



RAJEEV INSTITUTE OF TECHNOLOGY

HASSAN- 573 201, KARNATAKA
(Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi.)

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING



Date: 12-04-2023

To
The Principal,
RIT, Hassan.

Dear Sir,

Subject: Requesting permission to conduct FDP on “Augmented Reality and Virtual Reality”

With respect to the above subject, we would like to request your permission to conduct five days hands on workshop on “Augmented Reality and Virtual Reality” from 26-04-2023 to 30-04-2023. The program is organized by IS&E department under IQAC in association with ARK Infosolutions Pvt. Ltd., Bengaluru. The workshop is targeted for faculties and pre final year students. Kindly do the needful.

Thanking you,

*Permitted to conduct, also
in courage the other dept
students by providing the
awareness about AR-VR*

*Dated
12/4/2023*

Arjun B C
Yours faithfully
12/4/23
Dr Arjun B C
Professor & Head,
Department of IS&E,
RIT, Hassan



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DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING



REPORT ON
Five-days Hands on Workshop on
“Augmented Reality and Virtual Reality”

Organized by
Department of Information Science and Engineering
Under IQAC

In Association with



DATE: 26-04-2023 to 30-04-2023

Chief Patrons:

Dr. Rachana Rajeev, Hon. President , Rajeev Education Trust, Hassan

Dr. Ranjith Rajeev, Hon. Vice President, Rajeev Education Trust, Hassan

Dr. Rathna B.N, Hon. Secretary, Rajeev Education Trust, Hassan

Patron: Dr. Mahesh P K, Principal, Rajeev Institute of Technology

Organizing Committee:

Chairman: Dr. Arjun B C, Assoc.Prof. & Head, Dept. of Information Science and Engineering, RIT, Hassan

Committee Members:

Dr. Prathibha G, Assoc.Prof, Dept. of ISE

Mrs. Nalini H C, Asst.Prof, Dept. of ISE

Mr. Anil Kumar K N, Asst.Prof, Dept. of ISE

Ms. Sindhu Jain A M, Asst.Prof, Dept. of ISE

Ms. Gaganadeepa J, Asst.Prof, Dept. of ISE

Mrs. Hajeera Khanum , Asst.Prof, Dept. of ISE



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Program Schedule

Augmented Reality And Virtual Reality Essentials				
Session – Hands on Workshop				
All Session Timings: 9:00 AM - 5:00 PM				
Date	Session	Topics Covered	Speaker	Email Address
Day 1 April 26, 2023 Wednesday	Session 1	a.Company and self introduction ,projects done	Mr. Asish Rath Mr. Devakumar	Devagr008@gmail.com
		b. Introduction to Unity		
		c.Player Movement , Rigid Body and Physics		
		d.Camera setting and Animations , Prefabs		
		e. Move the Player Around.		
Day 2 April 27, 2023 Thursday	Session 2	a.Collisions , Triggers ,Tags	Mr. Asish Rath Mr. Devakumar	Devagr008@gmail.com
		b.Move the player around the obstacles course		
		c.Unity UI basics , Importing Images and Settings Sprite sheet		
		d.Button Listeners , Scene Management		
		e.Setting up a menu		
Day 3 April 28, 2023 Friday	Session 3	a.Lightings	Mr. Devakumar Mr. Asish Rath	Devagr008@gmail.com
		b.Animations		
		c.Tags and Layers		
		d.Raycasting		
		e.Raycasting Exercise		
Day 4 April 29, 2023 Saturday	Session 4	a.NavMesh with Exercise	Mr. Asish Rath Mr. Devakumar	Devagr008@gmail.com
		b.AR demo experience		
		c.VR demo experience		
Day 5 April 30, 2023 Sunday	Session 5	Hands on Experience on Unity while building a project.	-	-



Report on Five-Days Hands on Workshop on “Augmented Reality and Virtual Reality”

The Department of Information Science and Engineering has conducted five day offline hands on workshop on “Augmented Reality and Virtual Reality” from 26-04-2023 to 30-04-2023. The workshop was targeted for faculties and pre final year students. A detailed report regarding the event is furnished below.

Date: 26-04-2023 to 30-04-2023

Title: Hands on workshop on “Augmented Reality and Virtual Reality”

Coordinators:

Dr. Arjun B C, Assoc.Prof. & Head, Dept. of ISE

Dr. Prathibha G, Assoc.Prof, Dept. of ISE

Mrs. Nalini H C, Asst.Prof, Dept. of ISE

Mr. Anil Kumar K N, Asst.Prof, Dept. of ISE

Ms. Sindhu Jain A M, Asst.Prof, Dept. of ISE

Ms. Gaganadeepa J, Asst.Prof, Dept. of ISE

Mrs. Hajeera Khanum, Asst.Prof, Dept. of ISE

Timings: 9:00 AM - 5:00 PM

Resource Person & Training Coordinator:

Visweswaran J, Country Manager, ARK Infosolutions, Bengaluru

Devakumar R, Sr . Developer, Highbrow Interactive, Chennai

Asish Rath, Unity Developer, Highbrow Interactive, Chennai

Objectives of the Workshop

- The objective of this five-day workshop is to introduce students and faculty members to Unity, a leading software platform for developing interactive 3D and 2D content, with a focus on Augmented Reality (AR) and Virtual Reality (VR).
- The program aims to provide participants with hands-on experience in developing AR and VR applications using Unity, along with an understanding of the underlying technologies and best practices in AR and VR development.
- The workshop aims to equip students and faculty members with the knowledge and skills needed to incorporate AR and VR technologies into their teaching and research activities, with the ultimate goal of enhancing student engagement and learning outcomes.

