

Internship on Augmented reality with machine learning

BY

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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DHAKA, BANGLADESH

JULY 2020

APPROVAL

This Internship titled “**Internship on Augmented reality with machine learning**”, submitted by **Bishal Roy** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on

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DECLARATION

I hereby declare that, this Internship has been done by me under the supervision of **Mr. Saif Mahmud Parvez, Lecturer, Department of CSE** Daffodil International University.

I also declare that neither this Internship nor any part of this Internship has been submitted elsewhere for award of any degree or diploma.

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ACKNOWLEDGEMENT

First I express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year internship successfully.

I really grateful and wish my profound my indebtedness to **Mr. Saif Mahmud Parvez, Lecturer**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of my supervisor in the field of “*Augmented Reality*” to carry out this internship. His endless patience ,scholarly guidance ,continual encouragement , constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this internship.

I would like to express my heartiest gratitude to Dr. Syed Akhter Hossain, Professor, and Head, Dr. S. M. Aminul Haque, Associate Head, Department of CSE, for his kind help to finish my internship and also to other faculty member and the staff of CSE department of Daffodil International University.

Finally, I must acknowledge with due respect the constant support and patients of my parents.

ABSTRACT

Augmented Reality is a ground breaking technology that can effectively simplify complex operations. Augmented Reality blends virtual and original realities, providing new tools to the user to ensure the efficiency of knowledge transfer across different processes and different environments. Various solutions based on Augmented Reality have been suggested by the research community: Augmented Reality tools have provided new perspectives and promised dramatic improvements, especially in the maintenance program. Augmented Reality, on the other hand, is a final claiming technology and, at present, it is still affected by serious flaws that undermine its implementation in the context of the industry . This paper presents examples of Augmented Reality applications and demonstrates the potential of Augmented Reality solutions in maintenance tasks, outlining the benefits it can introduce. At the same time the main drawbacks of Augmented Reality are commented on and possible lines of inquiry are suggested.

This article is designed for my Augmented reality to post in a financial situation why my temporary location. Due to an IT related AI system, I am a tracer of some space-salava dialects, for example (C #, Vuforia, Tensorflow, Unity3D). My part was the application front-end and part of the back-end destruction was only because I worked this bowl finish my jobs.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Temporary work is a program that improves students' skills and expands their skills to gain a working understanding, in order to try to work reasonably in the organization with the student's main student. As stated in the Oxford Dictionary, substitute students or students who generally work without qualification to fulfill the conditions or pay for the skill. Because the outside world is aggressive towards everyone after graduation, entry-level positioning offers an incredible opportunity to gain an advantage. I decided to go through this internship to exploit the great opportunity Daffodil International University (DIU) has given. I started working with some of the professional people at Zback Systems ltd. There I was in a friendly environment, have the skills needed to continue training, navigate the tasks, find solutions, master excellent communication skills, reliable completion of the project, excellent moment and undertaking management.

1.2 Motivation

I am a final-year undergraduate student at the Faculty of Computer Science and Engineering at Daffodil International University and with this letter I would like to say my motivation for my summer internship program. I decided to be an Augmented reality based developer and completed other courses. In Augmented reality programming, I participated in online unity clubs and online courses. I think they are relevant and acceptable to compose my science career.

The more I comprehend about the Zback systems ltd, the more I like this IT company. So I'm Zback systems ltd Inc. Let's try to be an intern. These people are very useful in the face of problems. They teach us how to relate to learning through work.

1.3 Internship Objectives:

- 1) Designing AR app with Unity platform.
- 2) Basic programming language C#.
- 3) Unity Game Engine
- 4) Vuforia Database
- 5) Character Designing using Blender
- 6) Understanding Virtual Reality
- 7) Request, Response, justification, Views
- 8) Develop Interpersonal Skill
- 9) Advance communication Skill
- 10) Get better Technical Skills

1.4 Introduction to the company

Incepted in 2015,ZBACK SYSTEMS LTD is a main Development and Design master organization giving unrivalled Software, Web, Mobile and Creative Designing arrangements and administrations to organizations all around.



Figure 1.1:logo of Zback system Limited

Having a solid Technology Development and Innovation centre in Bangladesh and with over 400+ happy purchasers around the humankind, hard from unspent society - foretell 500 associations sidewise over different ventures, impugn and shackles quantifiable exchange admirable to customers through most forthright occupations of novation and Resources to affiliations.

Office:

House:552, Road:07, Avenue:07, Mirpur DOHS, Mirpur, Dhaka-1216Bangladesh +880-1711935722 info@zbacksys.com

1.5 Report Layout

Chapter 1: Introduction, motivation and internship objective, introduction to the organization.

Chapter 2: is all about organization. In this portion, I describe the information's about where the internship undertakes this program. This slide also contains company introduction, company product, services, the market situation of the organization, target group of company, SWOT analysis, and organizational structure.

