FINAL YEAR PROJECT REPORT

DAFFODIL EDUCATIONAL SMART CITY 2040

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Multimedia and Creative Technology

Supervised By

Dr. Shaikh Muhammad Allayear

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DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

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APPROVAL

This Project titled "**Daffodil Educational Smart City 2040**", submitted by Merajul Islam, Tuhin Barua, Istiak Hassan, Md. Shariful Islam, Md. Motiur Rahman and Muhammad Asif Raihan Group to the Department of Multimedia and Creative Technology, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Multimedia and Creative Technology and approved as to its style and contents. The presentation has been held on **29 November, 2018.**

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of Dr. Shaikh Muhammad Allayear, Associate Professor and Head, Department of MCT Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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We would like to thank our entire course mate in Daffodil International University, who took part in this discussion while completing the coursework.

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ABSTRACT

3D visualization is the process of generating three-dimensional moving images in a digital environment. Careful creating of 3D models or objects is carried out within 3D software for exporting picture sequences giving them the illusion of animation. Animation is important for all above the sector. Like: Education sector, architecture sector, historical sector etc. That's why we choose visualization of 3D animation and also view detailing every models with "Augmented Reality" and "Virtual Reality".

From the beginning of our university life, we have a group. which group attached with a professional workflow. In our final project, we decide to do something for our university that's why we choose to do 3d visualization of Daffodil International University, permanent campus(Ashulia) by following the master plan of Daffodil International University 2040. The work that will have all our project implemented.

We start DIU Educational Smart City from the masterplan AutoCAD layout, complete the model using by Max, Maya, and SketchUp. Lumion plays a role competing render the whole project and unity takes for Virtual Reality and Augmented Reality. And the building track by Adobe After Effect and finally, composition of the animation was done using Premiere Pro. Music and voice over were adopted for the presentation of the project in a professional manner.

In this project, we can find an overview architectural visualize of Daffodil Educational Smart City 2040 with 3D Animation and also view Augmented Reality(AR) and Virtual Reality(VR).

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Introduction

1.1 Background

Permanent campus locate 150 acors land with a big Play ground, shopping Mall, basket ball paly ground, Golf play ground, Hostel and lots of others facilities have in this university[1].

Background: In independent government assessments Daffodil International University (DIU) is identified as one of the top graded universities in Bangladesh. Daffodil Group has been established this University with the approval of the Ministry of Education under the Private University Act of 1992 and its adjustment in 1998 and Daffodil International University came into being on 24th January 2002, Today's the University merge impressive modern facilities and a dynamic approach to teaching and research with its proud heritage of service and obtaining.

To be included in the very best in Bangladesh which is the most challenging goal has been set for the university. The varsity has done so because it is only through working we can achieve the very highest level of standards in curriculum. teaching, faculties and other activities that can realize the full perspective of the academic community that is Daffodil International University. Eyesight the service to the society. The mission is to conduct research, learning, and teaching of international importance for the benefit of the nation.

Characteristic of the setup observation and mission are attempting for excellence, integrity, and innovation in every aspect of movement; a strong collaborative approach; open and effective communications and an inclusive culture based on elevation, politeness, and honor.

Daffodil International University's mission is known by its IT-based traditions of service and access. The University represents the citizens of the country through its instructions, research, and outreach programs and preparing Bangladesh to make

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successfully to the challenges of the global economy. It distributes students broad access to the institution's educational support to the University has proved.

The University has paid the highest priority to resource issuance to graduate and post-graduate education and for future development of those areas that represent the traditional effect, standard, status, and standard of the institution which continue to effectively respond to the needs of students and other electors. according to with this commitment, the university is highlighted on high-quality education including an exclusive general education that imparts the broad knowledge, expertise, and values which are required to educate and make native responsible as well as to ensure build up career preparation for students.

Establishing the primacy of education which is the institutional mission, the University is provided the escalating strength of its faculty with the realization that the quality of instruction is directly related to the quality of the University's faculty and the dedication of the faculty to ensure the proper education.

The University provides Masters Programs. The university offer students opportunities for specialized approach education in their chosen field and are an important ingredient of services. Main focusing the primary problem n develop the education for the student. The university's research programs are a plot to make essential contributions to instructional programs through the participation of graduate and postgraduate students and the resumption of the faculty. The research will also provide the knowledge-based for outreach programs.

Addition and outreach programs are elemental to the IT-based mission because these programs somehow directly influence the lives of the entire world. The University maintains the strengths of its traditional outreach programs and innovative manner involves the broader university in outreach programs that take to the changing needs of the society in which we live. The university is pursuing to seek new and experimental ways to reach out to the people.

The Daffodil University committed to fortifying in teaching at both the undergraduate and the master's level. This dedication has been reflected in the variety of courses offered and in the diversity of instructional resemble that are offered. Progressively, electronic technology is providing instructors with dispense and creative teaching

strategies. The high academic aptitude of the university's succeeding students also makes begin to move more quickly learning Bachelor degrees offered by DIU in the different spectrum of regulation and provides the country's highly supported programs in many fields, including in IT, Telecommunications, Engineering, and Business. Especially strong programs can be found in the faculty of Business, Information Technology and Engineering and English Language.

This is a perceptible stimulation for the university perception the rapid growth of the university. The university has been started with 67 students registering in the first batch and more than 15,000 students have been enrolled till date. DIU is committed to furnishing standard education with all sorts of possibility to the students. Since the foundation, the key to the continuous increasing of the number of students because the university is maintaining the commitment and it creates inspiration to the students.

DIU Green Campus

The movement of DIU campus the first of its kind in Bangladesh, which was launched in 2002 by Daffodil International University (DIU). This movement is helping to shape our university as a model environmental community where academic programs and environmentally responsible behavior by all stakeholders go hand in hand. This movement aims to inspire eco-friendly 'green projects' in order to fortify a greener, cleaner, safer and healthier campus for us to study, work and live in.

Figure 1: This is the original picture of Daffodil International University Main
Academic building and Main gate

.

The aim of the calculated Plan of DIU is to further increase its reputation as a 'green
university'. DIU Green Campus capability are volunteer-led, research-informed and
practice focused. We encourage our students, staff, and faculty able to be maintained
at work towards a pollution-free, carbon-neutral, eco-sustainable, and 'go-green'
pioneer university campus. [2]

Purpose

DIU Green Campus takes the lead in revisiting the reasons for convergent
environmental crises, to rethink how we can improve our environmental culture
through newly growing paradigms to handle burning environmental issues locally,

nationally and globally.

Composition the Green Campus also aims to attached students and faculty in teaming up to transform their innovative ideas into scientific research, so that they can preserve not only to knowledge and education but also to positive and productive changes in our lives.

Future Plan

Daffodil International University rises as one of the nation's top-tier IT-based universities in Bangladesh. The university will be extensively identified for the quality of its undergraduate and postgraduate educational programs, the success of its research and outreach programs and the broad access to the university provided through the original use of information technology. The quality of its programs through careful utilization of its resources in institutional strengths will fortify by the university. One persistent endeavor is to keep the 'Daffodil Spirit' complete.

To maintain this trend, Daffodil University has kept a master plan till 2040. By implementing this master plan maintaining the development trend, setting up a modern structure by 2040. We tried to make it 3D animations provoke the reality and virtual reality in our project. [3]

1.2 Motivation

According to this trend, We worked on master plan till 2040. By implementing this master plan maintaining the development trend, setting up a modern structure by 2040. We tried to make it 3D animations provoke the reality and virtual reality in our project.

I would like to create detailed animations of our DIU Smart city by 2040. Different software tools will be used to develop this work.

For modeling the building we used:- Autodesk Maya, Autodesk Max, SketchUp.

The final output will be a visualize complete animation with proper camera movement and building details. We will give information by voice over and tracking object about model the monument in our final output.

The final output will allow the youth to inspire to admit a green campus and what will provide a university. Moreover, the project will give us more opportunity to show what we have learned till now as a multimedia student. It will improve our skills and confidence as well.

1.3 Objectives

The objectives of the project are to:

Make the 2040 master plan vision into a 3D architectural visualization.

Develop 3D models of the DIU and turns it into DIU Educational Smart City.

Making DIU Educational Smart City with 'Augmented Reality (AR) and Virtual Reality (VR)'

Texturing the model original color content.

Getting a better output for our final project.

The following chapter presents the literature review of the project and included important information about the university. The methodology of the development of 3D models. This chapter includes the master plan of Daffodil Educational Smart City to complete work of the project. Explanation of the animation techniques is presented in chapter 3. The developed monuments are discussed with reference to the real structure of the places in chapter 6. Finally, an overview of the conclusion and further work is given in chapter 6.

