

A
Minor Project Report on
“INTERACTIVE BOOK FOR KG CHILDREN USING
UNITY 3-D”

In partial fulfillment of requirements for the degree of
Bachelor of Technology (B. Tech.)
in
Computer Science and Engineering



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Rishita Mathur

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CERTIFICATE

This is to certify that the minor project report entitled “ Interactive Book for KG children using Unity 3-D ” submitted by Ms. Rishita Mathur, as a partial fulfillment for the requirement of B. Tech. VII Semester examination of the School of Engineering and Technology, Mody University of Science and Technology, Lakshmangarh for the academic session 2020-2021 is an original project work carried out under the supervision and guidance of Mr. Rajesh Yadav has undergone the requisite duration as prescribed by the institution for the project work.

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ABSTRACT

This project mainly focuses for Kindergarten Kids. I have used a technology named Augmented Reality. In this I have used ABC book and used a software named Unity. The database of the project is the images of the books and these images are stored on the Vuforia Engine Portal. Without storing the images in the Vuforia Engine we can't proceed with the project. After storing the images, a unique key of the project gets generated. The key which gets generated is then copied to the unity software. The main idea behind this project is that, using the app which I have created children can visualize the objects appearing on the book images in a 3-D 360 degree manner. This will help them in learning in a very interactive manner. While developing this we can take those 3-D objects either from the Asset Store or we can make those objects using Blender software from scratch. I have used C# to make the scripts for rotation of the objects in a any direction and also one script to play separate audios for separate image targets. Just like I have taken a book of alphabets, thus can in future be implemented for every single book.

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Chapter 1: Introduction to Augmented Reality

1. INTRODUCTION

"Augmented reality (AR) is the constant utilization of data as text, designs, sound, and other virtual improvements coordinated with certifiable articles."

Increased the truth is the innovation that grows our actual world, adding layers of advanced data onto it. Dissimilar to Virtual Reality (VR), AR doesn't establish the entire fake conditions to supplant genuine with a virtual one. AR shows up in direct perspective on a current climate and adds sounds, recordings, illustrations to it.

Perhaps the most famous ways AR has penetrated regular daily existence is through versatile games. In 2016, the AR game "Pokémon Go" turned into a sensation around the world, with more than 100 million assessed clients at its pinnacle. It wound up making more than \$2 billion and tallying, as per Forbes. The game permitted clients to see Pokémon characters ricocheting around in their own town. The objective was to catch these pocket beasts, at that point use them to fight others, locally, in AR exercise centers.

In 2018, "Harry Potter: Hogwarts Mystery" turned into the versatile AR gaming sensation. The game allows clients to see the Hogwarts world around them while being able to project spells, use elixirs and to gain from Hogwarts instructors. As of this composition, the game had around 10 million downloads in the Google Play store.

Analysts are likewise creating multi dimensional images, which can make VR a stride further, since visualizations can be seen and heard by a horde of individuals at the same time.

Chapter 2: Virtual Reality

First of all, you will have to understand what VR really is. The hint is in the name - it's the experience of a world that doesn't really exist. We aren't looking at getting yourself lost in a book or fantasizing about a photograph or painting notwithstanding, regardless of whether these actually are additionally encountering a type of augmented reality.

The augmented simulation we are discussing is one made by PCs that permits you to encounter and interface with a 3D world that isn't genuine by putting on a head-mounted showcase and some type of info following. The presentation will regularly be part between your eyes, making a stereoscopic 3D impact with sound system sound, and along with the innovation and the information following, it will make a vivid, authentic experience, permitting you to investigate the virtual world being created by the PC.

Chapter 3: How Augmented Reality is different from Virtual Reality?

Augmented Reality (AR) that places PC produced objects on top of genuine world to make it more important and cooperating with it. The genuine illustration of AR would be PokemonGo game and IKEA application. The IKEA application utilizes camera so clients can picture the items being put at their home.

VR and AR, they don't have champs or failures as they are by and large better in their particular method of utilization. VR, for instance, is stupendous for gaming and watching video. Having the option to completely inundate yourself is extraordinary, and essentially all the encounters wouldn't feel the equivalent in AR. Simultaneously, the capacity to cooperate with the actual world while seeing components of the virtual world is phenomenal for efficiency and a few types of diversion, and long haul could be a default for how we collaborate with a wide range of PC interfaces.

Chapter 4: Types of Augmented Reality

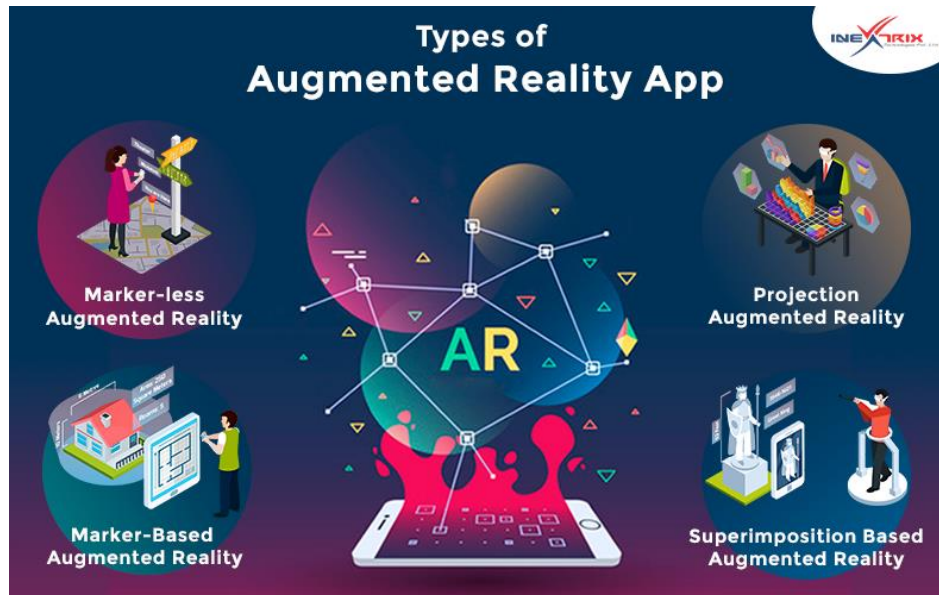


Figure 1

Marker-Based AR

The other name for Marker-Based AR is additionally called Picture Acknowledgment or Acknowledgment based AR. this sort of AR gives us more data about the article after it centers around the acknowledgment of items. Marker-based AR innovation has assorted utilizations as per market purposes. It identifies the item before the camera and gives data about the article on the screen. The acknowledgment of the item depends on the marker where it replaces the marker on the screen with a 3D form of the relating object. Subsequently, the client can see the article in more detail and from different points. Aside from that while turning the marker client can pivot the 3D symbolism too. This goes about as a source of perspective for the AR application running on the framework.