Chapter 3: is all about tasks, projects and daily activities. This part covered daily tasks and activities during the internship, company events and activities, project tasks and activities and challenges part.

Chapter 4: is competencies and smart plans. This chapter covered competencies earned, smart plan and reflection.

Chapter 5: is the conclusion and future career. This chapter covered discussion and conclusion, the scope for further career.

CHAPTER 2: ORGANIZATION

2.1 Company History

Zback Systems Ltd. was set up in 2016, start by supply IT and surety answers for center instant and thin bowl organizations. The plan of Zback from that point frontward has been to supply character preparations that guide to produce a store tendency of patrons. In 2017, Zback System open to build up the spread of capability by fortifying its supporter low-disapproved and with standardized vegetation; Zback promptly turned into a competitor hard in the movement pulling in full framework customers with variegated fundamentally. The projects that company completed were not only unbeaten but were also able to attract clients with the level of design and high-quality implementation of these projects. From a small scale solution provider, Zback was upward rapidly with the intent of attractive a good solution source for quality and trusted system sol

2.2 Organization Introduction

ZBACK Systems Ltd. is a permanent development IT and Security Solutions presence. We have the eye to gave customers the circumstance of clarification framework for smoother lead and help surmount the resistance. By and by, Zback is activity side by side tall blueprint customers from the segregated and general part enterprises, import together boss disgrace in sired tailor-make answers for answering the solicitation of individual organizations. ZBACK venture gadget and instrument framework mixes with extreme face innovation that is track forward of its fighting to become a close acquaintance with customers regulate, government and declaration their worry exchanging activities at all set

Presently, ZBACK is working alongside high profile clients from the private and public sector industries, bringing together leading brands in creating customized solutions to meet the demands of individual businesses. Zback designs plan and implements system integrations with cutting edge technology that is steps ahead of its rivals to help clients monitor, control and record their business operations at all times.

Mission

Zback Systems Ltd. contributes to the customer's mix of ball-sized, enterprise-changing programming framework traffic. We think the typical business is a spark of luxurious elegance by downplaying the answers on the shore honoring spring. We have won a prayer for pioneer laborers in which a rock calls for discretionary initiative and survives the invention of WHO.

Vision

The realization of our vision is to reduce intercourse fractures and establish a fictional world, which brings the most power and power to the amazing linen between developer and consumer, and in the same way.

Product and Market Situation

ZBACK Systems Ltd is making really dazzling in the Bangladesh Augmented reality stages. We are setting up and budding numerous on the web and incoherent organizations. The finance framework previously become gainful for some organizations. It makes the exchange modus operandi quicker. our promote exploration group initially watches the market fact for a pecuniary framework in the wake of guaranteeing the advantage of the ventures they set up their report.

2.3 Target Group

A request to bring about your predefined corporate objectives, it is important to work out the provisions of the objective people. By deciding an severe objective jamboree and characterizing the personas, you establish the framework. Here we will disclose how to proceed. You need to sell finest Agers hip programming deal, in an absolutely advanced way? Or on the added hand tow in naturally mindful advertisers with expedient deals offers on Black Friday? You should see that these are ridiculous judgment that turn into lifeless closing stages

These two models show you very well that the article, yet in addition the tactic must match your objective jamboree so as to create deals. noticeably, as a promoter, you generally could do with to enlarge this.

however, supplementary advantage unaccompanied isn't enough. The fuss must to be new on consumer trustworthiness, as this is the center of revolutionary success. On the rotten likelihood that a client is happy with the item directly from the beginning, there is a high likelihood of established upon the client stretched haul. On the off chance that the client is fulfilled over the period of the business channel, the person in question will, best case

scenario, convert into a accurate variety reverend, chronic greater than and over for buys and prescribe the brand to other citizens.

representation groupings so as to superficially reveal the passionate condition of the objective congregation effective tending to of Dove. So as to certification the most elevated conceivable consumer loyalty in the long haul, it is wholly important to discover itemized data about a market with the assistance of an objective gathering investigation. Two reasons are recurrently liable for the disappointment of numerous organizations or new companies. First situation: Companies manufacture an item without first showing their plan to the objective jamboree. This implies they direct without the test stage and the conceivable outcomes to improve their item based on input. consequently, they create an item that no one desires.

subsequent condition: Your objective jamboree question paper was not built up enough so your message doesn't pull in at the momentous objective group of viewers in any case. Hence, you should know who your clients are. Discover what your objective gathering needs, how they straighten out on their obtaining choices, and what included worth they look forward to from an assistance.

2.4 SWOT Analysis



Do you remember when you last visited? Whatever the reason for your move, you have decided to leave and find a new place to stay. Chances are that you will see many potential features. You have carefully considered such things as expenses, size of the backyard and the number of bedrooms. You make emotional notes about the features you really like and the things you don't like.

