St. Francis Institute of Technology

(An Autonomous Institution)

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A+ Grade by NAAC: CMPN, EXTC, INFT NBA Accredited: ISO 9001:2015 Certified

REPORT

on

Mobile AR App using Vuforia Image Tracking

Title : Dancing Girl Animation

Group No: 6

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Class/Batch: BEIT-A/Batch-2

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1. Introduction

This project demonstrates a simple Augmented Reality (AR) mobile application using Unity and Vuforia. The goal is to track an image target and spawn a 3D object on top of it. Vuforia is used as it provides reliable image-based tracking. We have used a 3D character model downloaded from mixamo.com. The selected model is a female character named *Claire*, which was animated with a dance motion sequence to enhance the AR experience.

2. Target Image

Name: logodance.jpg

Fig 1: Image Target

Image size: 0.2 meters (This is an AI generated image that has received 4 stars on Vuforia engine developer portal.)

3. Implementation

Step 1: In this Unity project, the Main Camera was deleted and replaced with an ARCamera from the Vuforia Engine package. A license key was generated from the Vuforia Developer Portal and copied into ARCamera Inspector → Vuforia Configuration → App License Key. This step enabled the application to use Vuforia's AR functionalities.

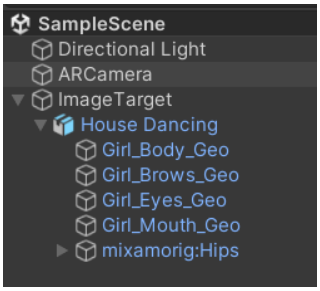

Fig 2: Unity Hierarchy showing ARCamera

Step 2: Using Vuforia Target Manager, an Image Target database was created online by uploading the required marker images (logodance.jpg). The database was then downloaded as a Unity package and imported into the project. After importing, the database became accessible from Inspector → Image Target Behaviour → Database dropdown.

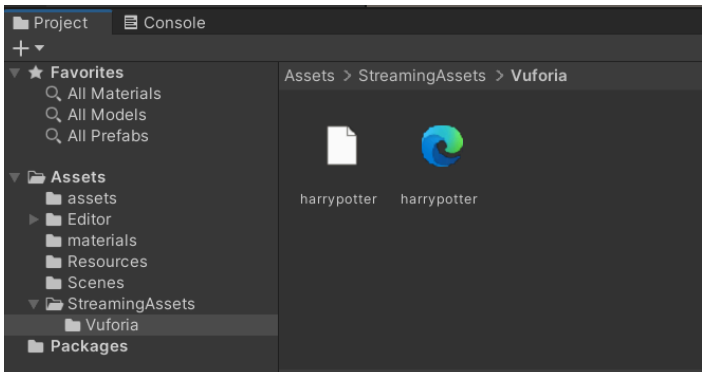

Fig 3: Imported Database in Unity

Step 3: An Image Target object was added from GameObject → Vuforia Engine → Image Target. The database (harrypotter) and image target name were selected in the Inspector. A 3D prefab object (House Dancing Claire) was added as a child object of the Image Target in the Hierarchy. This ensures that when the camera detects the target image in the real world, the assigned 3D object appears anchored to it. Some additional steps were required for applying the animations, including configuring the model's rig as humanoid, creating an Animator Controller, assigning the Mixamo dance animation, and linking it to the character in Unity.

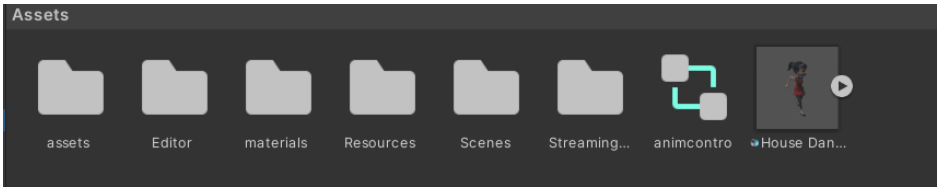

Fig 4: Assets Folder

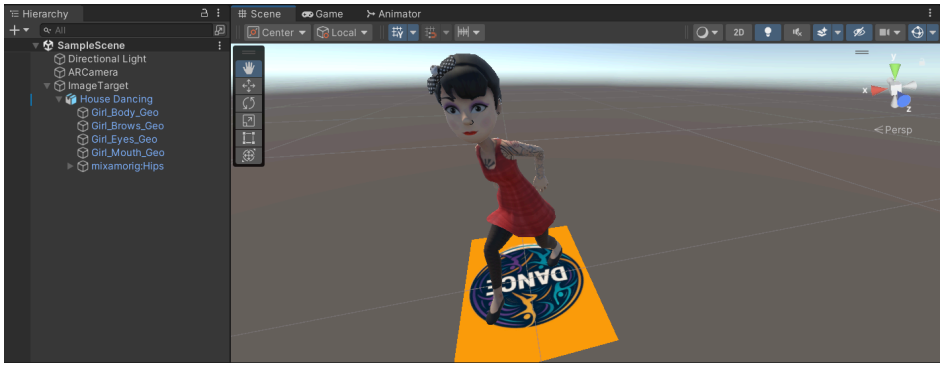

Fig 5: Scene View showing Image Target with 3D model

Step 4: The Build Settings were switched to Android Platform. The package name and minimum API level were set in Player Settings. The project was then built and deployed on the android smartphone via Build and Run. Upon pointing the mobile camera at the printed target image, the prefab 3D model appeared successfully, confirming proper functioning of the AR experience.

4. Results & Conclusion

Following are the screenshots of the demonstration:-

Application Name: My Project.apk

Fig 6: Demonstration Screenshots of My project.apk

Conclusion: The 3D model (*Dancing Claire*) appeared correctly on the image target and maintained alignment as the target was moved. This project successfully demonstrates the use of Unity + Vuforia for AR-based image tracking and real-time 3D object rendering

A video demonstration of the AR app:

https://drive.google.com/file/d/1BTTGy9IBv2wZtnFgD9T6RAheSFZaQ2nJ/view?usp=sharing

Apk project:
https://drive.google.com/file/d/1NurqrKh4lufxWQcdV4DGy_4pgGAMlVB0/view?usp=drivesdk

Marks :

Criteria	Description	Marks	Marks alloted
Setup & Configuration	Correctly added ARCamera, license key, and imported Vuforia database.	2	
Target Image	Image selected with proper size and uploaded to Vuforia Target Manager.	2	
Implementation	Prefab correctly attached to Image Target and app builds successfully.	2	
Results	AR object appears on target image and tracks properly (screenshots/video).	2	
Report Quality	Report is complete, well-structured, and concise (with screenshots).	2	
Total Marks -			

Signature of Subject in-charge: _____

Date of presentation: _____