Marker-less Augmented Reality

Marker-less increased the truth is perhaps the most generally actualized applications in the business. It is otherwise called Area based AR for the explanation behind the simple accessibility of the highlights in the cell phones that give area identification. This kind of

application is generally used to help voyagers. Aside from that, it encourages clients to find intriguing spots inside their present area. This strategy works by perusing information from the portable's GPS, advanced compass and accelerometer while anticipating where the client is centering.

Projection Augmented Reality

This is perhaps the least complex kind of AR which is the projection of light on a surface. Projection-based AR is engaging and intelligent where light is blown onto a surface and the connection is finished by contacting the extended surface with hand. The inescapable employments of projection-based AR procedures can be utilized to make misdirection about the position, direction, and profundity of an item. In such a case this permits the client to mull over various items and its structure to concentrate inside and out. This innovation offers significantly more in each sense. This bit of tech is utilized for making a virtual article for a lot bigger organizations for encountering Enlarged Reality.

Superimposition Based Augmented Reality

As the word itself clarifies the superimposition of the items. This AR gives a substitution perspective on the article in core interest. This is finished by supplanting the whole or fractional view with an expanded perspective on the article. Here item acknowledgment assumes a crucial job where supplanting a perspective on an article with an enlarged view is finished.

Chapter 5: How does Augmented Reality work?

Augmented Reality can be utilized on all screens and associated gadgets: Through cell phones like cell phones and tablets, Increased Reality acts like an enchantment window; through the watcher you can see visualizations and control 3D models. Several Expanded Reality applications are accessible on iPhone, iPad, and Android.

On PC and associated television players, Increased Reality works through a webcam and transferred through the screen. This can be very lumbering when you need to control a tracker before your screen.

On head mounted presentations, glasses, and focal points, Increased Reality turns into a piece of your whole field of view, making for more life-like Expanded Reality encounters. It nearly feels like Ironman with the assistance of Jarvis.

- It includes advancements like S.L.A.M. (concurrent limitation and planning), profundity following (quickly, a sensor information computing the distance to the items), and the accompanying segments:
- Cameras and sensors: Gathering information about client's connections and sending it for preparing.
- Processing: AR gadgets require a computer processor, streak memory, Slam, Bluetooth/WiFi, a GPS, and so forth to have the option to gauge speed, point, heading, direction in space, etc.
- Reflection: Some AR gadgets have mirrors to help natural eyes to see virtual pictures.
- Projection: This alludes to a scaled down projector on AR headsets, which takes information from sensors and ventures computerized content (consequence of preparing) onto a surface to see.

Chapter 6: Applications of Augmented Reality

1. Medical Training

From working X-ray hardware to doing complex medical procedures, AR tech holds the possibility to support the profundity and adequacy of clinical preparing in numerous regions. Understudies at the Cleveland Center at Case Western Reserve College, for instance, will presently learn life systems using an AR headset permitting them to dive into the human body in an intelligent 3D organization.

2. Retail

In the present actual retail climate, customers are utilizing their cell phones like never before to think about costs or look into extra data on items they're perusing. World celebrated cruiser brand Harley Davidson is one extraordinary occasion of a brand taking advantage of this pattern, by building up an AR application that customers can use available. Clients can see a cruiser they may be fascinating in purchasing in the showroom, and alter it utilizing the application to see which tones and highlights they may like.

3. Repair & Maintenance

One of the greatest mechanical use instances of AR is for fix and support of complex hardware. Regardless of whether it's an engine or a X-ray machine, fix and upkeep staff are starting to utilize AR headsets and glasses while they play out their responsibilities to furnish them with helpful data on the spot, recommend potential fixes, and point out potential difficulty zones. This utilization case will just keep on getting more grounded as machine-to-machine IoT innovation develops and can take care of data straightforwardly to AR headsets.

4. Plan and Displaying

From inside plan to engineering and development, AR is assisting experts with imagining their eventual outcomes during the imaginative cycle. Utilization of headsets empowers draftsmen, architects, and plan experts step straightforwardly into their structures and spaces to perceive how their plans may look, and even make virtual on the spot changes. Metropolitan organizers can even model how whole city designs may look utilizing AR headset representation. Any

plan or displaying occupations that include spatial connections are an ideal use case for AR tech.

5. Business Coordinations

AR presents an assortment of occasions to build effectiveness and cost reserve funds across numerous zones of business coordinations. This incorporates transportation, warehousing, and course improvement. Transportation organization DHL has just executed savvy AR glasses in a portion of its distribution centers, where focal points show to laborers the briefest course inside a stockroom to find and pick a specific thing that should deliver. Giving laborers more productive approaches to their occupation is perhaps the best rout use cases in the present business climate.

6. The travel Industry

Innovation has gone far towards propelling the travel industry as of late, from audit destinations like TripAdvisor to educational site like Forlorn Planet. In any case, AR presents a colossal open door for go brands and specialists to give potential vacationers a significantly more vivid experience before they travel. Envision taking a virtual "Walkabout" Australia before on AR glasses prior to booking a pass to Sydney, or a comfortable walk around Paris to perceive what exhibition halls or bistros you may jump at the chance to visit. AR vows to make selling outings, travel, and get-aways a ton simpler later on.

7. Homeroom Schooling

While innovation like tablets have gotten far reaching in numerous schools and homerooms, instructors and teachers are presently increase understudy's learning experience with AR. The Aurasma application, for instance, is now being utilized in homerooms with the goal that understudies can see their classes through a cell phone or tablet for a more rich learning climate. Understudies finding out about space science may see a full guide of the close planetary system, or those in a music class may have the option to consider melodic to be continuously as they figure out how to play an instrument.