CHAPTER 2

3D Model Development

2.1 Introduction

Estimation of the "DIU SMART EDUCATIONAL CITY MODEL" was obtained from "Daffodil International University permanent campus. We visited the whole campus in several times to get a clear visual idea about the "DIU SMART EDUCATIONAL CITY". we have also captured multiple pictures of each building and also recorded videos of those from different angles so that, we can get a clear reference while creating the layout, Model Development, Texturing, Camera animation AR and VR.

2.2 Layout:

The Visual Layout apparatus unites detailing components so they can be organized on a page and yield in a report by means of the Render device. The Visual Layout instrument support non-gathered components as it were. Utilize the Visual Layout device to choose a report type, mastermind report components on the page, and imagine how the report will look. The Visual Layout instrument acknowledges numerous sources of info, gives a review of report components, offers different yield types and page sizes, and takes into account both a flat and vertical layout.

Figure 2: This is the Master plan of Daffodil International University 2040

Importance of Layout:

Define the parameters of a model within available resources and time.

Focus and organize each of model.

Great visual layout likewise clearly makes applications more alluring and externally satisfying.

2.3 Layout of our project:

We have pre-visualized our final project and drawn the following layout so that the model measurement can act as a reference during actual Animation and Post-production, AR and VR..

Figure 3: This is the Master plan of Daffodil International University 2024

This is the masterplan of 2024 which we got from the honorable head Dr. Shaikh Muhammad Allayear sir.

Discribing layout below:

Figure 4: This is the idea of each model build-up from this whole 2040 masterplan

Academic Building Layout:

Figure 5: This is the 4 academic main building layout
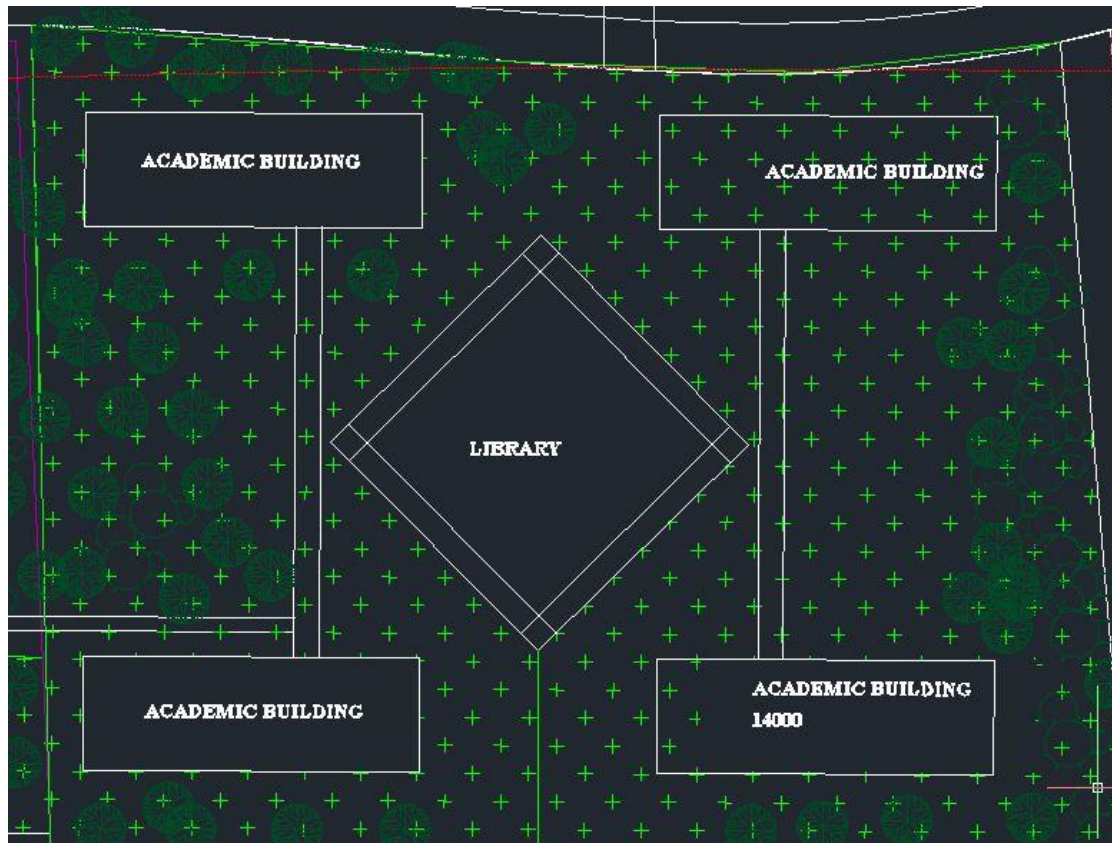
Library:

Figure 6: This is the 4 academic building with library

School:
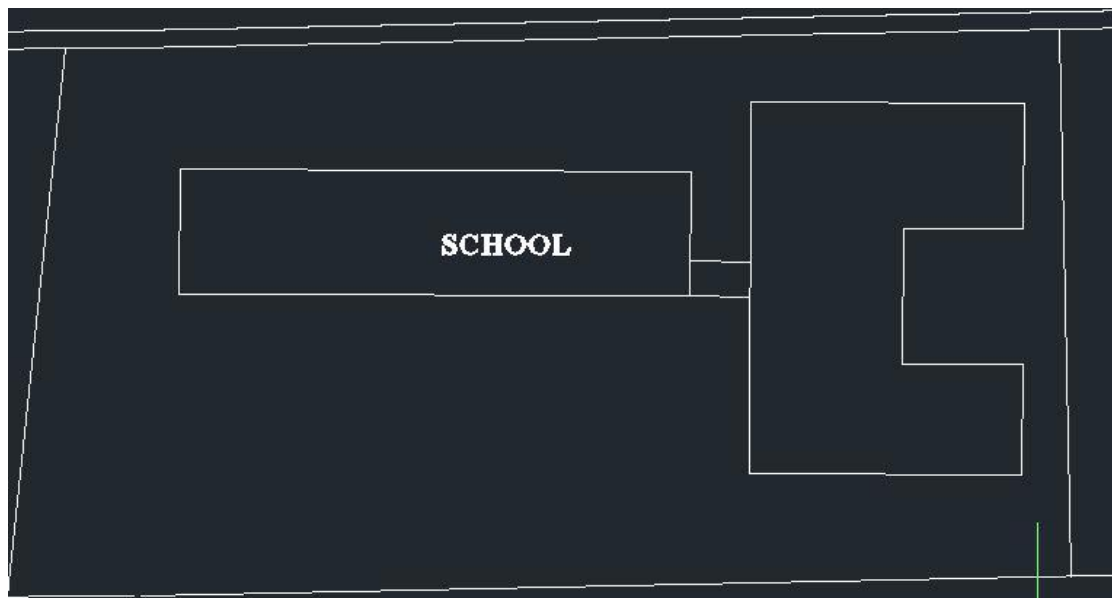
Figure 7: This is the school building layout

Main Gate:
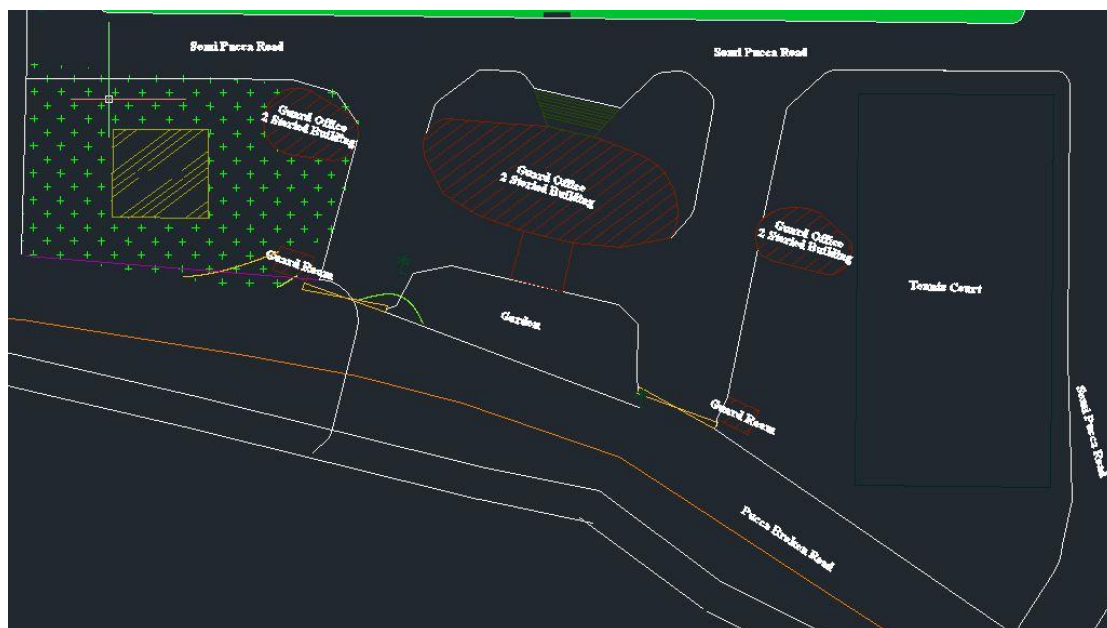
Figure 8: This is the maingate layout.

