Sri Lanka Institute of Information Technology

Department of Software Engineering

Assignment 02

Current Trends in Software Engineering

2020

Submitted by

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Augmented Reality (AR) Assignment

Introduction

Before moving on with how does Augmented Reality (AR) apply to resolve real world challenges, let us step on with consideration to get some thoughts about AR. In a simplest way augmented reality is a vital term which can be referred to a straightforward combination of real and computer-generated worlds. Furthermore, AR is a technology which is work underneath algorithm on computer vision founded recognition to strengthen sound, graphics, videos, and additional sensor centered inputs on real world items utilizing the camera of a device. Nevertheless, there is another term called Virtual Reality (VR). If considering the different between AR and VR, in virtual reality consumer's perception of reality is wholly based on virtual evidence whereas, in augmented reality adjacent environment is real and just intermingle with some gradations of simulated instance to the real environment.

1) You have been asked to develop an augmented reality application for a gift shop. Imagine the customer has been provided with a printed marker to be placed on the table. Customer should be able to see the following, rendered on the screen.

1. *3D object (should look like an ornament)*
2. *Price*
3. *Company name and the slogan*

Source Code for the created AR application

```
<!DOCTYPE html>
<html>
<head>
    <!-- include A-Frame obviously -->
    <script src="https://aframe.io/releases/1.0.0/aframe.min.js"></script>
    <!-- include ar.js for A-Frame -->
    <script src="https://raw.githack.com/AR-js-org/AR.js/master/aframe/build/aframe-ar.js"></script>
</head>
<body style='margin : 0px; overflow: hidden;'>
    <a-scene embedded arjs>
        <a-marker preset="hiro">
            <!-
- getting created image which is incluse text in it and which has created using online tool-->
            <a-image src="Project Name.png" position="2.2 1 1" scale="2.8 2.8 2.8" rotation="270 90 -90">
            </a-image>
            <!-- getting 3D model and display-->
            <a-entity position="0 1 1" rotation="270 90 -90" scale="1 1 1" gltf-model="scene.gltf">
            </a-entity>
        </a-marker>
        <a-entity camera></a-entity>
    </a-scene>
```

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

In this scenario “Hiro” has taken as maker to be printed.

