AR / VR PROJECT

PICK AND PLACE (VR)

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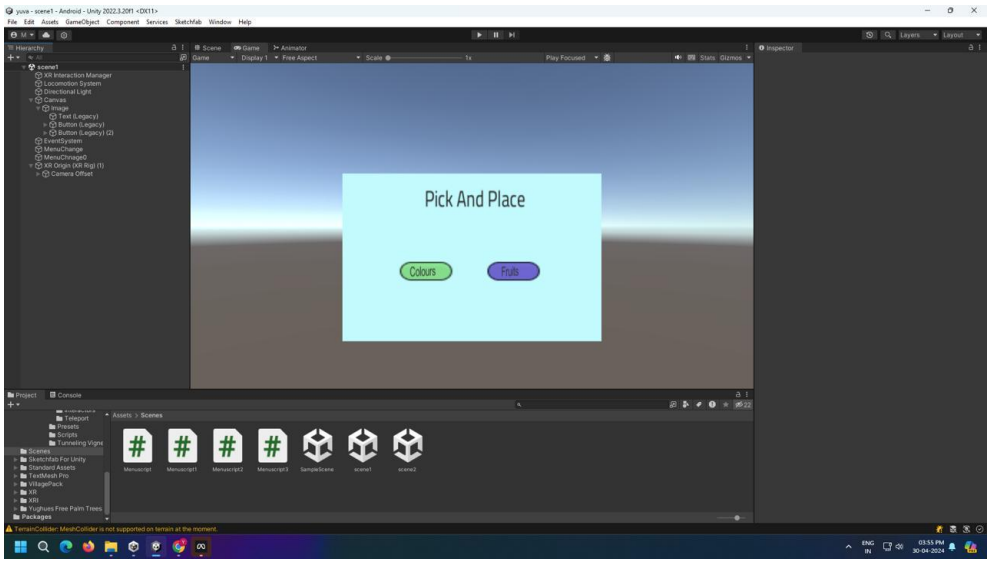
BRANCH: IT (2ND YEAR)

BATCH: 5 (Monday-Thursday)

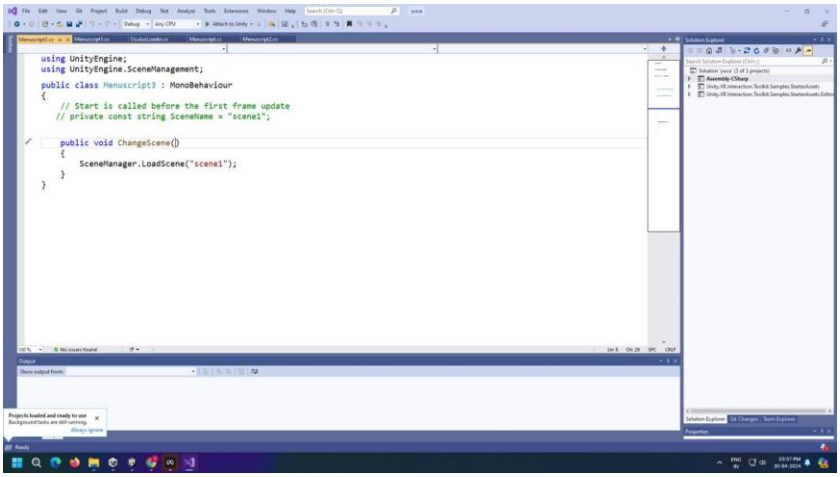
INTRODUCTION

A pick and place AR/VR project involves creating a simulation where users can interact with virtual objects in a 3D environment. Users can "pick" virtual objects and "place" them in designated areas using controllers. It's a great way to explore human-computer interaction and spatial awareness in immersive environments.

SCENE 1



1) Uses UI components like canvas, image, text (TMP), button
2) On clicking the “colours” or the “fruits” button, there is a change in scene as per the script given below.



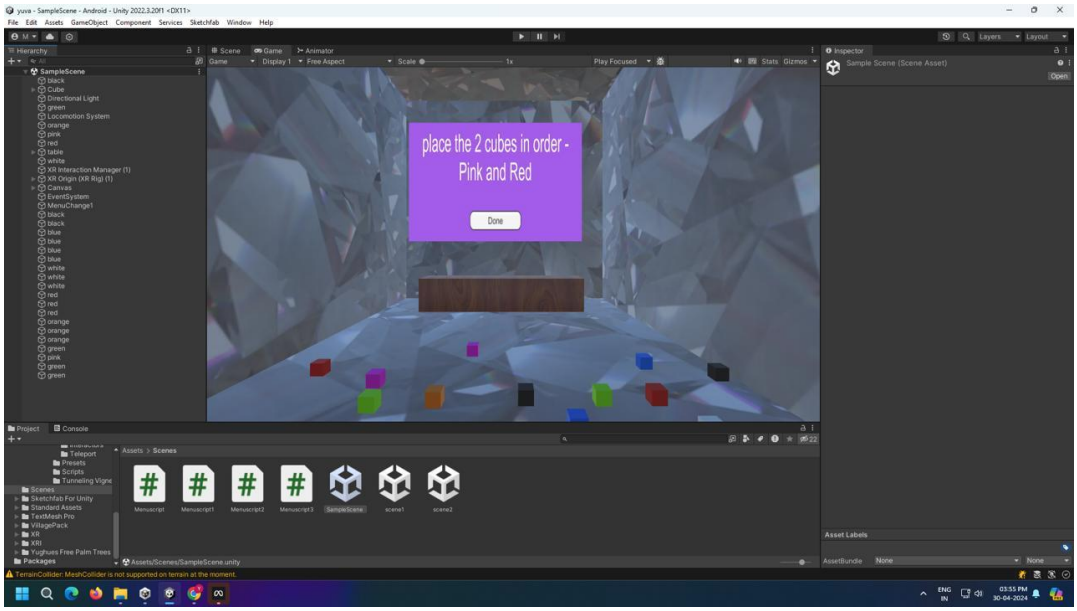
```
using UnityEngine;
using UnityEngine.SceneManagement;

public class Menuscript3 : MonoBehaviour
{
    // Start is called before the first frame update
   // private const string SceneName = "scene1";

    public void ChangeScene()
    {
        SceneManager.LoadScene("scene1");
    }
}
```