IT Building:
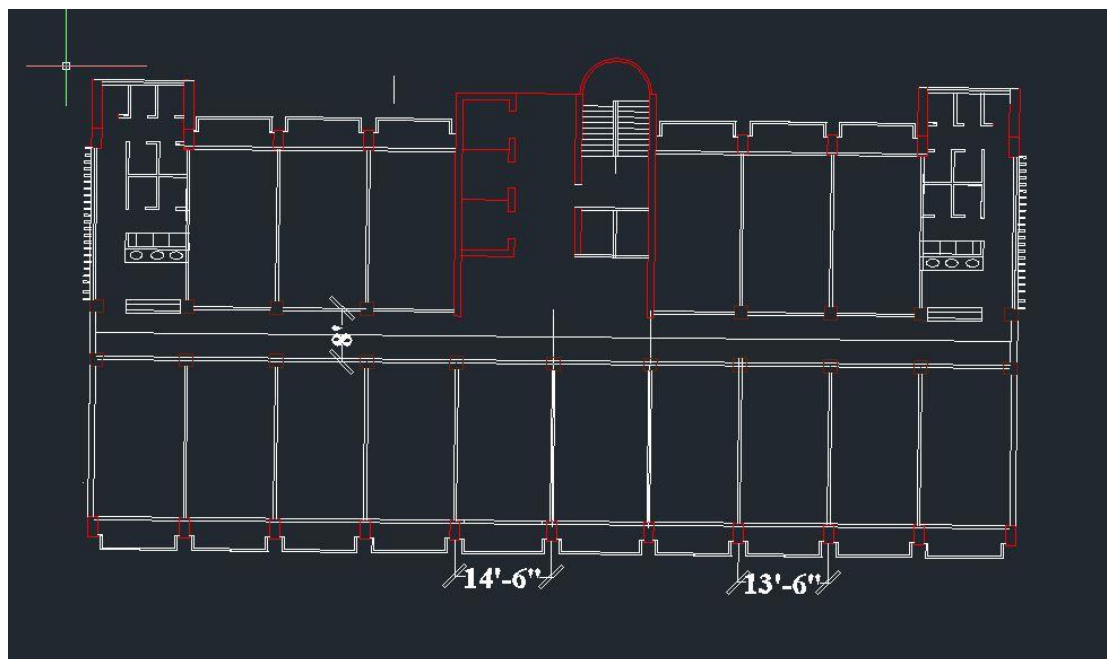
Figure 9: This is IT building layout.

Shopping Hall:

Figure 10: This is the Shopping layout

Student's Hall:
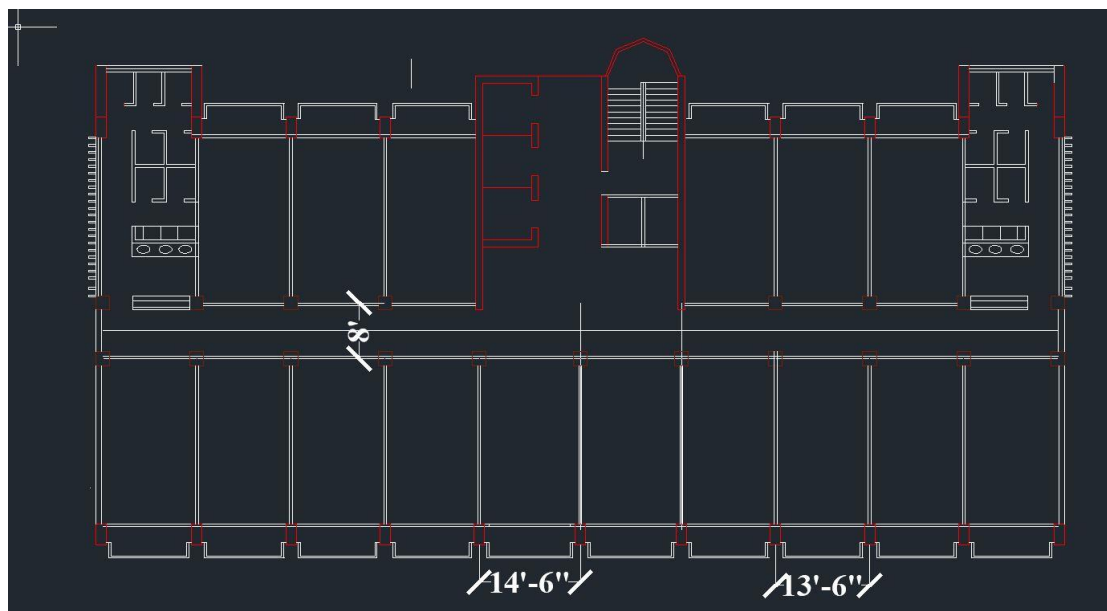
Figure 11: This is Student Hall layout

Teacher's hall:
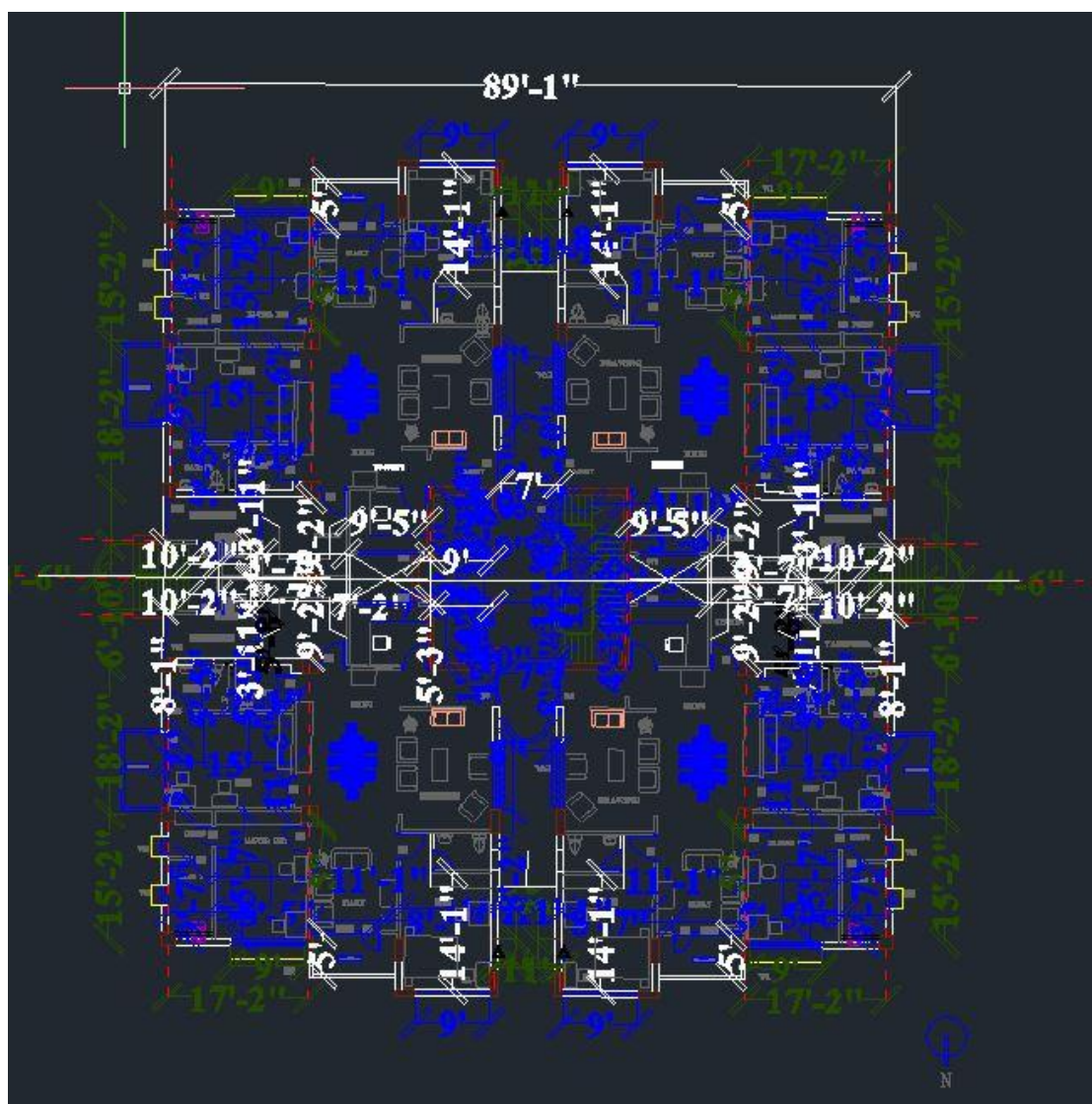
Figure 12: This is the Teacher's hall layout