Figure 1: Selected Maker

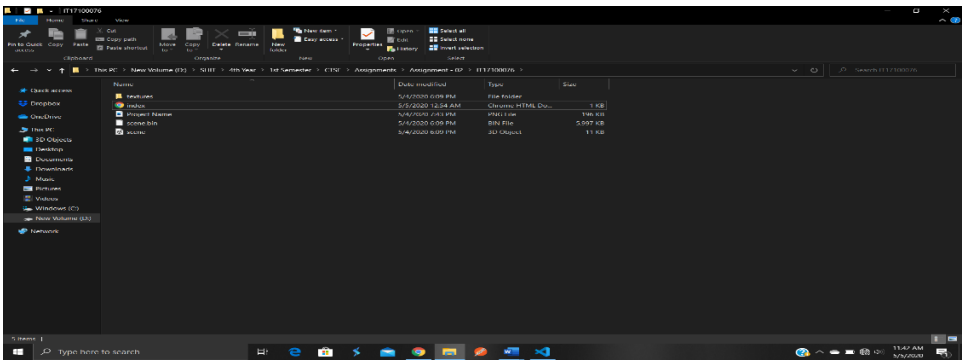


Figure 2: Screenshot of project folder

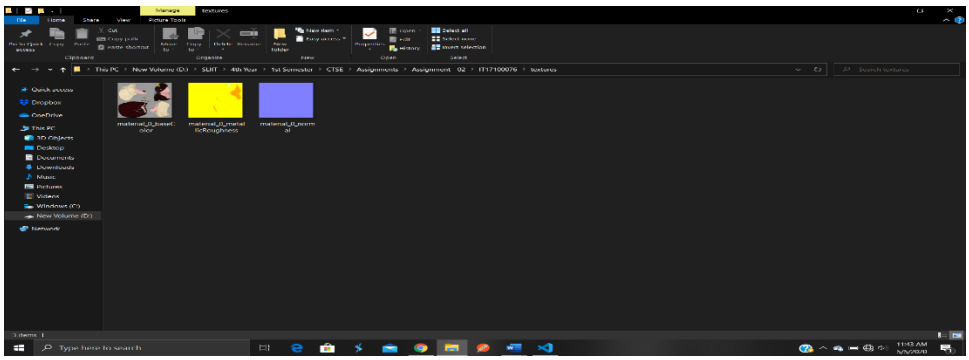


Figure 3: Screenshot of texture folder

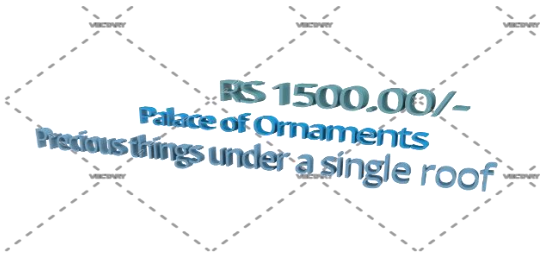
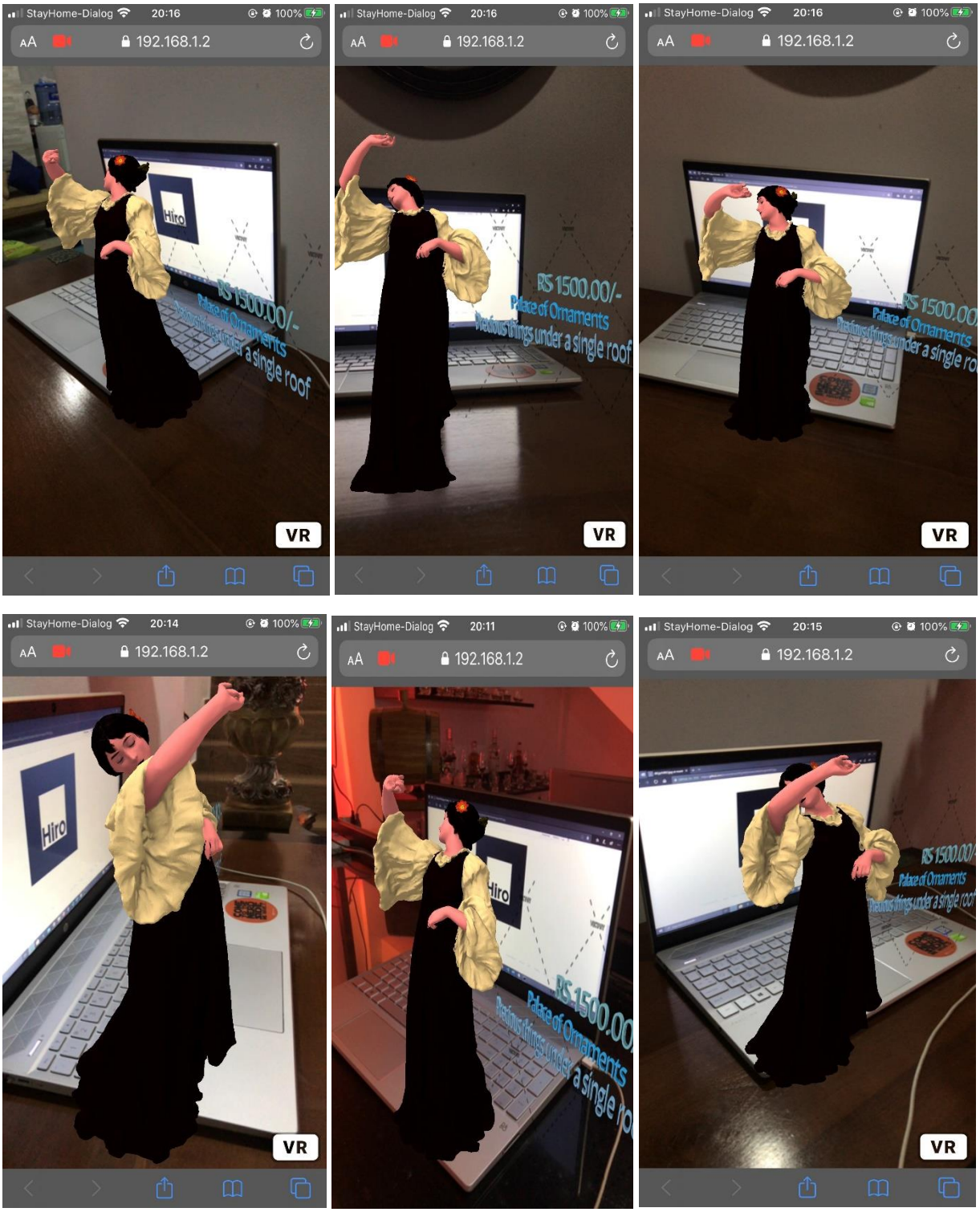