About the Workshop

Total number of participants: 29 attendees mentioned below.



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Sl.No	Full Name	Designation	Dept
1.	Dr. Paramesha K	Professor, VVCE	CSE
2.	Prof. Manjesh R	Asst. Professor, VVCE	ISE
3.	Nagendra Prasad H K	Asst. Professor	EEE
4.	Meghah C	Asst. Professor	CSE
5.	Anil Kumar K N	Asst. Professor	ISE
6.	Nalini H C	Asst. Professor	ISE
7.	Ravi L S	Asst. Professor	ECE
8.	Sharath M N	Asst. Professor	CSE
9.	Vinay L	Asst. Professor	ME
10.	Akash D	Student	ISE
11.	Ramya C A	Student	CSE
12.	Harsh Kumar P K	Student	CSE
13.	Santhosh H G	Student	CSE
14.	Amrutha M A	Student	CSE
15.	Sachith Gowda M	Student	ISE
16.	Neha N	Student	CSE
17.	Sona Binoy	Student	CSE
18.	Ganavi R Patel	Student	CSE
19.	Sanjay K R	Student	ISE
20.	Preethi A Y	Student	CSE
21.	Shravya M Karle	Student	CSE
22.	Kavana B R	Student	CSE
23.	Chirag K V	Student	ISE
24.	Spoorthi H S	Student	ISE
25.	Daniel J Sadananda	Student	CSE
26.	Keerthana D	Student	CSE
27.	Vinusha Dmello	Student	CSE



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28.	Chethana G	Student	EEE
29.	Nisarga N R	Student	EC

The e-poster circulated for the workshop is shown below:

Rajeev Institute of Technology
Plot# 1-D, Growth Center, Industrial Area,
B-M Bypass Road, HASSAN - 573 201
Office:08172 243180 | E-mail : principal@rithassan.ac.in
Web: www.rithassan.ac.in

**Five-days Hands on Workshop on
AUGMENTED REALITY &
VIRTUAL REALITY
(AR & VR)**

Organized by
Department of Information Science and Engineering
Under IQAC
In Association with
ARK Unity

26th April 2023 TO 30th April 2023

About Rajeev Institute of Technology

Rajeev Institute of Technology was started as one in the galaxy of Technical Colleges in the year 2008. Rajeev Institute of Technology in Hassan was established under the aegis of Rajeev Education Trust. It has carved a niche for itself as a premier centre for Technical Education. You'll find that everything at RIT is single mindedly focused on addressing student needs. We are clear that it is our responsibility to help our students realize their goals in an increasingly competitive world. We have consistently produced excellent results and RIT alumni can be found at premier organizations in India and overseas. From academic excellence to leadership qualities, a nurturing environment to cutting edge infrastructure, RIT offers everything you need to succeed.

Objectives of Workshop

The objective of this five-day workshop is to introduce students and faculty members to Unity, a leading software platform for developing interactive 3D and 2D content, with a focus on Augmented Reality (AR) and Virtual Reality (VR). The program aims to provide participants with hands-on experience in developing AR and VR applications using Unity, along with an understanding of the underlying technologies and best practices in AR and VR development. The workshop aims to equip students and faculty members with the knowledge and skills needed to incorporate AR and VR technologies into their teaching and research activities, with the ultimate goal of enhancing student engagement and learning outcomes.

AR in Aviation **FUSION VR**

Topics to be covered

- Introduction to unity.
- Player Movement (Translate, Rotate, Scale, Rigid Body & Physics)
- Camera Settings & Animations
- Move the Player around
- Collisions and triggers
- Move the player around an obstacle course
- Unity UI basics Importing images and
- Setting Sprite sheets Button listeners, Scroll bars and layout groups
- Setting up a Menu
- Unity Scripting Basics
- Arrays and Lists
- Tags and Layers
- Raycasting and Raycasting exercise
- Scene Management, Lighting Animations in unity. Nav mesh setup
- Behaviour Scripts
- Move objects in a navMesh
- Classes in unity
- Setting Level Data
- AR Demo and Experience
- VR Demo and Experience



Chief Patrons:

Dr. Rachana Rajeev
Hon. President, Rajeev Education Trust, Hassan
Dr. Ranjith Rajeev
Hon. Vice President, Rajeev Education Trust, Hassan
Dr. Rathna B.N.
Hon. Secretary, Rajeev Education Trust, Hassan

Patron:

Dr. Mahesh P K
Principal, Rajeev Institute of Technology

Resource Persons:

Visweswaran J
Country Manager, ARK Infosolutions, Bengaluru

Visweswaran has two decades of experience in working with industry and academia for preparing the students and academic community ready with skills and competencies required for solving global grand engineering challenges.

Devakumar R

Sr. Developer, Highbrow Interactive, Chennai

Devakumar working in Unity Developer with lots of experience in working with VR Developments, WebGL and Game Developments.

Organizing Committee:

Chairman:

Dr. Arjun B C
Assoc.Prof. & Head, Dept. of Information Science and Engineering, RIT, Hassan

Committee Members:

Dr. Prathibha G, Assoc.Prof, Dept. of ISE
Mrs. Nalini H C, Asst.Prof, Dept. of ISE
Mr. Anil Kumar K N, Asst.Prof, Dept. of ISE
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Profile of Resource Person:



DEVAKUMAR R.

UNITY DEV - VR & SIMULATIONS

+91 70943 35775

devagr98@gmail.com

EDUCATION

University College of Engineering

B.E in CIVIL Engg.