CHAPTER 3

Workflow

3.1 Modelling workflow:

Model processing: 3D model to SketchUp software then imported file from autocad file. Select line and rectangle line to draw line. Then some face change in reverse mode. Then select the push and pull tool maintaining the height 10feet.
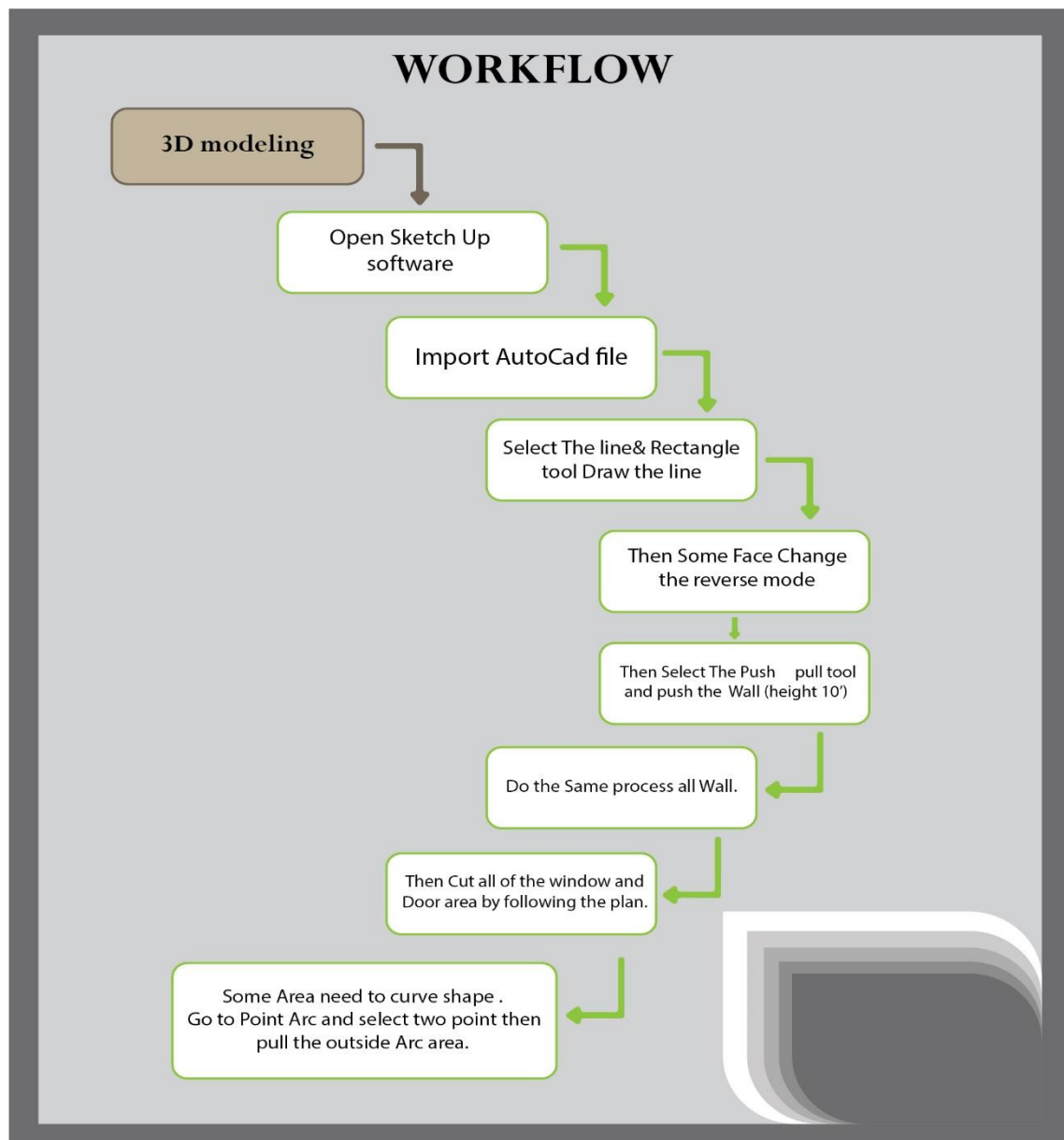
Figure 13: This is the workflow of modeling.

3.2 Texturing workflow:

Select the model then open paint bucket tool then select individual face then select colour name.
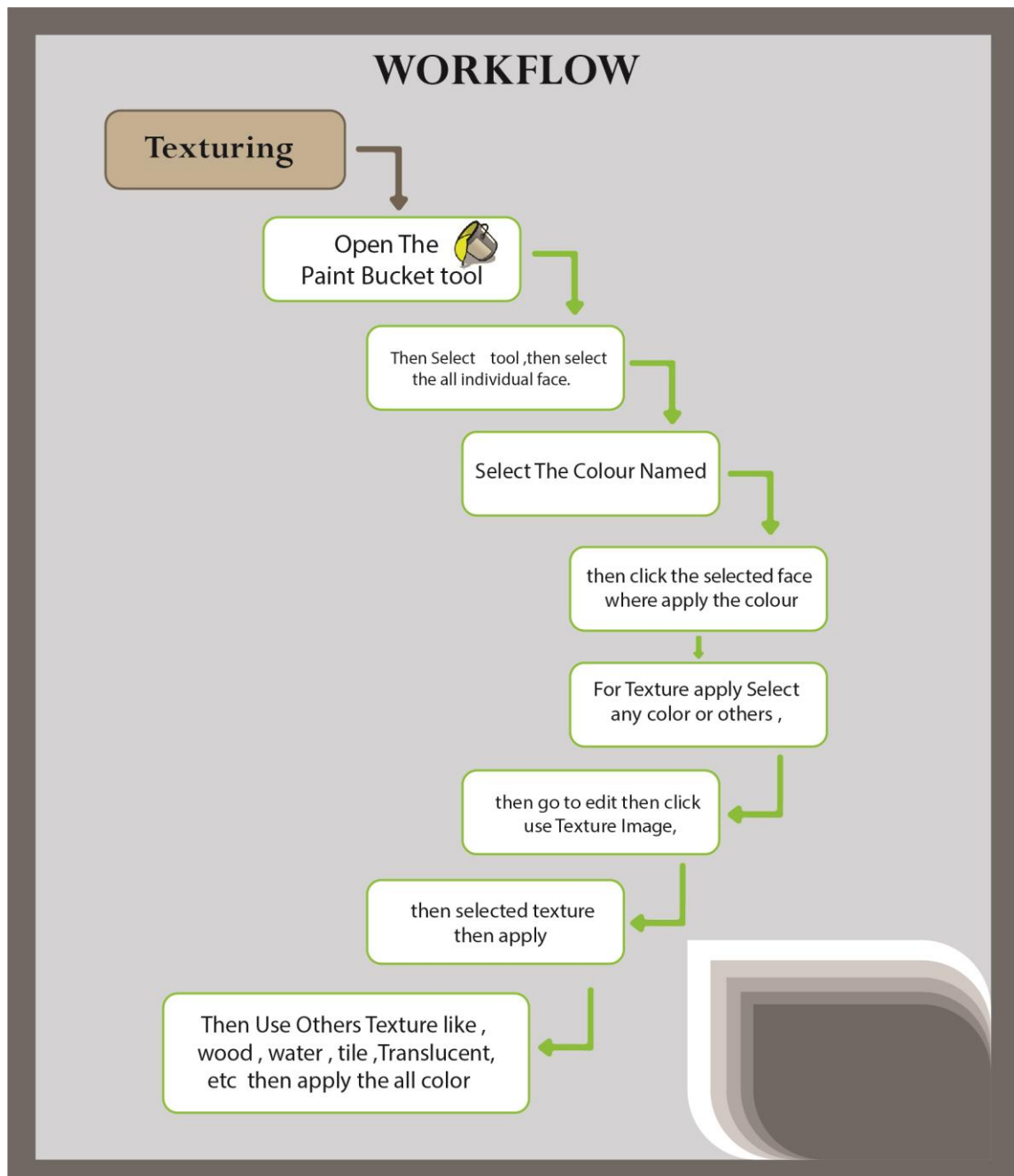
Figure 14: This is the workflow of texturing.