If the good overcame the bad, you signed the documentation. If the bad was good, you can smile politely and tell your real estate agent that you want to see it.

The example above describes a SWOT Analysis, and it serves as one of the most powerful tools in business.

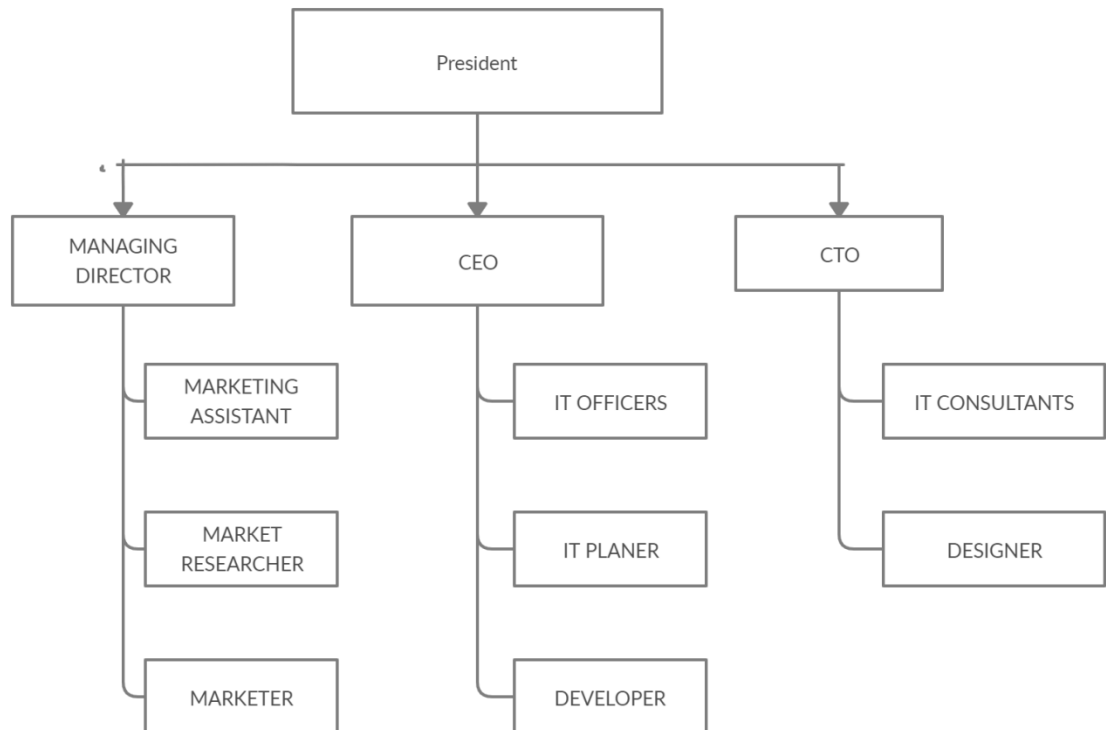
Elements of a SWOT Analysis

The qualifications are within the variables that are the benefit of your organization and which can decide your bitcoin based on the challenge. For example:

- **Strengths:** Ideally qualified staff to work with inspiration Of administration. Experienced experience. Business information. Front row front row.
- **Weaknesses:** Drawbacks are among the components that drive the growth of our company. For example: Absence of qualified employees Our workers are less motivated. Little experience of administration. The most recent innovation has no entrance.
- **Opportunities:** Inaugurations are external components (over which the organization has no control) that bear the benefits of our firm. They drive our enmity towards progress. Elements include: Applying for our item or administration is a small challenge to the business d ideal legal terms.
- **Threats:** Threats are external factors that prevent your organization from developing or succeeding. Less demand for your products / services means higher competition. Adverse economic laws. Represents the exclusive in the market.

Organizational Structure

- A structure is still characterized by practice as the allocation part, coordinate and coordinated heading towards achieving the points of the structure.
- The organizational structure affects the structure and provides a repository for general in mode of operation and rest of the routine.



CHAPTER 3

TASKS, PROJECTS AND ACTIVITIES

3.1 Daily Task and Activities

My 6-month intern at ZBACK Systems Limited has to tell me about various assignments, ventures and exercises. My first job was to complete my basics. Then I have to complete the augmented based app. Then I consolidate my day with the project's day assignment.