Brindhavan Higher Secondary School

Higher Secondary Education

EXPERIENCE

Highbrow Interactive Pvt. Ltd.

Unity Game & VR Developer proficient in , Game development, VR interaction design, optimization, scripting, and creating immersive experiences.

Skills: C#, Unity3D, Virtual Reality (Oculus)

PROJECTS

VR Industrial Simulations

Description: The project aims to provide immersive training simulations for industrial processes, enhancing safety protocols and operational efficiency. Leveraging the power of VR, the simulations recreated realistic industrial environments, allowing trainees to practice and master various tasks in a safe and controlled setting.

Tech Stack: Unity, C#, Oculus VR

Indian Train Simulator

Description: Indian Train Simulator has 10M+ downloads in play store and it is the most famous train simulator games in India. Highbrow Interactive gives you a chance to live the life of a loco pilot.

Tech Stack: Unity, C#, Sourcetree



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ASISH RATH

UNITY DEV - GAME & VR

+91 87633 22192

ashishrathart@gmail.com

EDUCATION

Biju Patnaik University of Technology

B.Tech in EXTC

Stewart Science College

Higher Secondary Education

EXPERIENCE

Highbrow Interactive Pvt. Ltd.

Unity Game & VR Developer proficient in , Game development, VR interaction design, optimization, scripting, and creating immersive experiences.

Skills: C#, Unity3D, Virtual Reality (Oculus)

NextStacks - Appstone, Inc.

Learnt Web Development using React.JS and Redux with Material UI and developed a personal project.

Skills: HTML, CSS, JavaScript, React.JS

PROJECTS

VR Industrial Simulations

Description: The project aims to provide immersive training simulations for industrial processes, enhancing safety protocols and operational efficiency. Leveraging the power of VR, the simulations recreated realistic industrial environments, allowing trainees to practice and master various tasks in a safe and controlled setting.

Tech Stack: Unity, C#, Oculus VR

Station Tycoon Game

Description: Railway Station Tycoon is an engaging tycoon game that puts players in the role of a station manager, tasked with building and managing a thriving railway station empire.

Tech Stack: Unity, C#, SourceTree

Session wise Summary:

Day 1- Session 1 (9.00 am to 5.00 pm): Introduction to UNITY

The resource person introduced the Company. The session was about Unity Technologies, a company that develops game engines and software. The resource person gave an overview of the company and its products. He then demonstrated how to use Unity to create a simple game with a



player character, a camera, and some physics. He showed how to move the player using Rigidbody components and how to adjust the camera settings. He also explained the concept of prefabs, which are reusable game objects that can be instantiated in the scene. The session ended with a summary of the main points and a Q&A session.

Day 2- Session 2 (9.00 am to 5.00 pm): C Sharp Programming

The resource person gave an overview of how collision detection works and why it is useful for game development. He also demonstrated how to use triggers and tags to control the behavior of game objects. He introduced us to C#, a modern, open-source, cross-platform programming language for building all kinds of apps. He showed us how to move the player around an obstacle using keyboard input. He covered the basics of Unity UI, such as importing images, setting sprite sheets, and creating buttons. He concluded the session by explaining how to manage scenes and set up a menu in Unity.

Day 3- Session 3 (9.00 am to 05.00 pm): Animations

The workshop focused on the use of lightings, effects, animations, tags, layers and ray casting in Unity. The resource person demonstrated how to create and adjust different types of lightings and effects to enhance the visual quality of the scenes. He also showed how to apply multiple animations to the same game object and how to control those using parameters. He then introduced the concept of tags and layers and how they can be used to identify and group game objects for various purposes. He explained what ray casting is and how it can be used to detect collisions and interactions between game objects. He gave an example of using ray casting to shoot bullets and hit targets. The session ended with a ray casting exercise that required the participants to create a simple shooting game using the skills they learned.

Day 4- Session 4 (9.00 am to 5.00 pm): NavMesh

The session focused on the syllabus of NavMesh and its applications. The instructors explained the concepts and techniques of NavMesh in detail and demonstrated how to use it for creating realistic and immersive environments. The students and staff also had a chance to experience AR and VR technologies and learn about their potential and limitations.

Day 5- Session 5 (9.00 am to 5.00 pm): Hands on Experience

We successfully completed our first Unity project in the final session of the AR-VR workshop. We applied all the concepts and skills that we learned from the trainers to create our own game. It was a rewarding and fun experience to see our ideas come to life in an immersive environment.