3.3 Animation workflow:

First of all, we collected the AutoCAD file from our honorable Department Head. The AutoCAD file about Master Plan of Daffodil International University (2040). By following the Master Plan we were starting to do modeling. Our model were Daffodil International University main gate, Guard Room, Shaheed Minar, Basketball court, Green Garden, Student Hall, Academic Building 1, IT Building, Academic Building 2, Swimming pool, Play Ground and Golf Field, Teacher Residential Area (10 building), Student Hall (10 building) with play Ground, Railway Station, Auditorium, 4 Academic Building with beautiful Library, Pond, International Swimming Pool, Play Ground 2, Gym, Student Area (14 building), DISS, Daffodil Pump, Parking Area, Convention Hall, Shopping Mall with Cineplex, School, Hospital, Daffodil Educational Smart City. After finishing our modeling we were starting to texture every model. Following the AutoCAD file we were attaching our model in the map. We were making our model in Sketch UP Pro and 3Ds Max. After attaching our model, we were going for rendering in Lumion Pro 6.0. In Lumion Pro, First we created the environment with decoration. After finishing environment, we were going for final architecture visualization. After final visualization, we were going for motion graphics in Adobe After Effect CC 2015. In Adobe After Effect, We were doing for Text Tracking Animation, Info Graphic, Lower Third Animation, Voice Over with Background Music. After that we were going for final composition in Adobe Premiere Pro CC 2015. In Adobe Premiere Pro, we were doing final composition, adding audio and final color correction. We also made our group logo in Adobe Illustrator CC 2015 and using mockup in Adobe Photoshop CC 2015. Compositing this logo as our watermark.

3.4 Animation Outline:

Info graphics: → **Bangladesh flag + Daffodil flag.**

→**Daffodil Flower** → **(Daffodil International University + etc. Info graphics)**

Table 1: Animation workflow

Part:2
DIU Smart city gate
↓
School → Hospital →Shopping Complex
↓
DIU Main gate
↓
Green garden →student hall (AB3) → (AB2) building →Main building (AB1) → IT building → Academic 2nd main building (AB4) → Swimming pool → Golf Ground + golf building
↓
Hotel + Teacher quarter
↓
Student hall area 1
↓
Railway station
↓
Auditorium
↓
4 Academic building with library
↓
Pond → 2nd Ground → Student hall
↓
Student Area
↓
DISS full
↓
Pump → Parking→ Convention Hall
↓
Student & Teacher center
↓
Gym

Figure 15: This is the workflow video, camera path in lumion
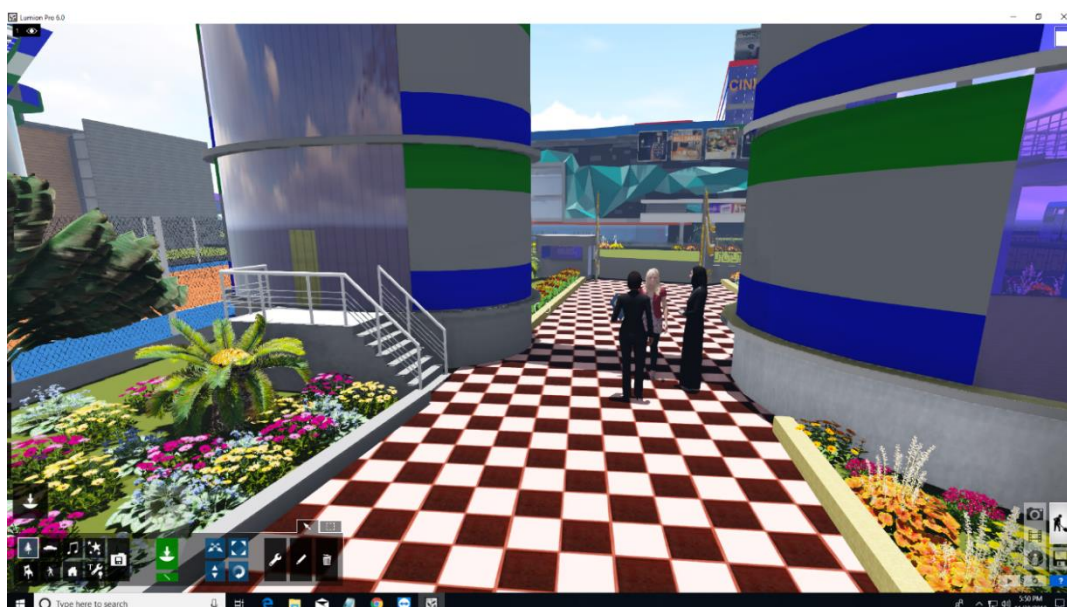
Figure 16: This is the model workflow camera path in Lumion 1

Figure 17: This is the model workflow camera path in lumion 2

3.5 AR workflow:

Table 2: AR workflow

AR workflow
In AR project, firstly we create a QR code generate Image
↓
Creating a database QR code in Vuforia
↓
Then download the database
↓
In unity make build setting in Android
↓
Then make the XR setting for vuforia AR support
↓
In game object Vuforia to take a AR camera
↓
Game object to Vuforia then image target
↓
Image target to database
↓
In database make the video to image target.

3.6 360 workflow:

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Build settings to android.

Every model import.

Take a new scene.

Decorate the model scene.

Script for 360 view with model.

3.7 VR workflow:

Build settings to android.

XR settings to google cardboard to make VR support.

Import the whole model, select each model to "Inspector" to collider support.

Window to "AI" then navigation.

Navigation to select all mesh.

Navigation agent bake.

VR camera.

To make grass used mesh to "terrain plugin".

Select terrain for making grass, tress etc

Build setting- make the platform for Android. From player settings make company name, product name and logo.

Other setting- API minimum kitkat(4.4), Pakage anme change XR settings change.

VR to VR(Cardboard)

AR to AR(Vuforia)

Build "API" for android application.

In VR we use "First Person Controller". By this FPS control, we can move anywhere and see the permanent campus of Daffodil International University 2024.

CHAPTER 4

Software

4.1 SkecthUp Software:

Figure 18: SketchUp[4].

Sketch Up, is a 3D demonstrating PC program for an extensive variety of illustration applications, for example, compositional, inside plan, scene design, common and mechanical building, and film and computer game structure. It is accessible as an electronic application,

Sketch Up is claimed by Trimble Inc., a mapping, looking over and route Gear Company. There is an online library of free model congregations 3D Warehouse, to which clients may contribute models [4].

History:

Sketch Up was created by new business Last Software of Boulder, Colorado, helped to establish in 1999 by Brad Schell and Joe Each.

Sketch Up appeared in August 2000 as a broadly useful 3D content creation instrument and was imagined as a product program that would be amusing to utilize and simple to learn and that would be utilized by planners to play with their structures in a way that isn't conceivable with conventional plan programming. Community Choice Award at its first tradeshow in 2000 won the program.

Google:

Google increased Last Software on March 14, 2006, for an undisclosed total, pulled in by Last Software's work developing a module for Google Earth. On January 9, 2007, Google reported Google Sketch Up 6, a free downloadable. A tool compartment empowers a watcher to "stroll around" and see things from various perspectives and backings marks for models, a checkout apparatus and an "any polygon" shape instrument. Spread Out incorporates 2D vector devices and page format instruments enabling introductions to be created without the requirement for a different introduction program. On November 17, 2008, SketchUp 7 was released with changes proposed to make it less requesting to use, joining of Sketch Up's Component Browser with 3D Warehouse,

Sketch Up comes in multiple editions, all are restrictive programming.
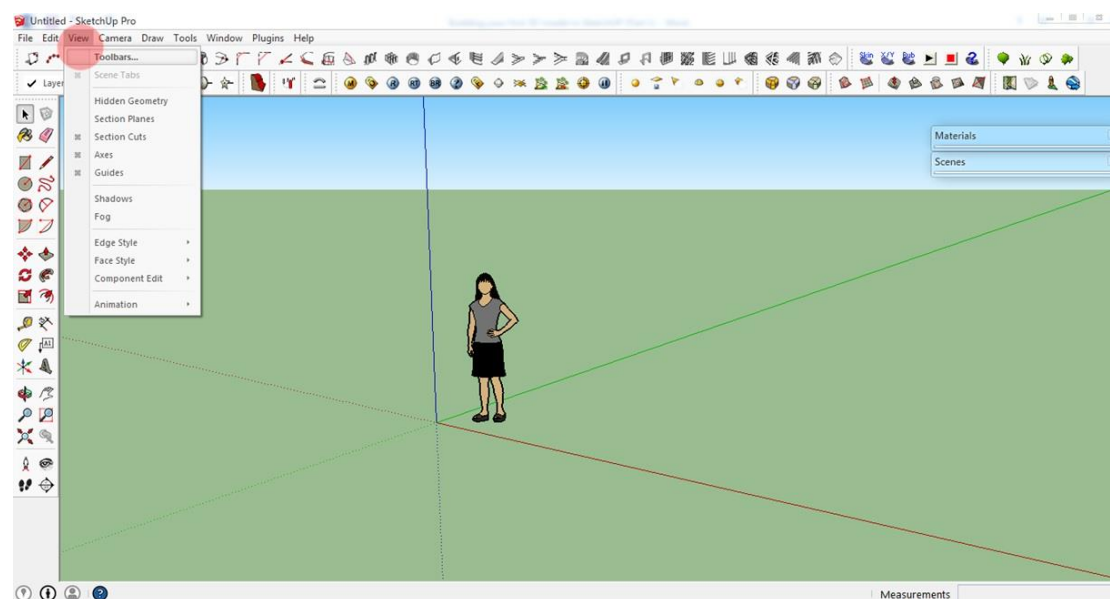
Figure 19: This is the sketchUp interface[5].