Month	TASK LIST
1st	<ul style="list-style-type: none"> ➤ Basic Concept of Unity. ➤ Basic Concept of Game Development ➤ Basic Concept of C#. ➤ Environment Setup
2nd	<ul style="list-style-type: none"> ➤ Basic Concept of VR(virtual Reality). ➤ Basic Concept of AR(Augmented Reality). ➤ Basic Concept of Marker Based and Marker less.
3rd	<ul style="list-style-type: none"> ➤ Advanced Unity. ➤ Advanced C#. ➤ Advanced VR & AR
4th	<ul style="list-style-type: none"> ➤ Augmented Reality Artificial intelligence ➤ Concept of Augmented Reality Project with Artificial intelligence. ➤
5th	<ul style="list-style-type: none"> ➤ Start an Augmented reality project. ➤ Project testing ➤ Complete a project
6th	<ul style="list-style-type: none"> ➤ Start a project of Augmented Reality Artificial intelligence. ➤ Test and submit that.

3.2 Events and Activities

During my internship interlude, there were many proceedings prepared by ZBACK Systems Ltd. I take part as a volunteer.

3.3 Project Task and Activities

This Augmented reality apps my works is in here. Mainly I intern as a unity developer on Augmented Reality with Machine learning.



Figure 3.3.1: Designing model

Here I design the 3D model. Which will be the set in my Unity Prefab.



Figure 3.3.2: Drawing the model for detection

This drawing is used for detection to come out that 3D model prefab. When the AR camera detect this Image the prefab of 3D model will discover .