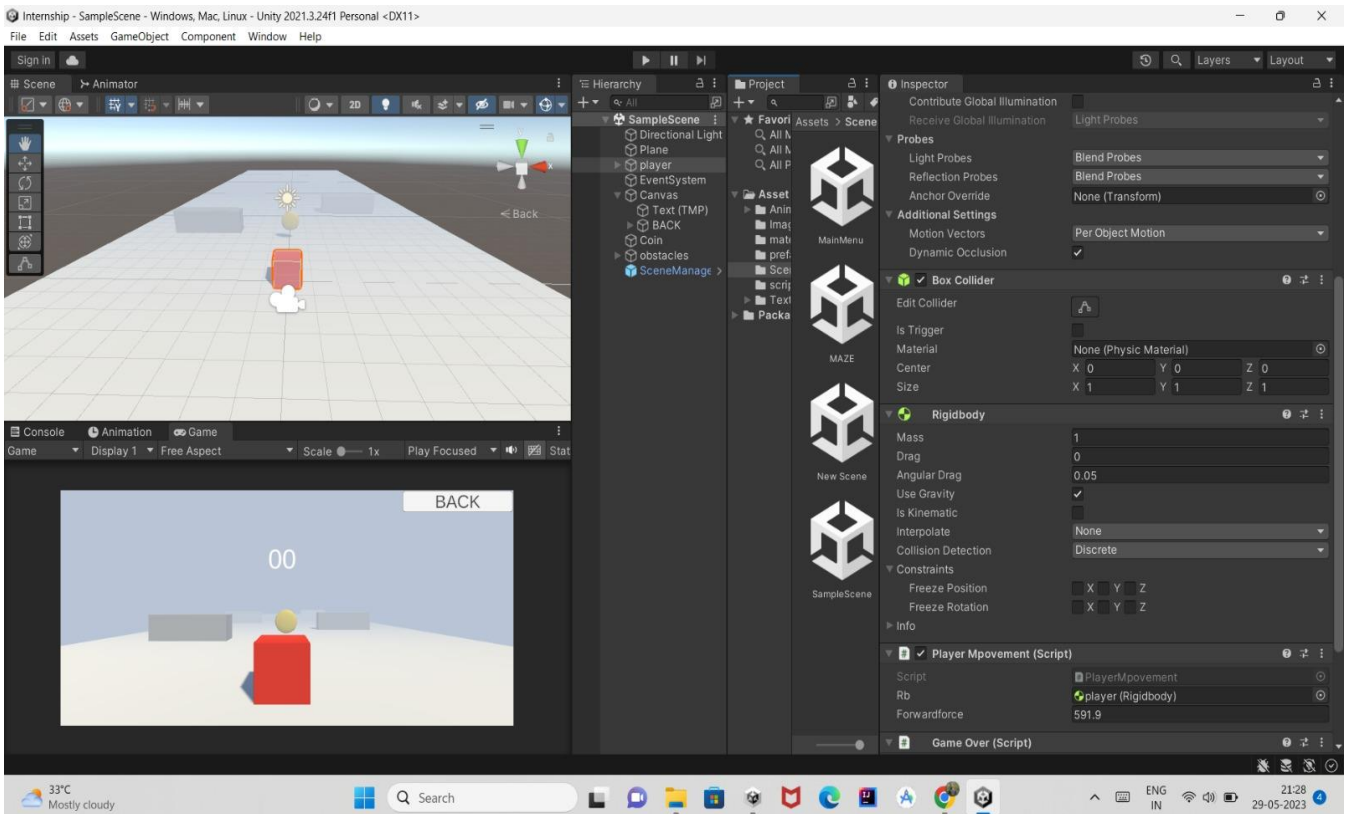
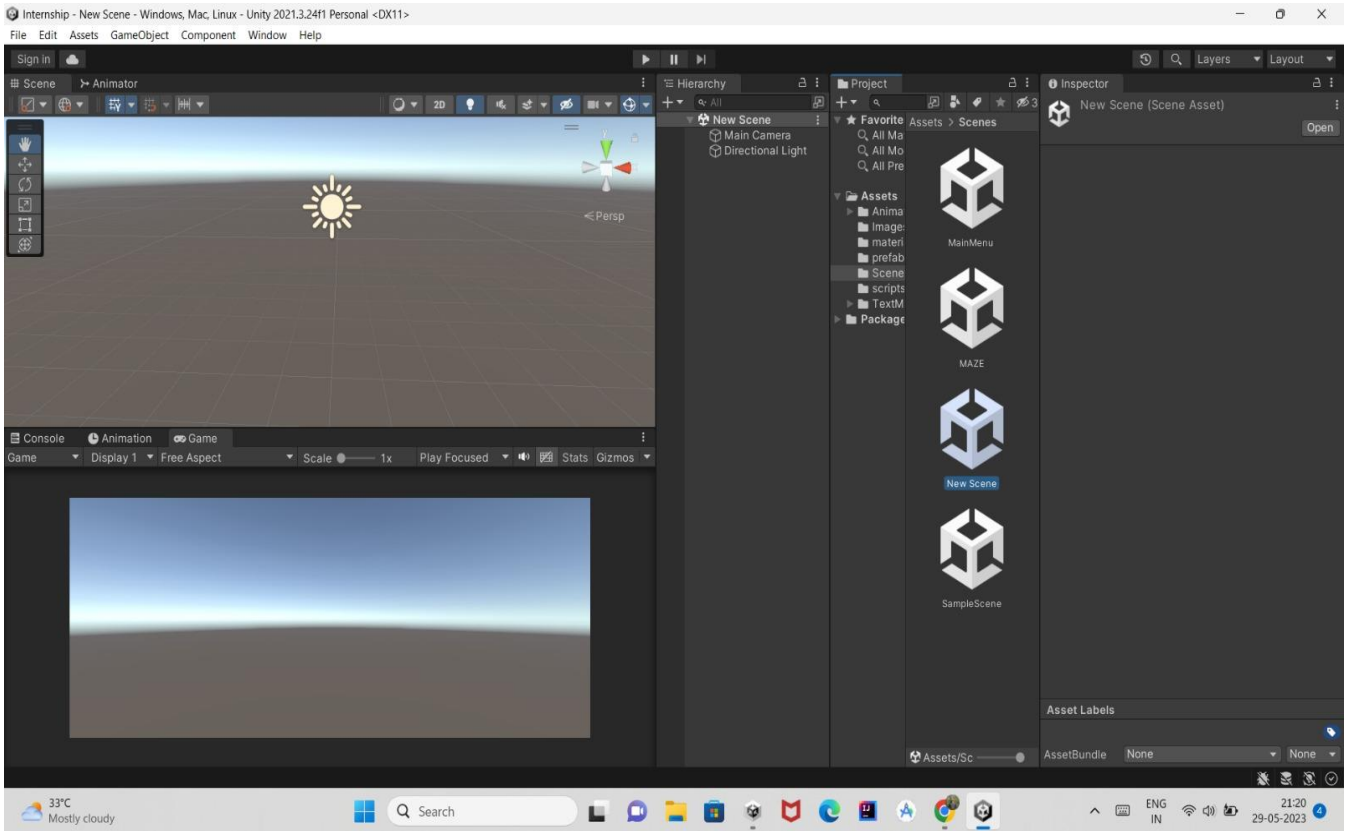
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Snapshots:

