PRO-C166

WhiteHat Jr
Live Online Coding for Kids

INTRODUCTION TO WEB AR

What is our GOAL for this MODULE?

We learned to create the basic web based AR scene using A-Frame and also to render objects using marker based AR.

What did we ACHIEVE in the class TODAY?

- Learned about augmented reality Web Apps.
- Learned to create a basic web based AR app using Hiro markers.
- Learned to render 3D models as AR scenes.

Which CONCEPTS/CODING BLOCKS did we cover today?

- aframe-ar.js library.
- <a-marker> tag.
- Hiro marker and ngrok to run the application.
- Animation-mixer component in aframe-extras library

How did we DO the activities?

1. Create a basic scene in A-Frame and add the aframe-ar.js library.

```
<!DOCTYPE html>
<html>

<head>
  <title>My First AR Application</title>
  <script src="https://aframe.io/releases/1.0.4/aframe.min.js"></script>
</head>

<body>
  <a-scene >

  </a-scene>
</body>

</html>
```

```
<title>AR Dance</title>

<script src="https://aframe.io/releases/1.0.4/aframe.min.js"></script>
<script src="https://raw.githack.com/AR-js-org/AR.js/master/aframe/build/aframe-ar.js"></script>
<script src="https://cdn.jsdelivr.net/gh/donmccurdy/aframe-extras@v6.1.1/dist/aframe-extras.min.js"></script>
<script src="https://raw.githack.com/whitehatjr/ar-gesture-handler/main/index.js"></script>
```

2. Attach embedded arjs to the scene element to initialize ar.js.

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

  <a-scene embedded arjs>

  </a-scene>

</body>
```

3. Include the 3D gLTF models src file in the Asset Management.

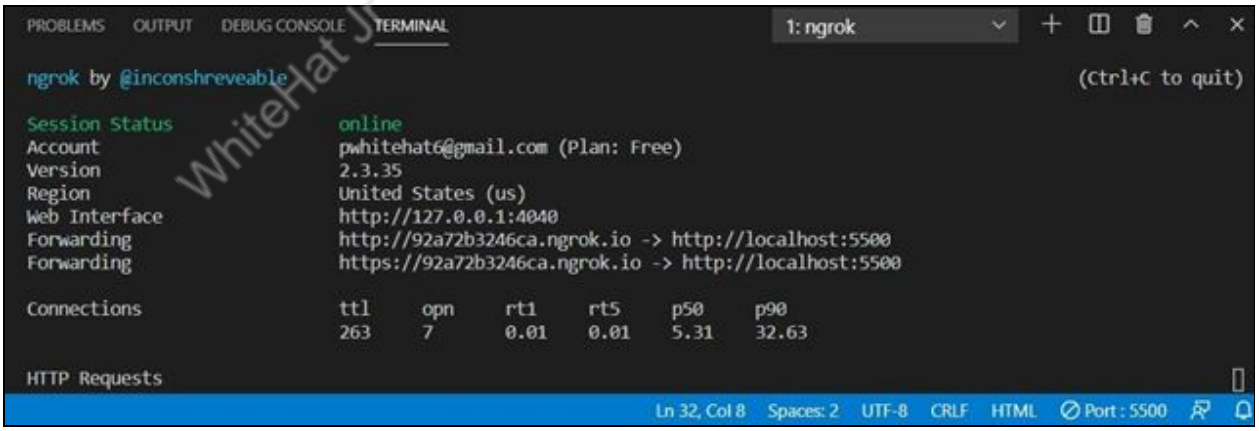
```
<a-assets>
  <a-asset-item id="hero" src="./assets/samba_dancing_boris/scene.gltf"></a-asset-item>
</a-assets>
```

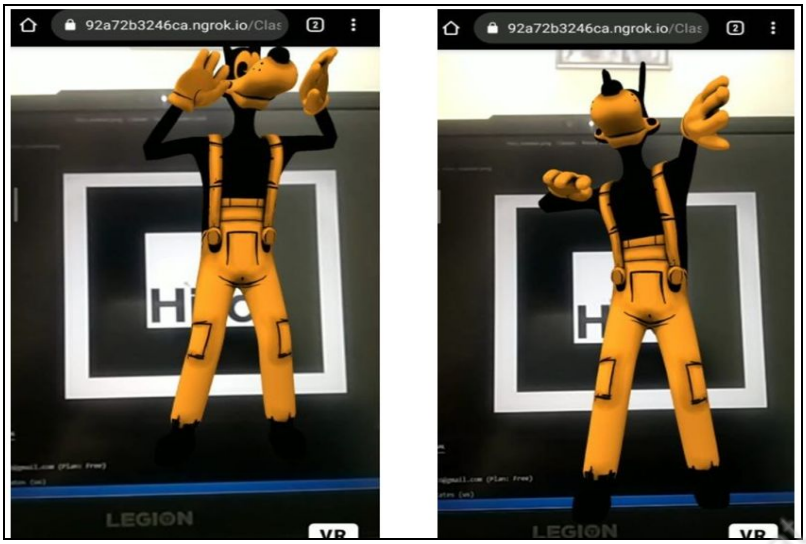
4. Add the <a-marker> tag and create a gltf-model entity as a child of the <a-marker>.

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

</a-marker>
```

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

  <a-entity id="model" position="-0.1 0 0" gltf-model="#hero" rotation="-90 0 0" scale="10 5 5" animation-mixer>
  </a-entity>

</a-marker>
```

5. To see the output:
   - Use ngrok to run the application.
   - Open https URL in your smartphone and give permission to use the camera.
   - Open the hiro marker image and point the camera towards it.





We have successfully learned to render 3D models in the AR scene.

What's NEXT?

In the next class, we will learn about image tracking based Augmented Reality Web Apps.

EXTEND YOUR KNOWLEDGE:

- You can refer to the link below to explore more about A-Frame:
  A-Frame
- You can refer to the link below to explore more about AR.js:
  AR.js