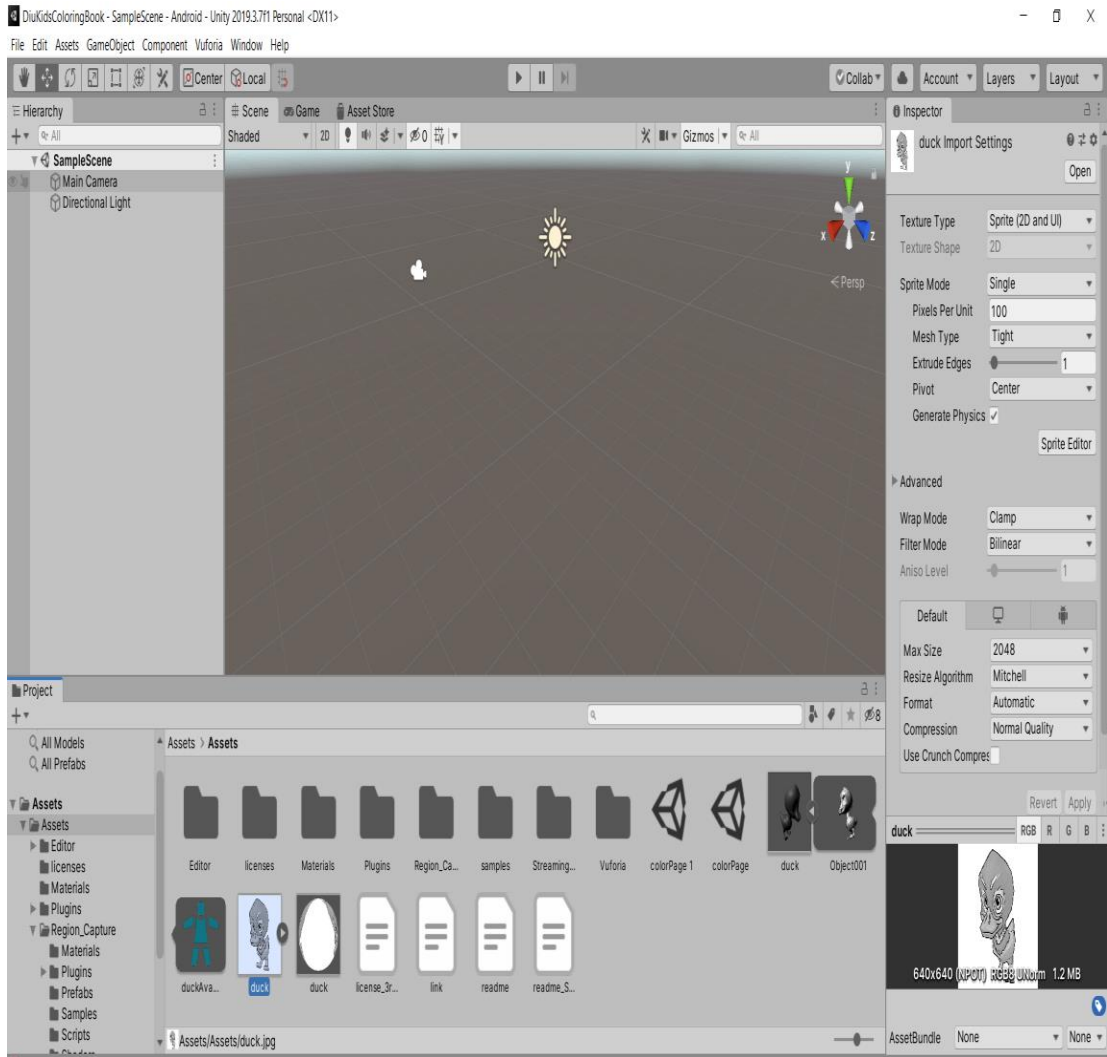
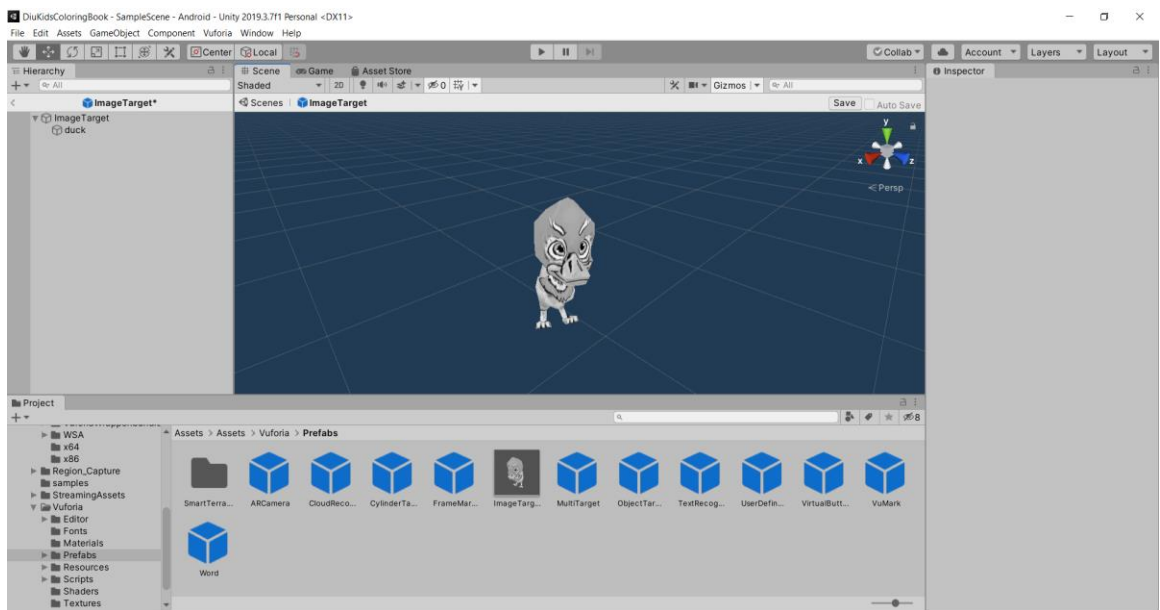
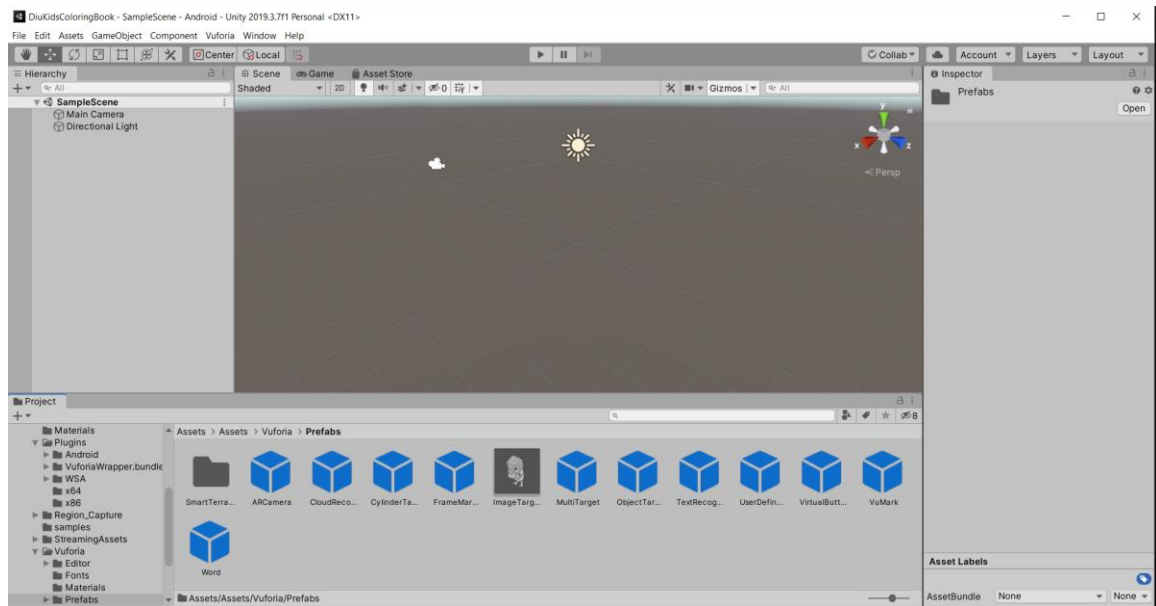