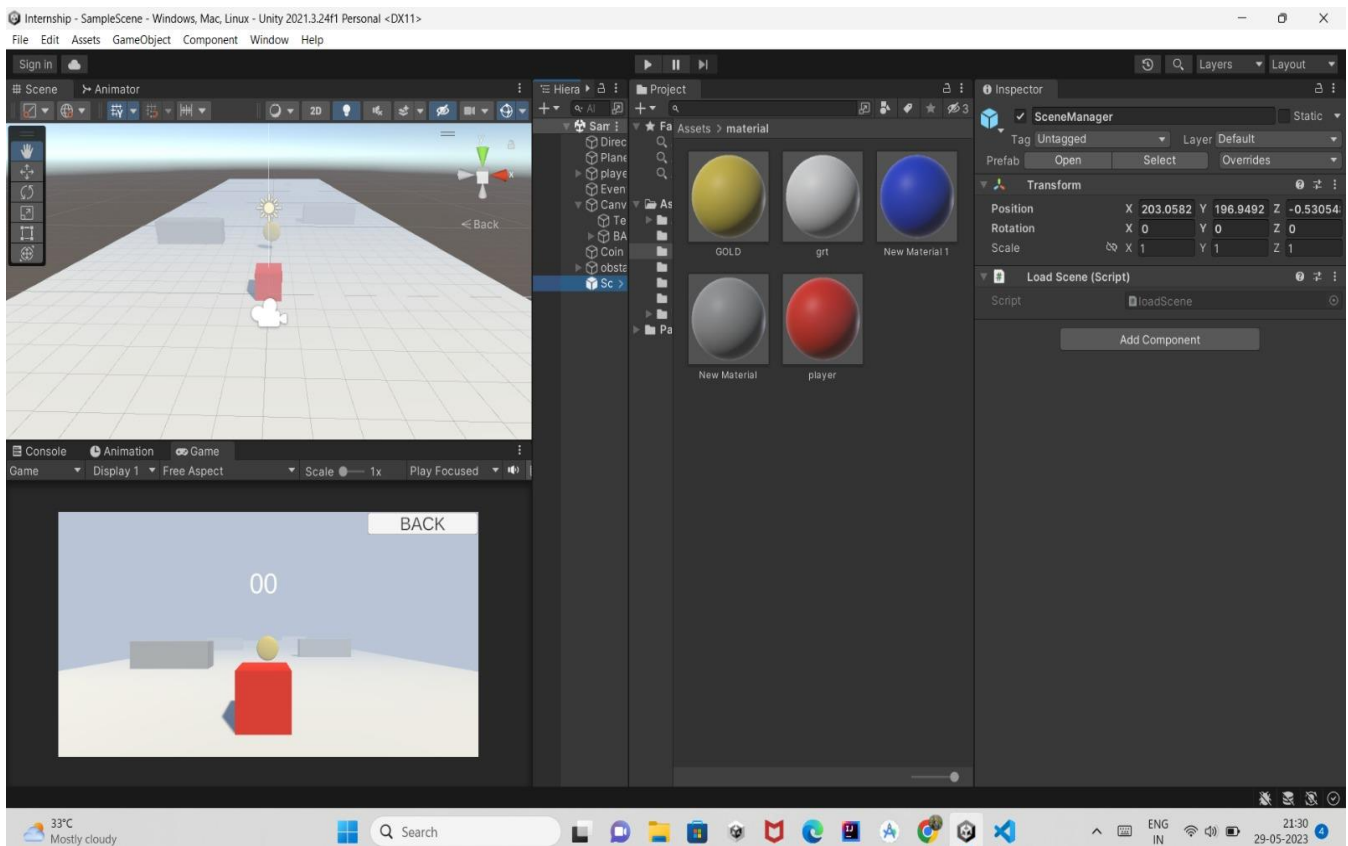
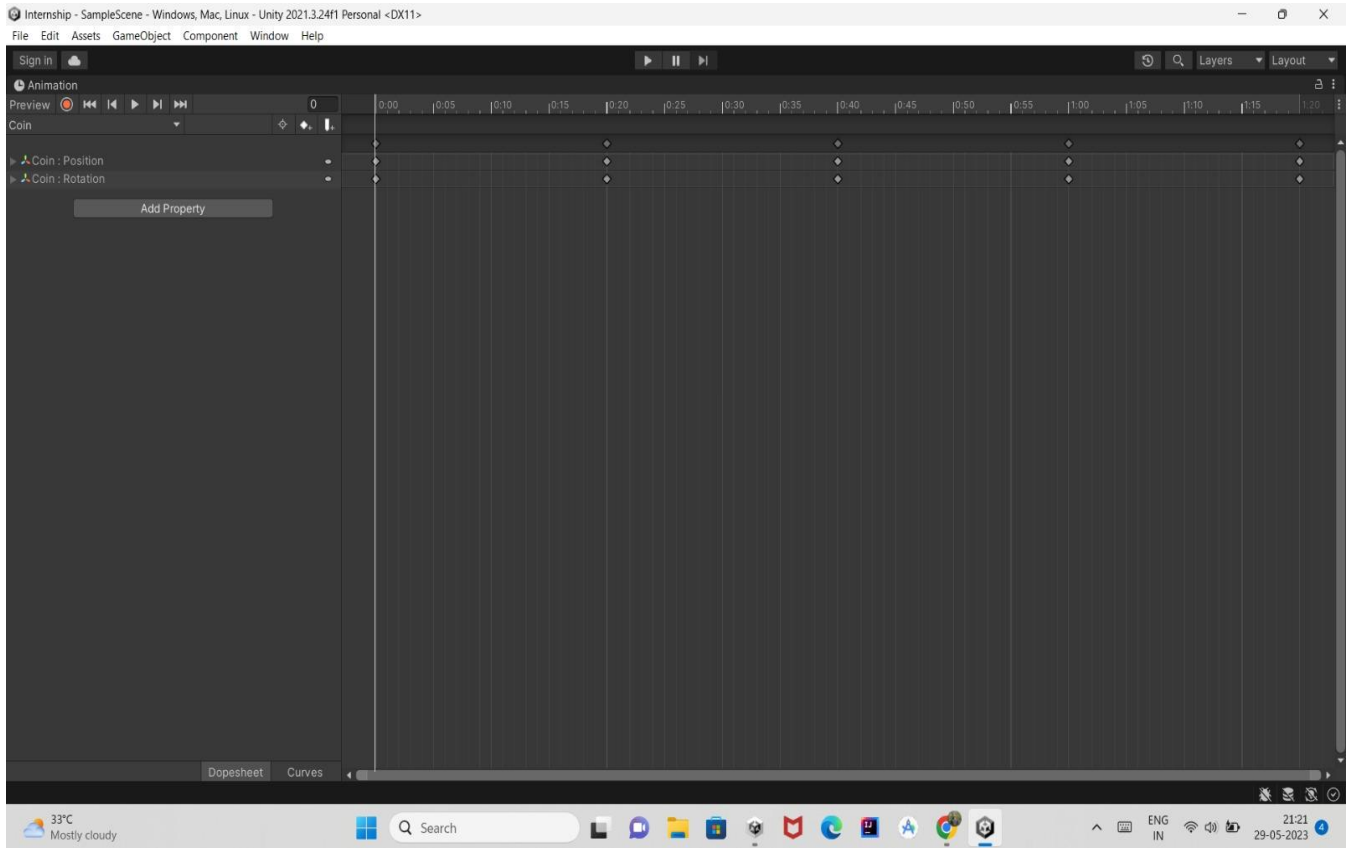




