

Augmented reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory.

- Wikipedia

In this we are going to deploy a local web server that will host an AR web app. Let's begin.

1. We need a secure server to host the app as it will access the camera of our mobile. Therefore, open the terminal and install the bellow local web server.
 - `npm install -g local-web-server`
2. Once you install the server, create a folder (This will be the project folder for our app).
3. Create a file named 'index.html'. Use a text editor to do that.
4. Open that file in the text editor and insert the following code.

```
<!DOCTYPE html>
<html>
  <head>
    <!-- include A-Frame obviously -->
    <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
    <!-- include ar.js for A-Frame -->
    <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
  </head>
  <body style='margin : 0px; overflow: hidden;'>
    <a-scene embedded arjs>
      <!-- create your content here. just a box for now -->
      <a-box position='0 0.5 0' material='opacity: 1;'></a-box>
      <!-- define a camera which will move according to the marker position -->
      <a-marker-camera preset='hiro'></a-marker-camera>
    </a-scene>
  </body>
</html>
```

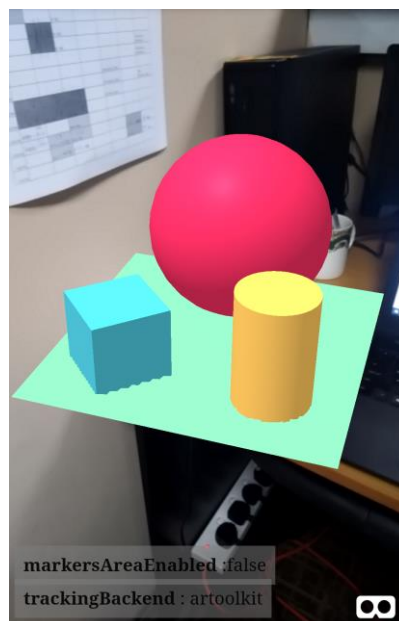
5. Open the marker using the following link.
<https://github.com/jeromeetienne/AR.js/blob/master/data/images/HIRO.jpg>
6. Navigate to the project folder and open the terminal at that location and run the following command.
 - `ws --https`
8. Go to the server link using your mobile phone. Make sure you are connected to the SLIIT-STD Wi-Fi network.

9. Try the following code

```
<!DOCTYPE html>
<html>

<head>
  <!-- include A-Frame obviously -->
  <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
  <!-- include ar.js for A-Frame -->
  <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
</head>
<body style='margin : 0px; overflow: hidden;'>
  <a-scene embedded arjs>
    <a-marker preset="hiro">
      <!-- <a-image id="image" src="mario.png" position="0 0 0" rotation="-90 0 0"></a-image> -->
      <a-box position="-1 0.5 1" rotation="0 45 0" color="#4CC3D9"></a-box>
      <a-sphere position="0 1.25 -1" radius="1.25" color="#EF2D5E"></a-sphere>
      <a-cylinder position="1 0.75 1" radius="0.5" height="1.5" color="#FFC65D"></a-cylinder>
      <a-plane position="0 0 0" rotation="-90 0 0" width="4" height="4" color="#7BC8A4"></a-plane>
    </a-marker>
    <a-entity camera></a-entity>
  </a-scene>
</body>
</html>
```

Following view should be the output.



10. Let's display an image in the Augmented reality. Download the 'mario.png' from the courseweb to the project folder.

11. Replace the shapes code with the following.

```
<a-image id="image" src="mario.png" position="0 0 0" rotation="-90 0 0"></a-image>
```



12. Next step let's put 3D object to the augmented reality. To do that, you need to import assets. Download assets from the courseweb to the project folder. Try the following code.

```
<!DOCTYPE html>
<html>
<head>
  <!-- include A-Frame obviously -->
  <script src="https://aframe.io/releases/0.7.1/aframe.min.js"></script>
  <!-- include ar.js for A-Frame -->
  <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-
ar.js"></script>
</head>
<body style='margin : 0px; overflow: hidden;'>
  <a-scene embedded arjs>
    <a-assets>
      <a-asset-item id="tree-obj" src="asst.obj"></a-asset-item>
    </a-assets>
    <a-marker preset="hiro">
      <a-entity obj-model="obj: #tree-
obj;" material="src: texture.png" position="0 0 -
1" rotation="0 90 0" scale="3 3 3"> </a-entity></a-entity>
    </a-marker>
    <a-entity camera></a-entity>
  </a-scene>
</body>
</html>
```



13. Display text in the augmented reality. Refer the following link.

<https://aframe.io/docs/1.0.0/introduction/>

14. Create your own project referring to the above link.