8. Field Administration

Regardless of whether it's something as little as a forced air system, or as extensive as a breeze turbine, consistently field administration experts get dispatched to fix a bit of strategic gear that requirements to get going as quickly as time permits. Today, these professionals can show up

nearby with AR glasses or headsets and view whatever they're fixing to all the more rapidly analyze - and fix - the issue. Furthermore, rather than browsing a maintenance manual, experts can continue on ahead hands-allowed to get in and out quicker than any time in recent memory.

9. Amusement Properties

In media outlets, it's tied in with building a solid relationship with your marked characters and the crowd. Properties like Harry Potter are tremendously effective on the grounds that perusers of the books and watchers of the motion pictures feel like they know the characters, and are eager for extra substance. Diversion brands are currently considering AR to be an extraordinary advertising occasion to fabricate further connections between their characters and crowd. Indeed, the producers of AR sensation Pokemon Go are before long intending to deliver a Harry Potter-themed AR game that fans can associate with throughout each and every day.

10. Public Wellbeing

In case of a crisis today, individuals will promptly go after their cell phone to discover what's happening, where to go, and whether their friends and family are protected. Besides, people on call show up on the location of a fire or quake attempting to sort out who needs assistance, and the most ideal approach to get them to wellbeing. AR is demonstrating guarantee in tackling the two bits of the public security puzzle. People on call wearing AR glasses can be made aware of risk regions, and show progressively people that need help while empowering to in any case know about their environmental factors. For those out of luck, geolocation empowered AR can show them headings, and the best course to, safe zones and regions with firemen or surgeons.

Chapter 7: Description about methodology/ Tools/ Techniques

- Unity: Unity is a stage for making lovely and drawing in 2D, 3D, VR, and AR games and applications. An incredible designs motor and full-included manager empower you to understand your inventive vision quick, and convey your substance to basically any media or gadget.
- Vuforia Engine: Vuforia Engine is the most broadly utilized stage for AR advancement, with help for driving telephones, tablets, and eyewear. Engineers can undoubtedly add progressed PC vision usefulness to Android, iOS applications to make AR encounters that practically connect with objects and the climate.
- C# : A content should be joined to a GameObject in the scene to be called by Solidarity. Contents are written in an extraordinary language that Solidarity can comprehend. What's more, it's through this language that we can converse with the motor and give it our instructions. The language that is utilized in Solidarity is called C#. All the dialects that Solidarity works with are object-arranged scripting dialects. Like any language, scripting dialects have sentence structure, or grammatical forms, and the essential parts are called factors, capacities, and classes.
- Microsoft Visual Studio: is a coordinated advancement climate (IDE) from Microsoft. It is utilized to create PC programs, just as sites, web applications, web administrations and versatile applications. Visual Studio utilizes Microsoft programming advancement stages, for example, Windows Programming interface, Windows Structures, Windows Introduction Establishment, Windows Store and Microsoft Silverlight. It can create both local code and oversaw code. Visual Studio incorporates a code manager supporting IntelliSense (the code finishing segment) just as code refactoring. The incorporated debugger works both as a source-level debugger and a machine-level debugger. Other implicit devices incorporate a code profiler, architect for building GUI applications, webdesigner, class creator, and information base pattern originator.

Chapter 8: What is ARCore?

Augmented Reality reproduction is definitely not a straightforward undertaking whenever completed without any preparation. That is the reason there are legitimate instruments in the market that causes an engineer to fabricate applications as wanted effortlessly and effectiveness. There is a decent arrangement of Programming Advancement Packs accessible to make Enlarged Reality based applications and one of the mainstream SDKs that is highly esteemed in the AR improvement network is Google's ARCore.

ARCore is a stage created by Google that was delivered on the first of Walk 2018 for building expanded reality encounters. ARCore empowers a person's telephone to detect its current circumstance and comprehend its environmental factors to connect with data. It fundamentally utilizes three key abilities in particular Movement Following, Ecological Agreement, and Light Assessment (every one of them are portrayed underneath) that help to put virtual articles on the genuine climate of the world as observed through your telephone's camera.

Here are a few terms and ideas related with ARCore.

1. Motion Tracking: When you utilize an AR-based application, you are approached first to open your camera and in some cases additionally requested to move your telephone. This is done to catch your encompassing and identify unmistakable highlights from it likewise called include focuses. ARCore utilizes SLAM (Synchronous Limitation And Planning) to comprehend the situation of your telephone comparative with your encompassing. When the component focuses are distinguished, SLAM utilizes them to register the adjustment in area. To figure the position and direction of the telephone comparative with its encompassing, over the long haul, the visual data recognized by the camera is joined with the estimations of the IMU (Inertial Estimation Unit: an electronic gadget that measures and reports a body's particular power, precise rate, and once in a while the direction of the body, utilizing a mix of accelerometers, gyrators, and some of the time magnetometers). Presently, the virtual camera where the delivering is done of 3D items is lined up with the gadget's camera gave by ARCore to empower designers to deliver virtual articles from the right point of view. This is the manner by which the delivered virtual picture can be overlaid on top of the picture got from the gadget's camera, causing it to show up as though the virtual article is essential for the genuine climate of the world.

2. Environmental Understanding: You probably observed applications that place 3D articles on to explicit genuine items like a feline moving on a table or a sofa on the floor (For eg: Houzz application is one of the popular applications that help you plan the inside of your room or house by setting 3D furniture on your floor). Here we will examine, how the application thinks about the level surfaces or the even surfaces in such detail. As we previously examined the element focuses, ARCore searches for bunches of these component focuses that lie on similar level or vertical surfaces like a table or an entryway and makes this data accessible to your application. Afterward, this data is utilized to put 3D articles on level surfaces.

3. Light Estimation: To make virtual substance more practical, it is consistently a decent decision to think about light as one of the huge territories to chip away at. As the light gets reflected in various ways subsequent to falling onto an article making the climate satisfying to the eyes of a watcher, the idea of light assessment attempts to do likewise with the 3D items. Subsequent to catching pictures of the encompassing, ARCore gives data about the normal force and shading revision of the pictures which lets a designer light a virtual article under similar conditions as the general climate.