Figure 3.3.3: Setup the 3D model



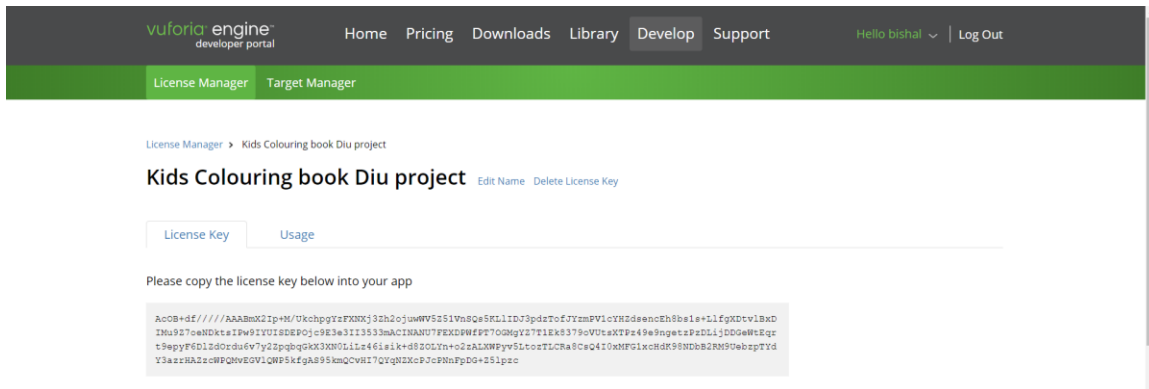


Figure 3.3.4: License key

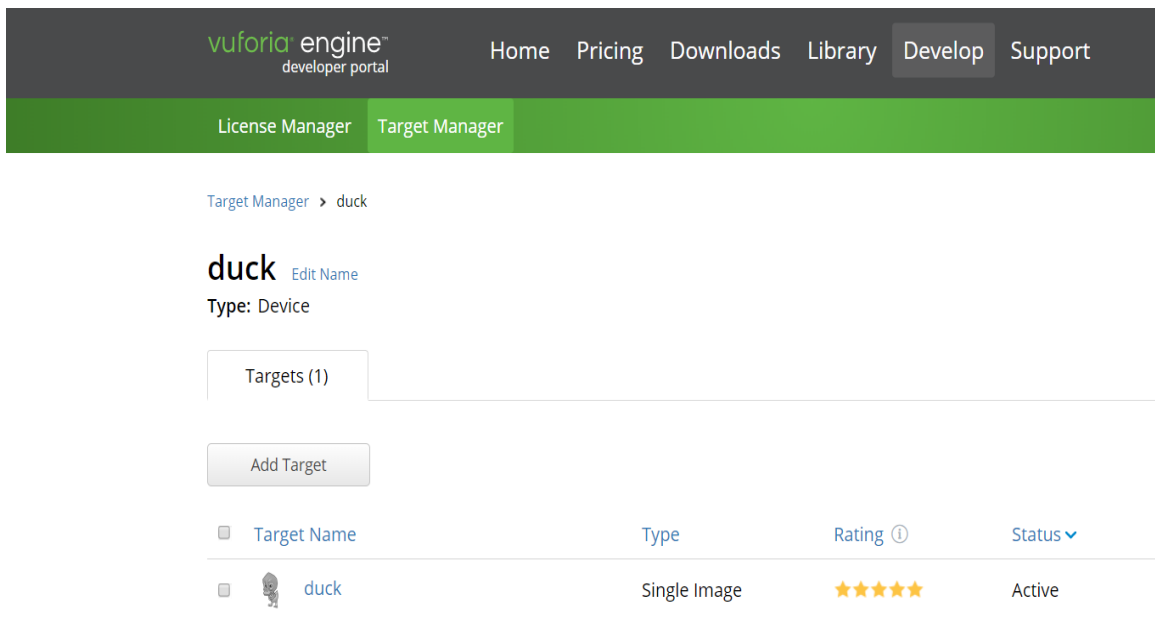


Figure 3.3.5: Store file in vuforia engine

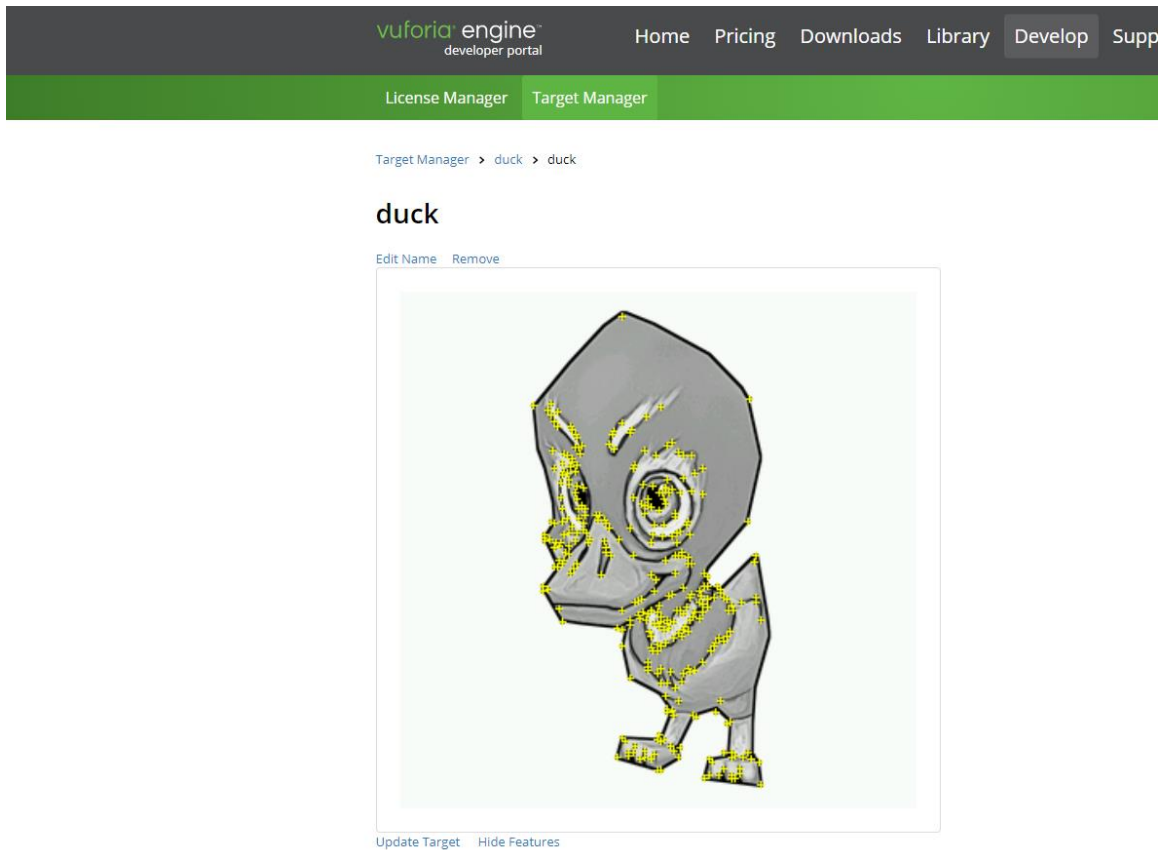


Figure 3.3.6: Update target of modified target manager

Here I select the photo in vuforia where it required the target to detect the photo from AR camera .

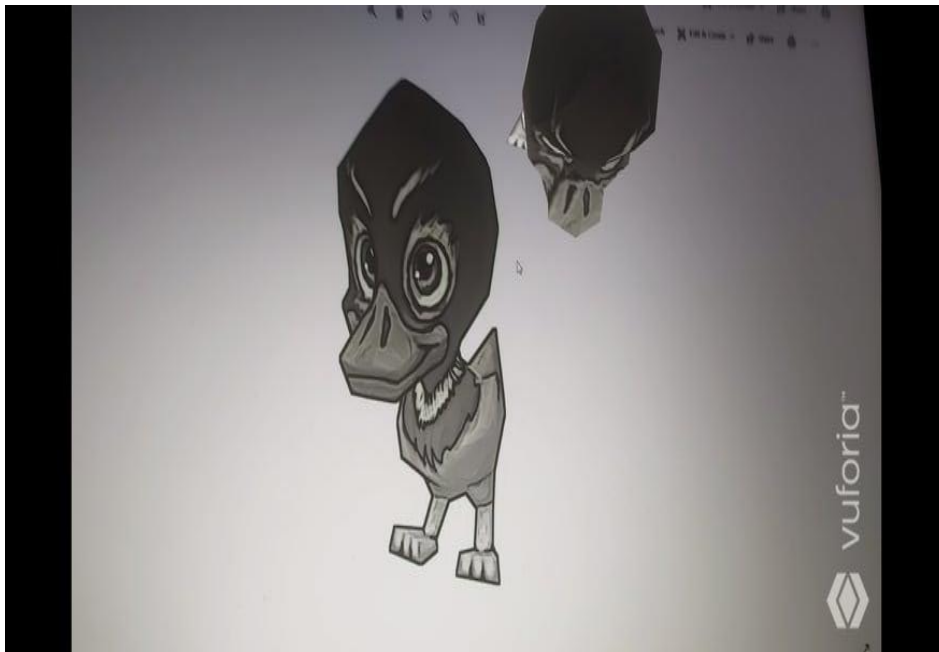


Figure 3.3.7: Output of the project

That is the out of this project where the images detect from AR camera . Then the 3D model Prefab is discovered . Now I can colour it to the Prefab coloured in real time

CHAPTER 4

COMPETENCIES AND SMART PLAN

Competencies Earned

Competition is, in the most general terms, a person has to be fit for a job, role, task, task or job. The skills I have acquired are time management, hard work, timely problem solving.