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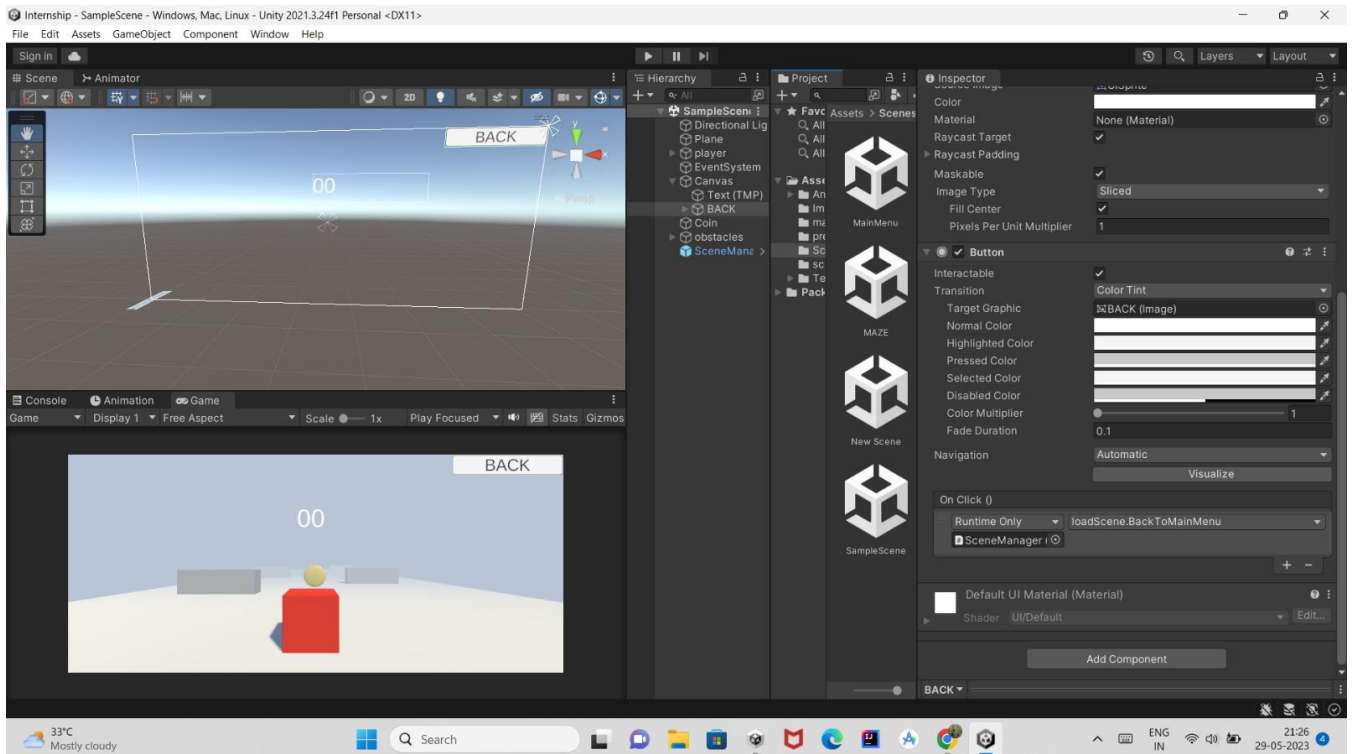
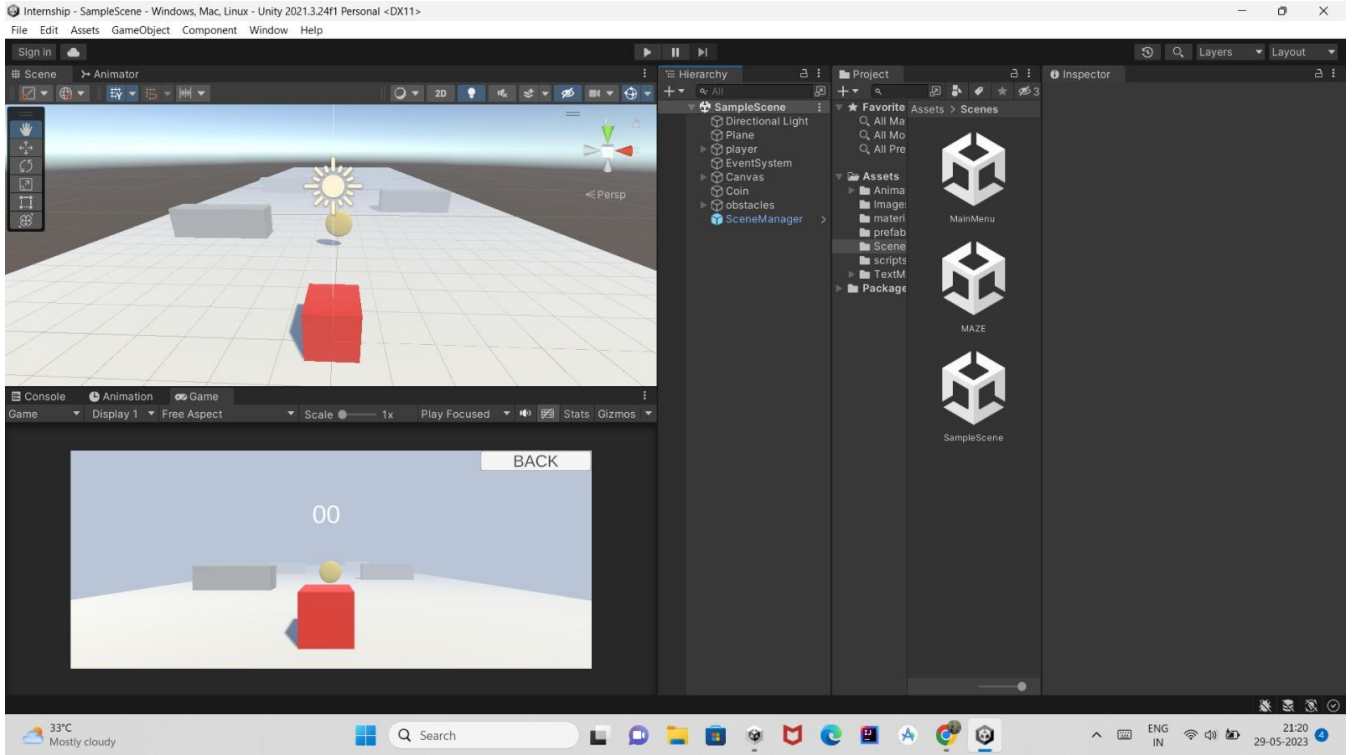