Figure 4: Displayed 3D Text

Screenshots of created AR application outcome



** *Please note as shown as above screenshots have just displayed 'Hiro' maker in laptop but It has printed to the paper also according to that position of the 3D model and displayed text should be changed. In this case could not be able to arrange as mention above.*

(2) Make a small writeup about a real-life problem where you can apply AR technology to solve it.

Not for the day to day life, but when needed all of us must reach to the hospital for some reason. If considering about large-scale hospital or normal hospital, at some point it is hard to find a particular destination or unit of a hospital. If explain about this situation using an example, assume that one of person that related to you has admitted in the hospital. When the time you arrive to the hospital, you realize inside placement of the hospital has changed considering to last time you visit or that hospital zone is totally new to you. At that situation, assume that you want to visit to the ward where you related person stay but at the same time it really hard to find that ward due to size and large number of blocks of the hospital. At that time though you look a map of the hospital it not easy to find your destination. In that case most of the time either we need to walk around and find, or we need to ask directions to your destination from someone else. As you can see it is not quite easy to reach single destination. Assume a person who has speaking disorders might not be able to or might not like to get the help from someone else. In that case only option for them is walk around and find the destination using hospital map or not. And also, people who really consider about 'time is golden' situation like this is really make their life unhappy. This is general situation where we can raise as problem statement in real life.

Contemplating above mention scenario as a real-world problem, we can apply a solution which can be develop by using Augmented Reality (AR) technology. Proposed solution for this scenario is Augmented Reality (AR) application for hospital. If we move further attention on usage of this solution which will used augmented reality affords more accurate view of the entire hospital zone and provides meticulous 3D view of the 2D sketching, which is extraordinarily complicated to clarify and comprehend. Proposed solution will not only capable with displaying 3D view of hospital zone. It can be illustrating inside view of the each and every hospital block such as accident wards, staff office cubicles floor structure, block of ward and so on. By zooming into one particular block or unit user able to see the basic information such as user restricted area or etc. What you only need to do for get the usage of this AR technology is just point out your camera in front of hospital zone and every details you are looking for is appear very fast and quick.

This solution can be further develop for airport and other places to solve general issues as in above scenario using AR technology.

References

[1]."Sketchfab", *Sketchfab*,2020.[Online].Available:https://sketchfab.com/search?q=figure+of+dancer&sort_by=-pertinence&type=models. [Accessed: 05- May- 2020].

[2]. "Creating Augmented Reality with AR.js and A-Frame – A-Frame", *A-Frame*, 2020. [Online]. Available: https://aframe.io/blog/arjs/. [Accessed: 05- May- 2020].

[3]. "CourseWeb | Sri Lanka Institute of Information Technology", *Courseweb.sliit.lk*, 2020. [Online]. Available: https://courseweb.sliit.lk/. [Accessed: 05- May- 2020].

[4]. "What Is Augmented Reality (AR) and How Does It Work?", *AVRspot*, 2020. [Online]. Available: https://www.avrspot.com/augmented-reality-ar-work/. [Accessed: 05- May- 2020].