Figure 2

Chapter 9: Snapshots of the Project

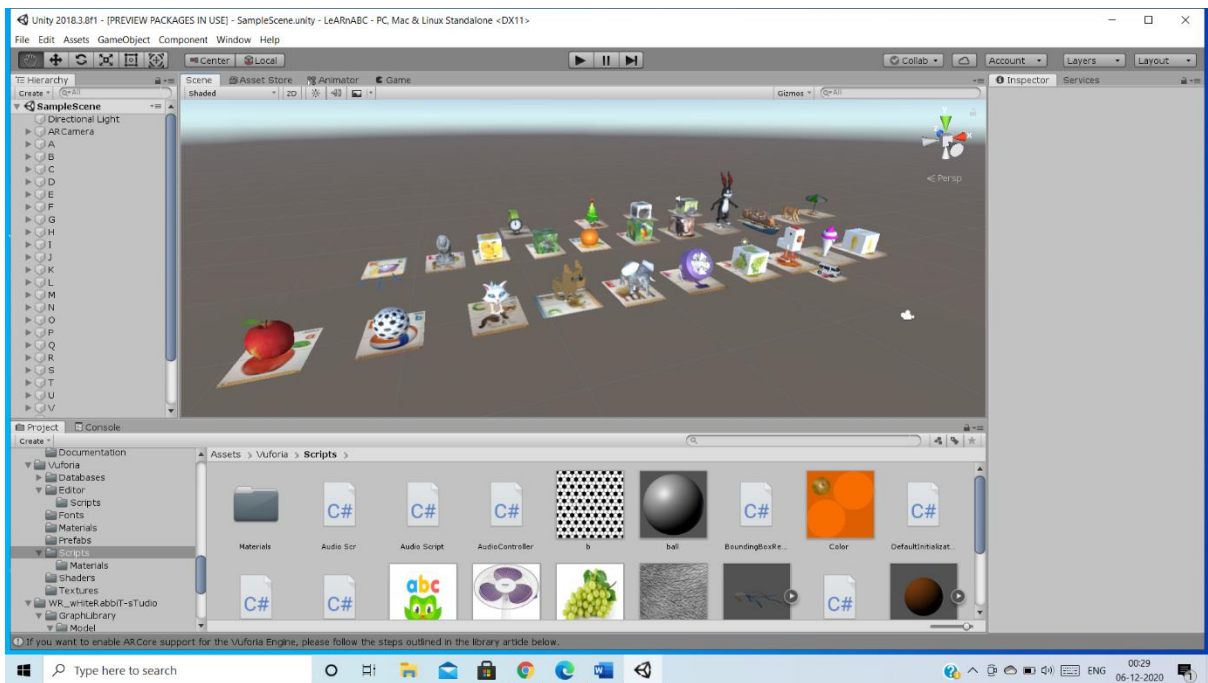


Figure 3

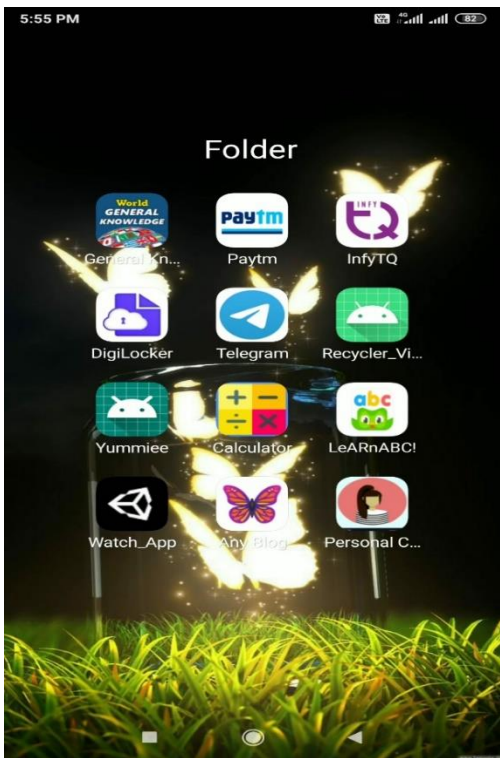


Figure 4



Figure 5

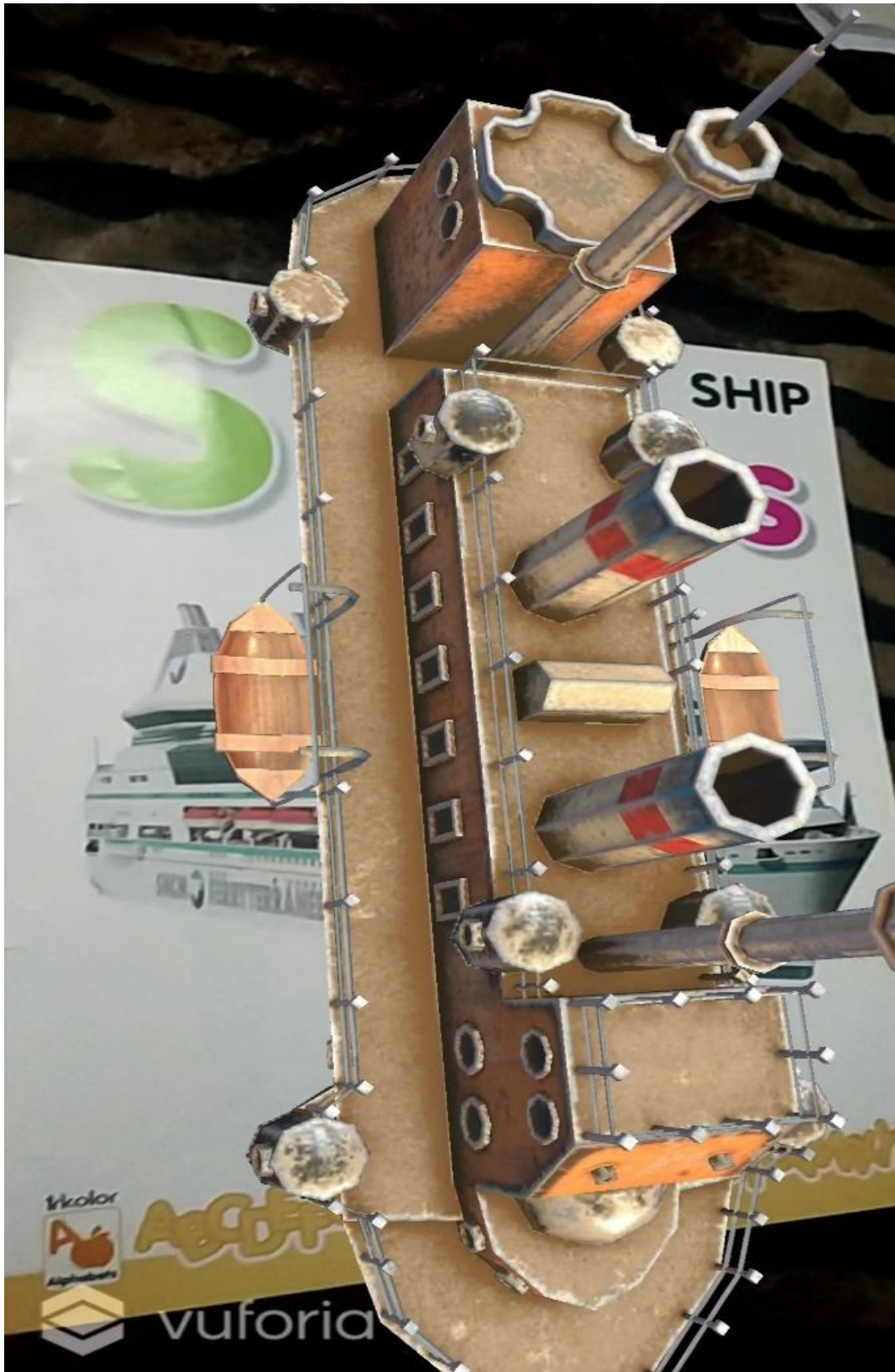


Figure 6

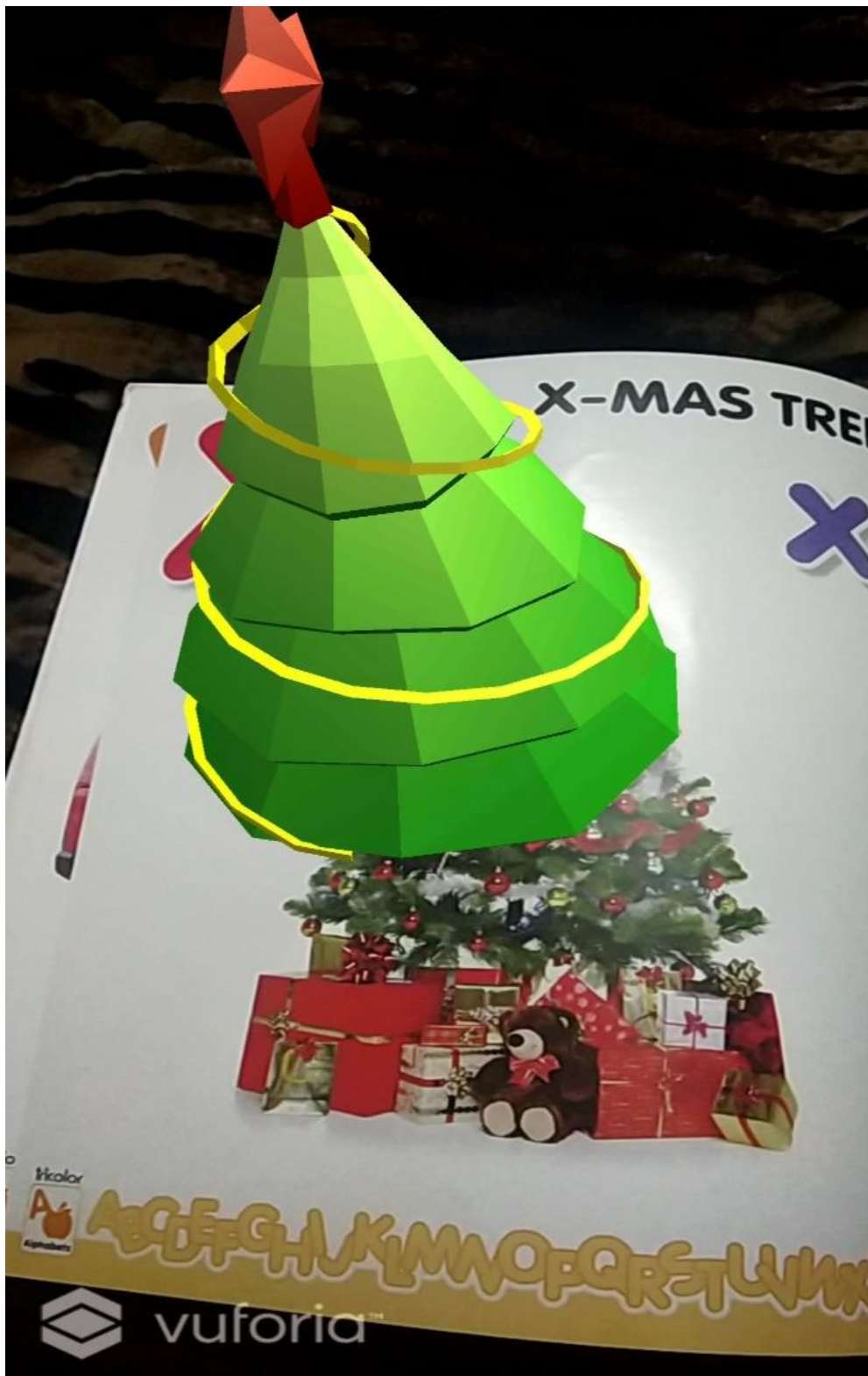


Figure 7



Figure 8

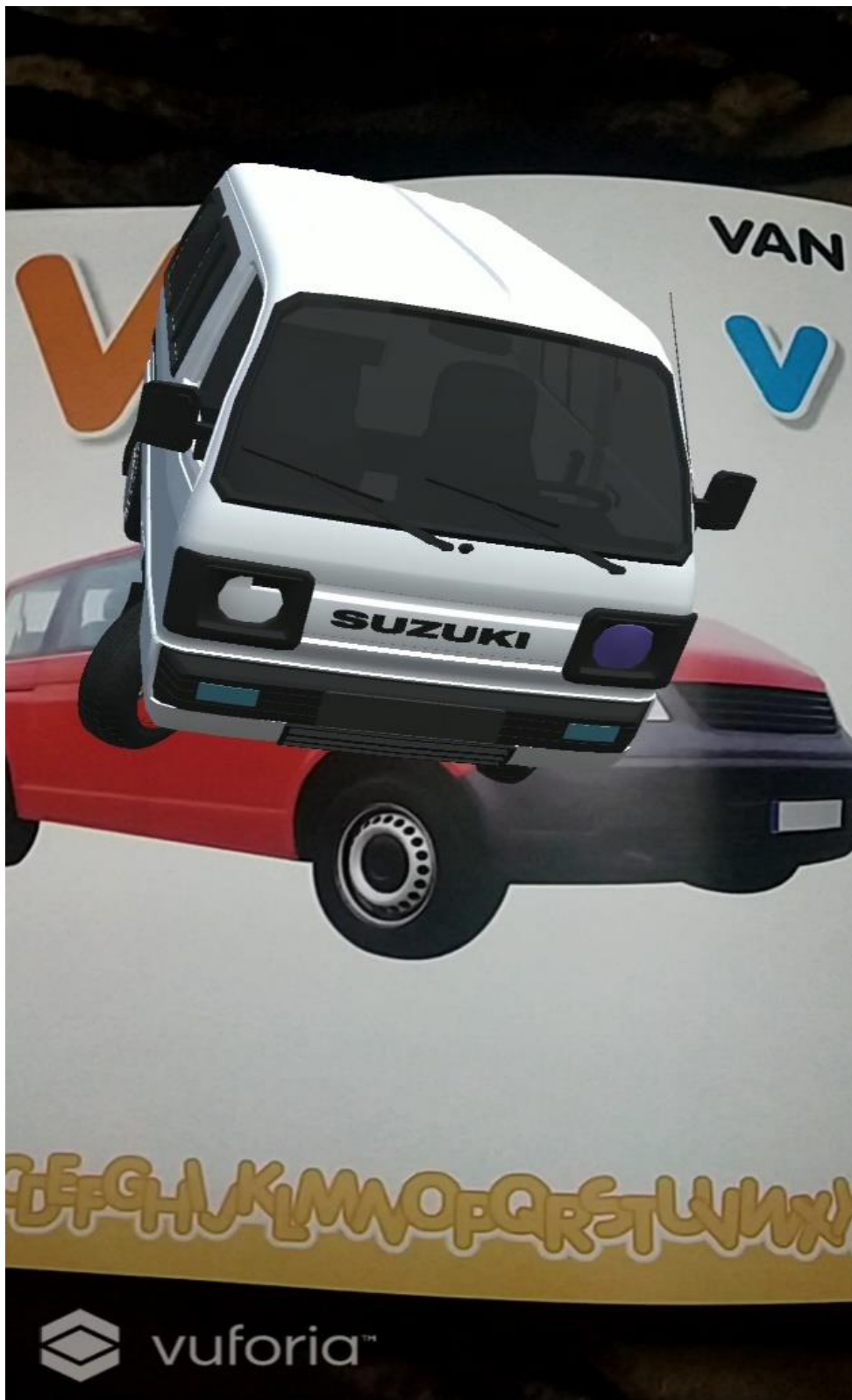


Figure 9



Figure 10



Figure 11

Chapter 10: Project Codes

Rotation Script:

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Rotate : MonoBehaviour
{
    public int Speed;
    // Start is called before the first frame update

    // Update is called once per frame
    void Update()
    {
        transform.Rotate(new Vector3(0, Time.deltaTime * Speed, 0))
;
    }
}
```

Swiping Script:

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Swipe : MonoBehaviour
{
    Vector3 mPrevPos = Vector3.zero;
    Vector3 mPosDelta = Vector3.zero;
    private void Update()
    {
        if (Input.GetMouseButton(0))
        {
            mPosDelta = Input.mousePosition - mPrevPos;
            if (Vector3.Dot(transform.up, Vector3.up) >= 0)
            {
                transform.Rotate(transform.up, -