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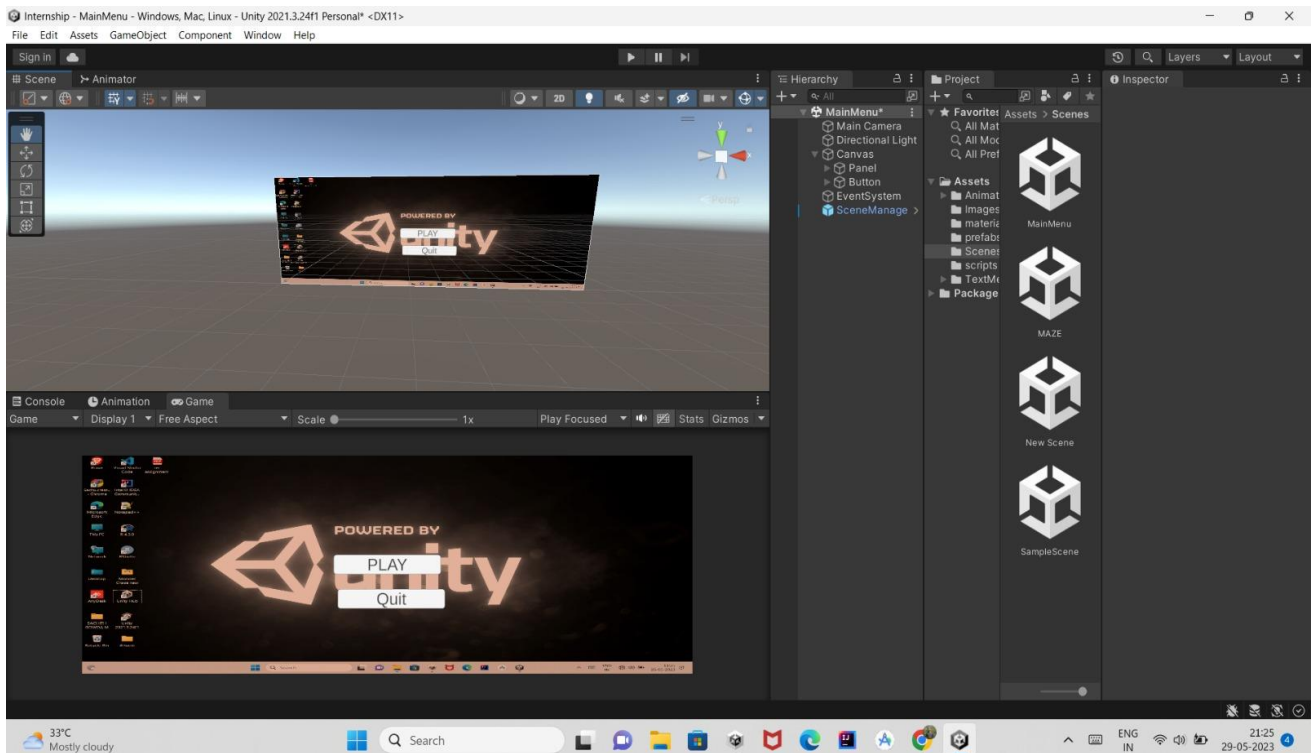
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```
File Edit Selection View Go Run Terminal Help
PlayerMovement.cs - Visual Studio Code