Attach this script to a GameObject. Then, can call the ChangeScene function and pass the name of the scene as a parameter. Here the game object is a button that triggers the scene change, by using its onClick event we call this function with the desired scene name.

SampleScene-

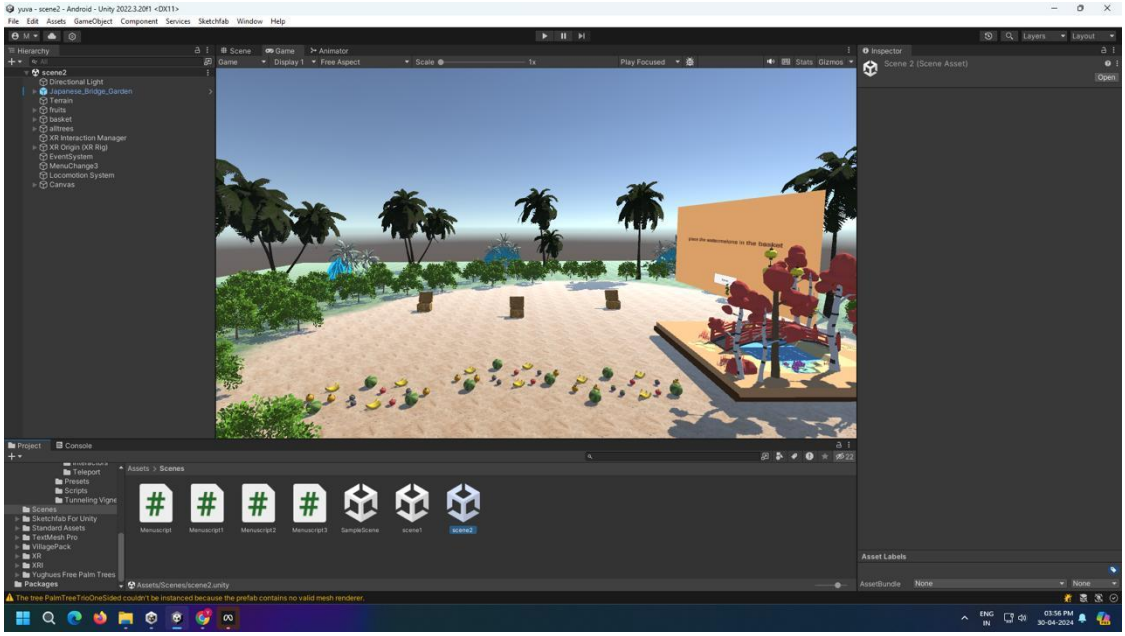


1) The coloured cubes use the components:
   - XR grab interactor- Add XR Grab Interactable component to the cubes as we want to grab them. This component makes the object interactable with the grab interactor.
   - Box collider- Adding a Box Collider component to grabbable objects is essential for enabling collision detection. This allows the XR Grab Interactor to interact with the cube when it comes into contact with it.
   - Rigid body -Adding a Rigid body component to cubes is another crucial step for enabling realistic physics interactions in Unity.
2) Table- implement XR socket interaction, where you can place objects into sockets in a virtual environment using XR controllers.
   - Add Collider to Sockets: Add a Box Collider to each socket to detect when a cube is placed on the table.
   - When a cube enters the trigger area, it snaps it into place within the socket.

   After the player is done placing the cubes on table, they can click on the done button which takes the user back to SCENE 1 (main menu)

   Now the user can select “fruits” button and enter SCENE 2

SCENE 2



The same process as SampleScene is followed in this scene too.

But the grabbable objects here are fruits instead of cubes and sockets are baskets instead of a table.

CONCLUSION

Using a pick and place activity with coloured objects can be particularly beneficial for autistic children in several ways:

1) Visual Stimulation and Sensory Integration: The colourful objects provide visual stimulation, which can be engaging and appealing for autistic children. This sensory input can help with sensory integration, aiding in regulating sensory processing and reducing sensory sensitivities.

2) Colour Recognition and Discrimination: Engaging in activities that involve sorting and matching coloured objects helps autistic children develop colour recognition and discrimination skills. This can be beneficial for improving visual processing abilities and enhancing cognitive development.