Problem Solving Process

Determination of the problem is that the process problem is a problem; Determinants of the cause of the problem; Selecting attribute, priority, and option to answer and implement the solution. During the period of my entry level position I pursue four fundamental steps of the critical thinking process. First I need to mark the problem. Then I make alternate arrangements. Rate and choose an option is also required. In the end, I update and continue the solution. Things I cautious about:

- Specify the underlying reasons. Describe the specific problem.
- Find out which process is causing the problem.
- Stay away from trying to solve the problem without data.
- Postpone evaluating alternatives at first.
- State alternative reliable by managerial goal.
- Identify short- and long-term alternatives.
- Try to find alternatives that may solve the difficulty.
- Evaluate alternatives relative to a objective standard.
- Evaluate both confirmed and potential outcomes.
- Situation the selected alternative explicitly.
- Plan and implement a pilot test of the chosen alternative.
- Seek taking or accord by all those affected.

4.1.2 Problem Debugging

The primary troubleshooting step for any augmented reality based application is to fully validate it. Use each item to make sure everything is loaded correctly. In myriad cases here, certain insects have the potential floor when a specific target is exposed to a clear target. Troubleshooting explainers begin for augmented reality applications that begin before the organization. With full code coverage, it's easier to find annoying segments that cause problems when testing your highlights. Steps of problem debugging: 1. Classify the bugs. 2. Analysis the bugs. 3. Examine and try. 4. Fix the bug. 5. legalize the full deal.

4.2 Smart Plan

Specifies the new information, skills, and skills a learner needs to gain from the pursuit of learning expertise, such as a course, webinar, self-study, or cluster activity. Achieving all the training objectives will help in achieving all the training goals of the training and development professional.

4.3 Reflections

Let me show you how I worked as a augmented developer . Finally, I will reflect on how I loaded the site as an ace.

For my presence, I will use the SMART process, which reflects the situations, actions, activities, and outcomes during my transition.

CHAPTER 5

CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion:

Also, in the future, we can add more highlights to help iPad, iPhone and other electronic devices. Finding an item to offer online is not an easy task. In fact, even with a million items of profit ready to be offered on the web, scaling it down and choosing one is no small feat. Typically, new traders are compensated so much by lost time, undeniably trying to find the ideal item they never embark on. The thing is, there really is no ideal object. There are awesome, great and incredible elements. Excepting terrible things, great and extraordinary things can be our ideal objects, if we have faith in far sight and promise. After careful observation, I chose that electronic commerce settled in a significant part of our general population. The World Wide AR has an important place in our daily existence. On the basis of those efforts, free effort goes against their objective and ends with defined objectives. This is a misnomer since site managers have reduced fees for their team and are looking for better packages to provide the World Wide AR.

5.2 Scope for Further Career

Therefore, a lot of manipulation can be done to meet the needs of future users. If this system works as an online system, it will be more effective than what only offline merchants use. Such a system also saves users time and money. There is no requirement of the seller as an intermediary between the seller and the buyer. The seller and buyer can communicate directly with each other. Improve its facilities and increase the number of services provided. Implementing a high level of security. Create a mobile app.

Appendices

Appendix A: Internship Reflection

In the midst of my work relationship with Zback Systems Ltd., I was treated with such openness and learning, a wide range of pages to put in an effort, how an effort was made, the production and the beginning Was completed, and how much work and detail goes into each stage. Another important exercise that I did between these 3 months was that I had a better understanding of the tasks that a beginner should undertake and, as a result, different types of businesses and responsibilities. Display as a AR planner.

Appendix B: Company Detail

Zback Systems Ltd is a mechanized inventive organization. It focuses on ensuring innovation for humanity, well prepared with a large number of IT experts. Everyone is aware of their share. Zback Systems Ltd is a solution supplier of start to finish IT administrations and answers for all-inclusive organizations. Their seaward programming re-appropriating administrations and planning are considered with an thoughtfulness on protected, pliable, supple and solid business frameworks. Through their nominal try, high ability and dependable seaward programming administrations, they serve up their customers philanthropic them high regard for cash and in this way purchaser execution. Since this organization structured and grew such a significant number of primary apparatuses and just for some high-status group they have that a lot of infamy to accomplish their patrons through their prolific administrations.

References

- [1] Zback systems.ltd, Available at: <https://zbacksys.com>
- [2] Unity 3D
- [3] <https://developer.vuforia.com/>