Vector3.Dot(mPosDelta, Camera.main.transform.right), Space.World);
            }
        }
    }
}
```

```

        else
        {
            transform.Rotate(transform.up, Vector3.Dot(mPosDelta, Camera
.main.transform.right), Space.World);
        }
        transform.Rotate(Camera.main.transform.right, Vector3.Dot(mPosDe
lta, Camera.main.transform.up), Space.World);
    }
    mPrevPos = Input.mousePosition;
}
}

```

AudioController Script:

```

using System.Collections;
using System.Collections.Generic;
using UnityEngine;

// singleton script
public class AudioController : MonoBehaviour
{
    // list of sounds
    //List<AudioClip> audioClips;

    public AudioController instance;

    public AudioSource audioSource;
    public static string targetNameFromScript;
    public static bool targetActive = false;

    void Awake(){
        if(this) instance = this;
        else Destroy(gameObject);
    }

    void Start(){
        audioSource.playOnAwake = false;
        audioSource.loop = false;
    }

    void Update(){
        if( targetActive == true && targetNameFromScript != "No" ){
            PlayMyMusic(targetNameFromScript);
        }
    }
}

```

```

        targetNameFromScript = "No";
    }
}

// play sounds acc. to target name
public void PlayMyMusic(string targetName){
    // check
    if(targetName == "E3")
        targetName = "Audios/" + "E";
    else
        targetName = "Audios/" + targetName;
    Debug.Log("My target name is : "+targetName);
    AudioClip targetClip = Resources.Load<AudioClip>(targetName);
    audioSource.clip = targetClip;
    audioSource.Play();
}
}

```

DefaultTrackableEventHandler Script:

```

using UnityEngine;
using Vuforia;
using System.Collections;
using System.Collections.Generic;

/// <summary>
/// A custom handler that implements the ITrackableEventHandler interface.
///
/// Changes made to this file could be overwritten when upgrading the Vuforia
a version.
/// When implementing custom event handler behavior, consider inheriting fro
m this class instead.
/// </summary>
public class DefaultTrackableEventHandler : MonoBehaviour, ITrackableEventHa
ndler
{

    //-----Begin Sound-----
    // public AudioSource soundTarget;
    // public AudioClip clipTarget;