Sketch Up Make, introduced in May 2013, is a free-of-charge version for home, personal and educational use. It begins with a 30-day trial of Sketch Up Pro. After that time, clients can consent to the Terms of Service and keep on utilizing Sketch Up Make for nothing. There will be no further releases of Make after November 2017; users are expected to migrate to Sketch Up Free, though the installer remains available for download.

Software Extensions:

Sketch Up 4 and later help programming expansions written in the Ruby programming dialect, which include particular usefulness. Numerous such expansions are accessible to others on the Trimble Extension Warehouse. Sketch Up has a Ruby reassure, a situation which permits experimentation with Ruby. Sketch Up Free, the web-based version does not support extensions which severely limits the functionality of the tool.

3D Warehouse:

3D Warehouse is an open library in which Sketch Up clients may transfer and download 3D models to share. The models can be downloaded straightforwardly into the program without anything being saved onto your PC's storing. Anyone can make, change and re-exchange substance to and from the 3D circulation place in vain out of pocket. Every one of the models in 3D Warehouse is free, so anybody can download records for use in Sketch Up or even another programming, for example, AutoCAD, Revit and. Trimble is at present putting resources into making 3D engineer accomplices with the end goal to have all the more professionally demonstrated items accessible in 3D Warehouse. As indicated by the Trimble, 3D Warehouse is the most well-known 3D content webpage on the web. Outline Up fashioners may visit 3D Warehouse to find new items or for motivation when structuring their own.

4.2 Autocad Software

Figure 20: Autodesk Autocad[6]

AutoCAD is a PC supported plan program utilized for 2-D and 3-D structure and drafting. AutoCAD is developed and marketed by Autodesk Inc. and was one of the first AutoCAD programs that could be executed on personal computers.
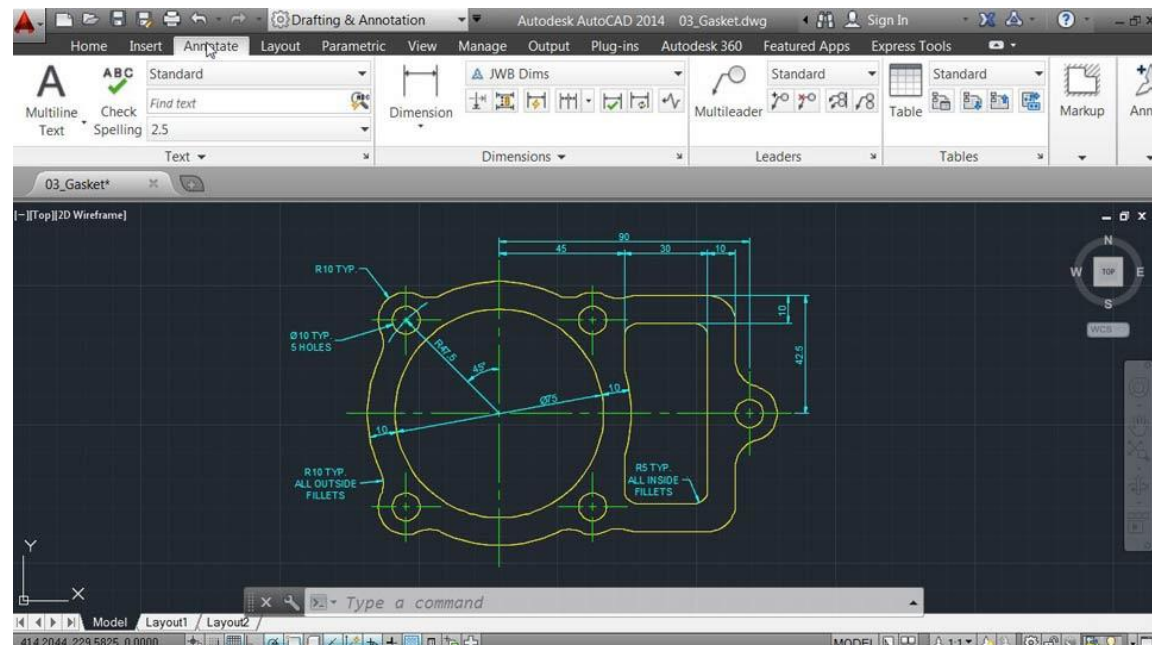
Figure 21: This is the Autocad enterface

PC helped plan programming gives you a chance to structure 2-D and 3-D illustrations and models, supplanting customary pencil-and-paper drafting to make diagrams with effectively adjusted electronic records. In the "AutoCAD 2009 and AutoCAD LT 2009 Bible," Ellen Finkelstein composes that the product's discharge in 1982 denoted the first run through a CAD program was intended for use on PCs rather than centralized servers.[6]

History:

AutoCAD was gotten from a program that started in 1977, and after that discharged in 1979[4] called Interact CAD, additionally alluded to in early Autodesk records as a Micro CAD, which was composed preceding Autodesk's arrangement via Autodesk fellow benefactor Michael Riddle. Autodesk is the maker of AutoCAD and in addition AutoCAD LT programming, a less expensive form with fewer capacities

discharged in 1993. At first accessible for Windows-based PCs just, AutoCAD wound up perfect with Apple items when AutoCAD for Mac hit store retires in 2010.

AutoCAD Uses:

Geographic data frameworks utilize AutoCAD programming to archive the forms of the land and situation of milestones. Transferring AutoCAD 3-D documents into Autodesk Simulation programming enables specialists to make mechanical reenactments of plans for pressure examination and testing for obstruction between parts. AutoCAD illustrations likewise can progress toward becoming movements that give virtual voyages through an arranged building or deliver showings of how an item shows up when gathered. You can even fare AutoCAD documents to 3-D printing administrations that utilization printers containing tar to make plastic parts or models of bigger plans.[7]

Version history:

The local record arrangement of AutoCAD is .dwg. This and, to a lesser degree, its trade record design DXF, have progressed toward becoming true, if restrictive, norms for CAD information interoperability, especially for 2D drawing exchange.[citation needed] AutoCAD has included help for .dwf, an organization created and advanced via Autodesk, for distributing CAD information. Autodesk's logo and, individually, AutoCAD symbols have changed for a few forms as the years progressed.

Student versions:

AutoCAD is authorized, for nothing, to understudies, teachers, and instructive foundations, with a three-year sustainable permit accessible. The understudy variant of AutoCAD is practically indistinguishable to the full business adaptation, with one special case: DWG records made or altered by an understudy rendition have an interior piece signal set At the point when such a DWG document is printed by any form of AutoCAD more established than AutoCAD 2014 SP1, the yield incorporates a plot stamp/standard on every one of the four sides. Items made in the Student Version can't be utilized for business utilize. Understudy Version objects "taint" a

business adaptation DWG document on the off chance that they are foreign made in renditions more seasoned than AutoCAD 2015.

4.3 Lumion Software

Figure 22: Lumion[9]

Lumion is the world's quickest 3D rendering programming for modelers. In seconds, you can visualize CAD models in a video or image with real-life environments and striking artistic flair.Lumion is visualization software for architects. It fits perfectly into your existing workflow and allows you to quickly turn your 3D AutoCAD designs into videos. You can revive your plan by including condition, materials, lighting, articles, foliage and convincing impacts.