C:\Users\USER> sachtih > Assets > Sipt > PlayerMovement.cs
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4
5 public class PlayerMovement : MonoBehaviour
6
7     public Rigidbody rb;
8     public GameObject gb;
9
10
11     public float forword =2000f;
12     public float side = 500f;
13     // Start is called before the first frame update
14
15     void FixedUpdate()
16     {
17         rb.AddForce(0,0,forword*Time.deltaTime);
18
19         if (Input.GetKey("d"))
20         {
21             rb.AddForce(side*Time.deltaTime,0,0);
22         }
23
24         if (Input.GetKey("a"))
25         {
26             rb.AddForce(-side*Time.deltaTime,0,0);
27         }
28     }
29
30
31
32
```





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Feedback from the Participants:

Sl.No	Full Name	Designation	The workshop was valuable & added to my understanding of knowledge about the topic.	The content of the workshop met the expectations of the participants	Rate the speaker presentation skill	How would you rate overall experience of this workshop?	How likely are you to recommend this workshop?
1	Dr. Paramesha K	Professor, VVCE	5	5	5	5	5
2	Prof. Manjesh R	Asst. Professor, VVCE	5	5	5	5	5
3	Nagendra Prasad H K	Asst. Professor	5	5	5	5	5
4	Meghah C	Asst. Professor	5	4	5	5	5
5	Anil Kumar K N	Asst. Professor	5	5	5	5	5
6	Nalini H C	Asst. Professor	5	5	5	5	5
7	Ravi L S	Asst. Professor	4	4	5	5	5
8	Sharath M N	Asst. Professor	5	5	4	5	5
9	Vinay L	Asst. Professor	5	5	5	4	4
10	Akash D	Student	5	5	5	5	5
11	Ramya C A	Student	5	5	5	5	5
12	Harsh Kumar P K	Student	5	4	5	5	5
13	Santhosh H G	Student	5	5	4	5	5
14	Amrutha M A	Student	5	5	5	4	5
15	Sachith Gowda M	Student	5	5	5	5	5
16	Neha N	Student	5	5	5	5	4
17	Sona Bino	Student	4	5	5	5	5



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18	Ganavi R Patel	Student	5	5	5	5	5
19	Sanjay K R	Student	4	5	5	3	5
20	Preethi A Y	Student	5	4	4	5	5
21	Shravya M Karle	Student	5	5	5	5	5
22	Kavana B R	Student	5	5	5	5	4
23	Chirag K V	Student	5	4	5	5	5
24	Spoorthi H S	Student	5	5	4	4	5
25	Daniel J Sadananda	Student	5	5	5	5	5
26	Keerthana D	Student	5	5	5	5	5
27	Vinusha Dmello	Student	4	5	5	5	3
28	Chethana G	Student	5	5	5	5	5
29	Nisarga N R	Student	5	5	5	5	5

Outcome of the workshop:

The AR and VR workshop was an enriching and enlightening experience for the faculty and students who joined. They developed hands-on skills in using AR and VR technologies in the lab, such as crafting 3D models, manipulating virtual objects, and exploring simulated environments.

They also gained conceptual knowledge on the principles and applications of these cutting-edge fields, such as the distinctions between AR and VR, the types of devices and sensors involved, and the potential advantages and drawbacks of using them in various domains.

However, the highlight of the workshop was learning how to use UNITY software for game development and design, which is a powerful tool for creating immersive and interactive experiences. They learned how to import assets, create scenes, add scripts, and build games for different platforms. They also learned how to use various features of UNITY, such as physics, lighting, animation, sound, UI, and networking. They experimented with different genres of games, such as action, adventure, puzzle, and simulation. They also learned how to optimize their games for performance and quality. The workshop was a splendid achievement and we applaud all the attendees for finishing it and acquiring new competencies in UNITY 3D game development as well as AR and VR.

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