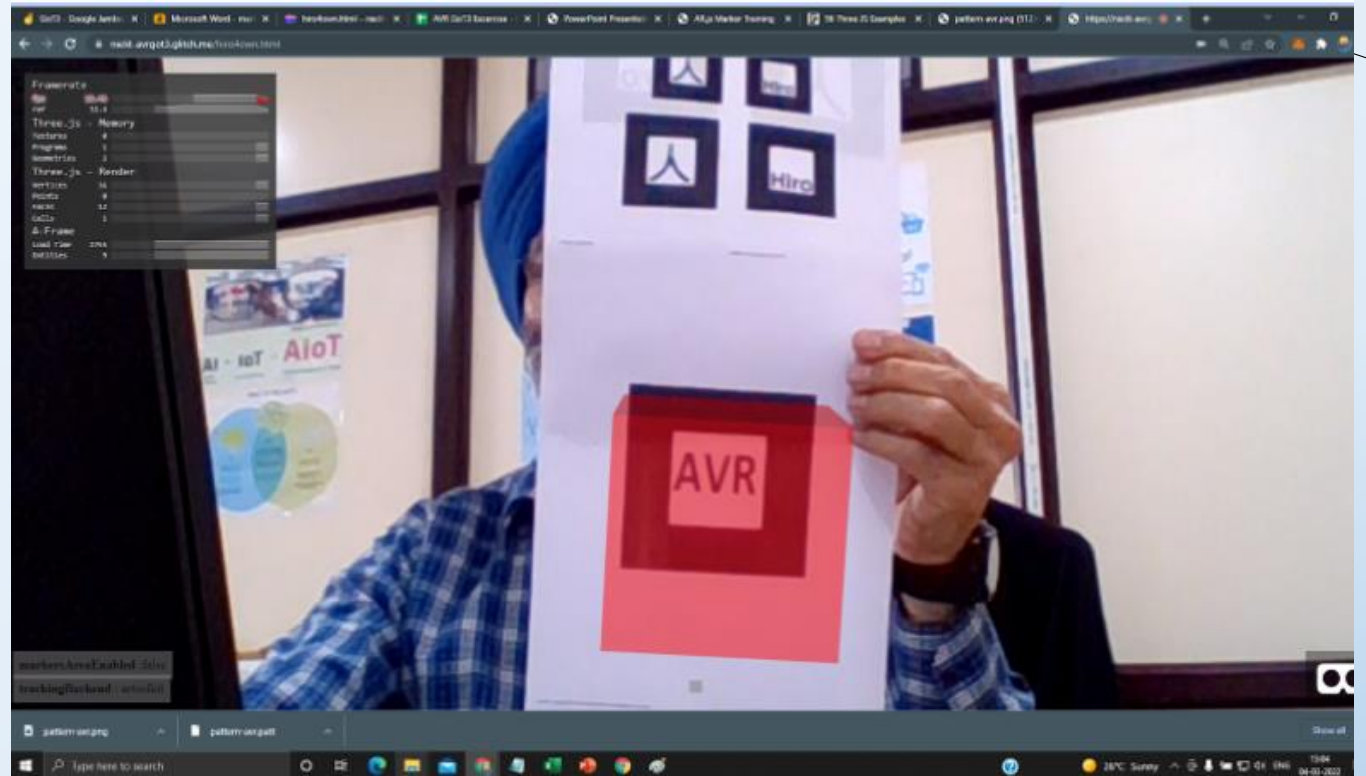
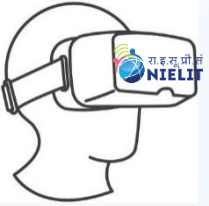
```
<!-- <a-marker preset="hiro">
```

```
<a-box position="0 0.5 0" material="opacity: 0.5;color: blue;"></a-box>
```

```
</a-marker>-->
```

```
</a-scene>
```

```
</body> </html>
```





<https://jeromeetienne.github.io/AR.js/three.js/examples/marker-training/examples/generator.html>

AR.js Marker Training

UPLOAD

Pattern Ratio 0.50

Image size 512px

Border color. Please choose a dark one.

DOWNLOAD MARKER

DOWNLOAD IMAGE

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