Import your model from Revit, 3ds Max, SketchUp, AutoCAD, Rhino or ArchiCAD, among numerous other displaying projects, and Lumion in a split second revives your plans with practical scenes and urban setting, slick impacts, and a large number of articles and materials from the substance library.No preparing required, and after only 15 minutes, you can figure out how to make stunning pictures, recordings and 360 displays with extremely quick speeds. Lumion is that quick to work with, and that simple to begin.[8]

Lighting Fast 3D software:

Revive your building plans with Lumion. Include trees, mists, imaginative impacts, individuals and materials. Convert your CAD 3D show into an astonishing 3D picture or 3D flythrough film, so you can share, offer and move. Usability joined with ultra-

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quick rendering and superb quality is the thing that makes Lumion the perfect answer for your rendering ventures.

5 reasons why people use Lumion 3D software.

We can do it by our self:

You can revive your plan by including condition, materials, lighting, articles, foliage and convincing impacts. visualizations any longer. This saves you time and money. All you need is a 3D model and Lumion will deal with the rest. With Lumion you get long periods of experience of PC designs specialists introduced in a way that is anything but difficult to get to. Lumion is good with all 3D plan programming programs, for example, Revit, SketchUp, and ArchiCAD.

Very fast results:

With Lumion you can alter your work progressively. Everything is intended to spare you time. This implies you can set up a perception in only a couple of minutes and make quick modifications as you go. Final products are rendered utilizing GPU rendering innovation. This guarantees your motion pictures render in a small amount of the time required by different arrangements. With the 3D rendering velocity of Lumion, you needn't bother with a render cultivate.

Big object and foliage library:

Rendering is only something important to make powerful representations. To make magnificent visuals you additionally require delightful skies, water, grass, materials, plants, individuals, trees and numerous different articles. Lumion incorporates an immense substance library with apparatuses, materials and imaginative impacts. Everything is superbly coordinated so you can instantly include trees, individuals and other substance to inhale life, lighting, and environment into your representations

Do new things with visualization:

Generally, perception accompanies numerous limitations. Rendering takes quite a while and programming is quite often unpredictable. Lumion totally flips around this by giving devices anyone can utilize. No preparation in designs is required. Altering

and rendering are relatively quick and this opens ways to new routes for your business to utilize the potential outcomes that perception offers. For instance, you can modify a video continuously on the spot or you can add portray impacts to your perception momentarily with a tick of your mouse, which quickly outfits your work with a reasonable and creative feel.

Create big visualizations:

A lot of programming battles with expansive models or extensive territories. The one of a kind innovation of Lumion makes it extremely reasonable for things like scene representation. Easily, you can alter vast regions and include truly countless trees, plants or structures. We get a great deal of criticism from our clients that Lumion as of now is the main programming on the planet which enables you to easily alter and render such huge zones. We've even had precedents of an entire town imagined in Lumion.

BEAUTIFUL RENDERS:

Lumion renderings are spearheading structural work processes while elevating visual quality. Regardless of whether for pictures, activities and 360 displays, Lumion revives 3D models with a scenery of reasonable scenes and setting.

Figure 23: This is the Lumion rendering scenery

4.4 UNITY SOFTWARE

Figure 24: This area is your vital component to the beginning with UnityUnity (game engine) [10]

Unity (game engine) As of 2018, the engine has been extended to support 27 platforms. The motor can be utilized to make both three-dimensional and two-dimensional amusements and additionally reenactments for its numerous stages.

Unity is a cross-stage diversion motor created by Unity Technologies, previously reported and discharged in June 2005 at Apple Inc's. Worldwide Developers Conference as an OS X-elite amusement motor. Starting in 2018, the motor has been reached out to help 27 platforms. The motor can be utilized to make both three-dimensional and two-dimensional amusements and also reenactments for its numerous stages. A few noteworthy adaptations of Unity have been discharged since its dispatch, with the most recent stable variant being Unity 2018.2.16, discharged on November 15, 2018.[11]

Overview:

Unity enables clients to make amusements in both 2D and 3D, and the motor offers an essential scripting API in C#, for both the Unity proofreader as modules, and recreations themselves, and also simplified usefulness. Before C# being the essential programming dialect utilized for the motor, it recently upheld Boo, which was expelled in the Unity 5[7] discharge, and a variant of JavaScript called UnityScript, which was deployed in August 2017 after the arrival of Unity 2017.1

The motor has bolster for the accompanying illustrations APIs: Direct3D on Windows and Xbox One; OpenGL on Linux, Mac OS, and Windows; OpenGL ES on Android and iOS; WebG. Also, Unity underpins the low-level APIs Metal on iOS and macOS and Vulkan on Android, Linux, and Windows, and also Direct3D 12 on Windows and Xbox One.

Inside 2D amusements, Unity permits the importation of sprites and a progressed 2D world renderer. For 3D diversions, Unity permits detail of surface pressure, mipmaps, and goals settings for every stage that the amusement motor supports, and offers help for knock mapping, reflection mapping, parallax mapping, screen space including hindrance (SSAO), dynamic shadows using shadow maps, render-to-surface, and full-screen post-planning impacts.

Since around 2016 Unity likewise offers cloud-based administrations to designers, these are by and by Unity Ads, Unity Analytics, Unity Certification, Unity Cloud Build, Unity Every play, Unity IAP, Unity Multiplayer, Unity Performance Reporting, Unity Hub and Unity Collaborate.

VR overview:

Solidarity VR gives you a chance to target computer-generated reality gadgets straightforwardly from Unity, with no outer modules in undertakings. It gives a base API and list of capabilities with similarity for different gadgets. It has been intended to give forward similarity to future gadgets and programming.

Solidarity XR API has been invigorated to reflect the broader umbrella term "XR" yet a critical piece of the documentation right currently still uses the articulation "VR".

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The XR API surface is irrelevant by design, anyway will reach out as XR continues creating.

By utilizing the local VR bolster in Unity, you gain:

• Stable variants of each VR gadget

• A single API interface to communicate with various VR gadgets

• A clean venture organizer with no outer module

for every gadget

• The capacity to incorporate and switch between various gadgets in your applications

• Increased execution (Lower-level Unity motor improvements are workable for local gadgets).[12]

Empowering Unity VR Support:

To empower local VR to bolster for your diversion assembles and the Editor, open the Player Settings

(Menu: Edit > Project Settings > Player)

Select XR Settings and check the Virtual Reality Supported checkbox. Set this for each frame target. Enabling PC created reality to reinforce in an autonomous frame does not moreover engage the assistance for Android (and the different way).

Utilize the Virtual Reality SDKs list showed underneath the checkbox to include and expel VR gadgets for each forming target. The request of the rundown is the request that Unity attempts to empower VR gadgets at runtime. The main gadget that instates legitimately is the one empowered. This rundown arrange is the equivalent in the constructed player.
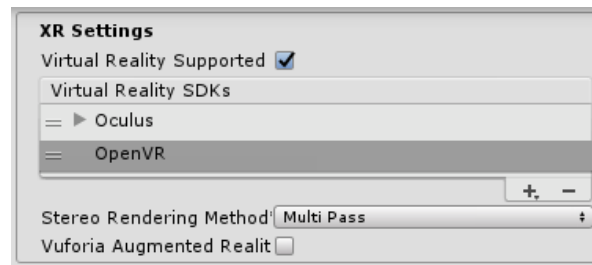
Figure 25: XR settings

Built applications: Choosing a startup device:

we created application in states and engages contraptions in indistinct demand from the Virtual Reality SDKs list in XR Settings (see Enabling VR Support, above). Contraptions not present in the once-over at develop time are not open in the last shape. Contraption None is proportionate to a non-VR application (that is, a common Unity application) and can be changed to in the midst of runtime without fusing it in the summary; the uncommon case to this is None.

Counting None as a gadget in the rundown enables you to default to a non-VR application before endeavoring a VR gadget's introduction. On the off chance that you put None at the highest priority on the rundown, the application begins with VR debilitated. At that point, you would then be able to empower and incapacitate VR gadgets that are available in your rundown through content utilizing XR.XR Settings. Load Device By Name. In the event that introduction of the gadget you endeavor to change to falls flat, Unity handicaps VR with that gadget still set as the dynamic VR gadget. When you switch gadgets or empower XR, the constructed application endeavors to instate once more.

The order line contention used to dispatch a particular gadget is - vrmode DEVICETYPE where DEVICETYPE is one of the names from the upheld XR bolstered gadgets list.

What happens when VR is enabled:

VR is empowered in Unity, a couple of things happen consequently:

Automatic rendering to a head-mounted display:

All Cameras in your Scene can render specifically to the head-mounted showcase (HMD). View and Projection grids are naturally changed in accordance with record

32

for head following, positional following and field of view. It is conceivable to handicap rendering to the HMD utilizing the Camera part's stereo Target Eye property. On the other hand, you can set the Camera to render to a Render Texture utilizing the Target Texture property.