```

```

        // private AudioSource[] allAudioSources;

        //function to stop all sounds
        // void StopAllAudio()
        // {
        //     allAudioSources = FindObjectsOfType(typeof(AudioSource)) as A
audioSource[];
        //     foreach (AudioSource audioS in allAudioSources)
        //     {
        //         audioS.Stop();
        //     }
        // }

        // //function to play sound
        // void playSound(string ss)
        // {
        //     clipTarget = Resources.Load<AudioClip>(ss);
        //     soundTarget.clip = clipTarget;
        //     soundTarget.loop = false;
        //     soundTarget.playOnAwake = false;
        //     soundTarget.Play();
        // }

        #region PROTECTED_MEMBER_VARIABLES

        protected TrackableBehaviour mTrackableBehaviour;
        protected TrackableBehaviour.Status m_PreviousStatus;
        protected TrackableBehaviour.Status m_NewStatus;
        // public AudioSource aSource;
        // public AudioClip aClip;

        #endregion // PROTECTED_MEMBER_VARIABLES

        #region UNITY_MONOBEHAVIOUR_METHODS

        protected virtual void Start()
        {
            mTrackableBehaviour = GetComponent<TrackableBehaviour>();
            if (mTrackableBehaviour)
            {
                mTrackableBehaviour.RegisterTrackableEventHandler(this);
            }
            // soundTarget = gameObject.AddComponent<AudioSource>();
        }

```

```

protected virtual void OnDestroy()
{
    if (mTrackableBehaviour)
        mTrackableBehaviour.UnregisterTrackableEventHandler(this);
}

#endregion // UNITY_MONOBEHAVIOUR_METHODS

#region PUBLIC_METHODS

/// <summary>
///     Implementation of the ITrackableEventHandler function called whe
n the
///     tracking state changes.
/// </summary>
public void OnTrackableStateChanged(
    TrackableBehaviour.Status previousStatus,
    TrackableBehaviour.Status newStatus)
{
    m_PreviousStatus = previousStatus;
    m_NewStatus = newStatus;

    if (newStatus == TrackableBehaviour.Status.DETECTED ||
        newStatus == TrackableBehaviour.Status.TRACKED ||
        newStatus == TrackableBehaviour.Status.EXTENDED_TRACKED)
    {
        //Debug.Log("Trackable " + mTrackableBehaviour.TrackableName + "
found");
        AudioController.targetNameFromScript = mTrackableBehaviour.Track
ableName;
        AudioController.targetActive = true;
        OnTrackingFound();
    }
    else if (previousStatus == TrackableBehaviour.Status.TRACKED &&
        newStatus == TrackableBehaviour.Status.NO_POSE)
    {
        //Debug.Log("Trackable " + mTrackableBehaviour.TrackableName + "
lost");
        //Debug.Log(mTrackableBehaviour.TrackableName);
        AudioController.targetActive = false;
        OnTrackingLost();
    }
    else
    {
        // For combo of previousStatus=UNKNOWN + newStatus=UNKNOWN|NOT_F
OUND

```

```

        // Vuforia is starting, but tracking has not been lost or found
yet
        // Call OnTrackingLost() to hide the augmentations
        AudioController.targetActive = false;
        OnTrackingLost();
    }
}

#endregion // PUBLIC_METHODS

#region PROTECTED_METHODS

protected virtual void OnTrackingFound()
{
    var rendererComponents = GetComponentsInChildren<Renderer>(true);
    var colliderComponents = GetComponentsInChildren<Collider>(true);
    var canvasComponents = GetComponentsInChildren<Canvas>(true);

    // Enable rendering:
    foreach (var component in rendererComponents)
        component.enabled = true;

    // Enable colliders:
    foreach (var component in colliderComponents)
        component.enabled = true;

    // Enable canvas:
    foreach (var component in canvasComponents)
        component.enabled = true;

    //Play Sound, IF detect an target

    // if (mTrackableBehaviour.TrackableName == "A")
    // {
    //     Debug.Log("In my function!");
    //     playSound("Audios/A");
    // }

    // if (mTrackableBehaviour.TrackableName == "B")
    // {
    //     playSound("Audios/B");
    // }

    // if (mTrackableBehaviour.TrackableName == "C")
    // {
    //     playSound("Audios/C");
    // }
}

```

```

// if (mTrackableBehaviour.TrackableName == "D")
// {
//     playSound("Audios/D");
// }

// if (mTrackableBehaviour.TrackableName == "E")
// {
//     playSound("Audios/E");
// }

// if (mTrackableBehaviour.TrackableName == "F")
// {
//     playSound("Audios/F");
// }
// if (mTrackableBehaviour.TrackableName == "G")
// {
//     playSound("Audios/G");
// }

// if (mTrackableBehaviour.TrackableName == "G")
// {
//     playSound("Audios/G");
// }
// if (mTrackableBehaviour.TrackableName == "H")
// {
//     playSound("Audios/H");
// }

// if (mTrackableBehaviour.TrackableName == "I")
// {
//     playSound("Audios/I");
// }
// if (mTrackableBehaviour.TrackableName == "J")
// {
//     playSound("Audios/J");
// }

// if (mTrackableBehaviour.TrackableName == "K")
// {
//     playSound("Audios/K");
// }
// if (mTrackableBehaviour.TrackableName == "L")
// {
//     playSound("Audios/L");
// }
// if (mTrackableBehaviour.TrackableName == "M")
// {
//     playSound("Audios/M");
// }

```



```

// }

// if (mTrackableBehaviour.TrackableName == "N")
// {
//     playSound("Audios/N");
// }
// if (mTrackableBehaviour.TrackableName == "O")
// {
//     playSound("Audios/P");
// }

// if (mTrackableBehaviour.TrackableName == "Q")
// {
//     playSound("Audios/Q");
// }
// if (mTrackableBehaviour.TrackableName == "R")
// {
//     playSound("Audios/R");
// }

// if (mTrackableBehaviour.TrackableName == "S")
// {
//     playSound("Audios/S");
// }
// if (mTrackableBehaviour.TrackableName == "T")
// {
//     playSound("Audios/T");
// }
// if (mTrackableBehaviour.TrackableName == "U")
// {
//     playSound("Audios/U");
// }

// if (mTrackableBehaviour.TrackableName == "V")
// {
//     playSound("Audios/V");
// }
// if (mTrackableBehaviour.TrackableName == "W")
// {
//     playSound("Audios/W");
// }

// if (mTrackableBehaviour.TrackableName == "X")
// {
//     playSound("Audios/X");
// }
// if (mTrackableBehaviour.TrackableName == "Y")
// {

```

```

        //      playSound("Audios/Y");
        // }

        // if (mTrackableBehaviour.TrackableName == "Z")
        // {
        //      playSound("Audios/Z");
        // }

    }

protected virtual void OnTrackingLost()
{
    var rendererComponents = GetComponentsInChildren<Renderer>(true);
    var colliderComponents = GetComponentsInChildren<Collider>(true);
    var canvasComponents = GetComponentsInChildren<Canvas>(true);

    // Disable rendering:
    foreach (var component in rendererComponents)
        component.enabled = false;

    // Disable colliders:
    foreach (var component in colliderComponents)
        component.enabled = false;

    // Disable canvas':
    foreach (var component in canvasComponents)
        component.enabled = false;

    // StopAllAudio();
}

#endregion // PROTECTED_METHODS
}

```

Chapter 11: Results and Discussions

The project which I have made named Interactive book for Kindergarten children using Unity 3D is useful for the children whose parents are working professionals and who don't have enough time to spend time with their children. I just made a demo for kids. But we can implement AR in multiple books, in Labs so that the students will learn things by visualizing the augmented images. According to me, the scope of this technology is increasing day by day. The demand of this technology will definitely going to boom in the near future.

Chapter 12: Conclusions and Future Scope

This doesn't imply that telephones and tablets will be the solitary scene for AR. Exploration proceeds apace on remembering AR usefulness for contact focal points, and other wearable gadgets. A definitive objective of expanded the truth is to make a helpful and characteristic drenching, so a sense telephones and tablets will get supplanted, however it isn't clear what those substitutions will be. Indeed, even glasses may take on another structure, as "shrewd glasses" are produced for daze individuals.

Like any new innovation, AR has a great deal of political and moral issues. Google Glass, for instance, raised protection concerns. Some stressed that discussions may be secretly recorded or pictures snapped, or felt that they may be distinguished by face acknowledgment programming. AR glasses, contacts and that's only the tip of the iceberg, similar to Google Focal point, however, are pushing forward underway and deals.

Project Outcome

Through this course I got to learn a lot about what is augmented reality and how it works. I got to learn about various applications of augmented reality. How AR differs from virtual reality. The objects in AR which I have used in my project can be made using blender software from the scratch. I made two projects after completion of this course. One is Interactive book for kindergarten children using Unity 3D and another project which I have made is personal AR card in which a user can see my information in an augmented manner also if he wants to redirect to my LinkedIn, YouTube or GitHub profile then he can easily do that by clicking on the buttons very easily. Overall in this course I learnt so many things and completed two projects successfully.

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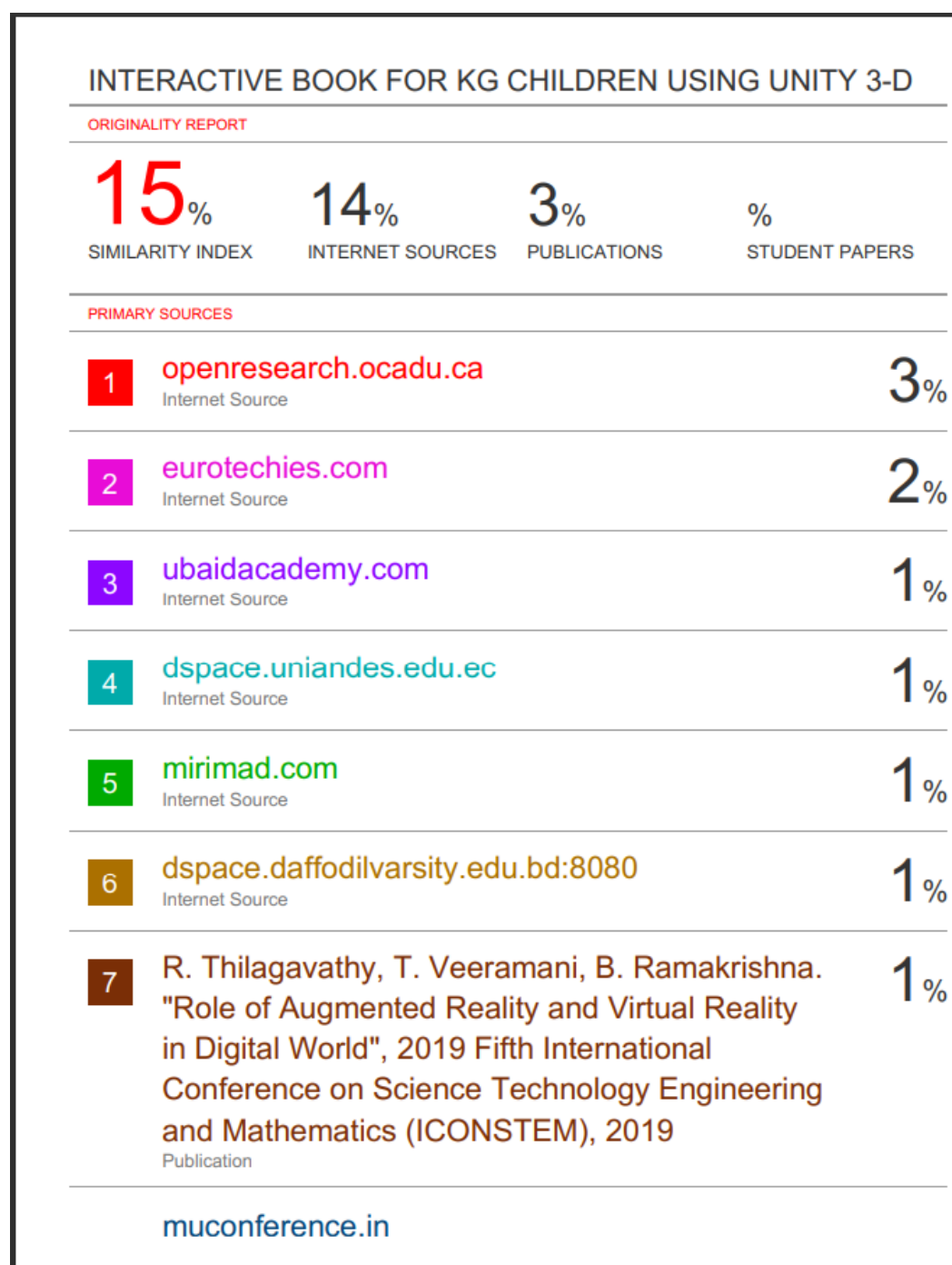
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Annexures

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