Utilize the stereo Target Eye property to set the Camera to just render a particular eye to the HMD. This is helpful for embellishments, for example, an expert marksman scope or stereoscopic recordings. To accomplish this, add two Cameras to the Scene: one focusing on the left eye, the other focusing on the correct eye. Set layer covers to design what is sent to each eye.

Understanding the camera:

The Camera Transform is superseded with the head-followed present. To move or pivot the Camera, join it as an offspring of another Game Object. This influences it with the goal that all To change changes to the parent of the Camera influence the Camera itself. This likewise applies to move or pivoting the camera utilizing a content.
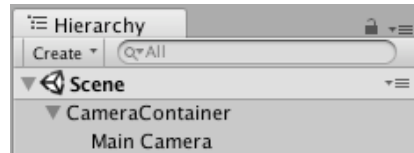
Figure 26: Hierarchy

Equipment and programming proposals for VR advancement in Unity:

Accomplishing an edge rate like your objective HMD is fundamental for a decent VR encounter. This must match the revive rate of the showcase utilized in the HMD. On the off chance that the casing rate dips under the HMD's invigorate rate, it is especially perceptible and frequently prompts queasiness for the player.

Programming:

Windows: Windows 7, 8, 8.1, and Windows 10 are largely good.

Android: Android OS Lollipop 5.1 or higher.

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Graphics card drivers: Make beyond any doubt your drivers are up and coming. Each gadget is staying aware of the most up to date drivers, so more established drivers may not be upheld.

Device runtime requirements:

Each VR gadget necessitates that you have suitable runtime introduced on your machine. For instance, to create and run Oculus inside Unity, you need the Oculus runtime (otherwise called Oculus Home) introduced on your machine. For Vive, you need Steam and SteamVR introduced. Contingent upon what variant of Unity you are utilizing, the runtime adaptations for every particular gadget that is bolstered by Unity may vary. You can discover runtime forms in the discharge notes of each major and minor Unity discharge. With some form refreshes, past runtime renditions are never again bolstered. This implies local Unity VR bolster does not work with prior runtime variants, but rather keeps on working with new runtime renditions.

Solidarity local VR bolster does not peruse modules from inside your task's envelope, so including prior variants of the module with local help will come up short on the off chance that you have VR bolster empowered. On the off chance that you wish to utilize a prior rendition with an arrival of Unity that never again underpins that form, incapacitate Native VR Support (go to XR Settings and uncheck Virtual Reality Supported). You would then be able to get to the module like some other outsider module. See the area above on Enabling Unity VR Support for more subtle elements.

Vuforia:

Vuforia is a cross-stage Augmented Reality (AR) and Mixed Reality application advancement stage, with hearty following and execution on an assortment of equipment. Solidarity's joining of Vuforia enables you to make vision applications and diversions for Android and iOS utilizing an intuitive creating work process. A Vuforia AR+VR tests bundle is accessible on the Unity Asset Store., with a few helpful models exhibiting the most imperative highlights of the stage. [13]

Marker-based tracking:

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In AR or MR, markers are pictures or protests enrolled with the application which go about as data triggers in your application. At the point when your gadget's camera perceives these markers, in reality, this triggers the showcase of virtual substance over the world position of the marker in the camera sees. The marker-based following can utilize a wide range of marker types, including QR codes, physical intelligent markers, Image Targets, and 2D labels. The least difficult and most basic sort of marker in diversion applications is an Image Target.
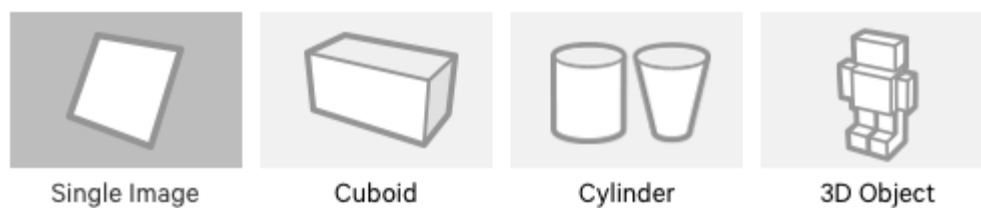

Figure 27: Markerbased tracking

Image Targets:

Image Targets are a particular kind of marker utilized in the Marker-based following. They are pictures you physically enroll with the application and go about as triggers that show virtual substance. For Image Targets, utilize pictures containing particular shapes with complex blueprints. This makes it simpler for picture acknowledgment and following calculations to remember them.

Markerless following:

Applications utilizing Marker less following are all the more general area based or position-based Augmented or Mixed Reality. This type of following depends on advancements, for example, GPS, accelerometer, spinner and more unpredictable picture handling calculations, to put virtual items or data in the earth. The VR equipment and programming at that point regards these articles as though they are tied down or associated with particular true areas or items.

4.5 Autodesk 3DS MAX Software

Figure 28: Autodesk 3DS Max[14]

Autodesk 3ds Max:

Autodesk 3ds Max, in the past 3D Studio and 3D Studio Max, is an expert 3D PC designs program for making 3D activity's, models, recreations and pictures. It is made and conveyed by means of Autodesk Media and Entertainment. It has displaying abilities and adaptable module engineering and can be utilized on the Microsoft Windows stage. It is every now and again utilized by computer game engineers, numerous TV ad studios and design representation studios. It is additionally utilized for motion picture impacts and film pre-representation. For its displaying and liveliness devices, the most recent version of 3ds Max additionally includes shaders, unique recreation, molecule frameworks, radiosity is a utilization of the limited component strategy to unraveling the rendering condition for scenes with surfaces that reflect light diffusely). Typical guide creation and rendering, worldwide brightening, an adaptable UI, new symbolls, and its own scripting dialect. [15]

Version:

3Ds Max has lots of versions. But we are knowing this kind of version:

Table 3: Auto desk 3DS Max Version

Version	Codename	Year	Operating system	Hardware platform
Autodesk 3ds	Tekken	2013	Windows 7	x64

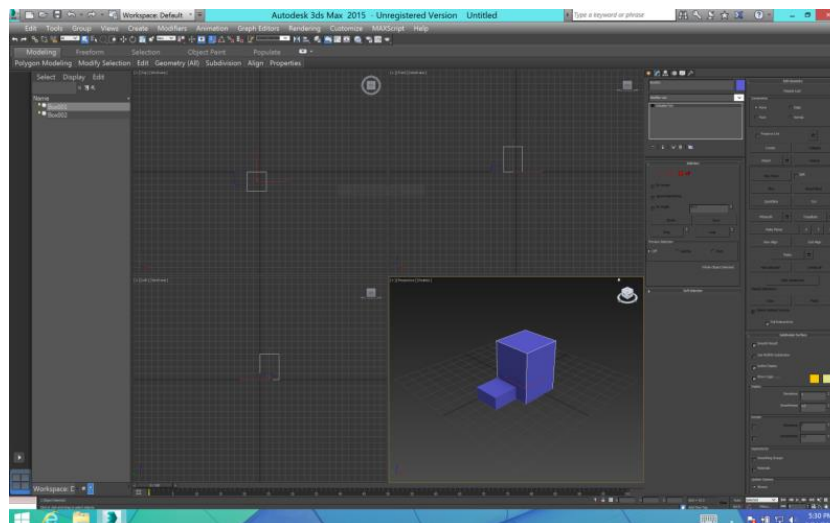| Max 2014				
Autodesk 3ds Max 2015	Elwood	2014	Windows 7 and Windows 8	
Autodesk 3ds Max 2016	Phoenix	2015	Windows 7, Windows 8 and Windows 8.1	
Autodesk 3ds Max 2017	Kirin	2016		
Autodesk 3ds Max 2018	Imoogi	2017	Windows 7, Windows 8, Windows 8.1 and Windows 10	
Autodesk 3ds Max 2019	Neptune	2018		

Figure 29: The is the Autodesk 3ds MAX interface

Modeling techniques:

Polygon modeling

NURBS (Non-Uniform Rational B-Splines)

Surface tool/editable patch object

Polygon demonstrating is more typical with diversion plan than some other displaying strategy as the simple particular command over individual polygons takes into account outrageous advancement.

An option in contrast to polygons, it gives a smoothed out surface that dispenses with the straight edges of a polygon display. NURBS is a scientifically correct portrayal of freestyle surfaces like those utilized for vehicle bodies and ship structures, which can be actually replicated at any goals at whatever point required. With NURBS, a smooth circle can be made with just a single face.

The surface instrument was initially an outsider module; however, Kinetix gained and incorporated this component since variant 3.0. The surface apparatus is for making normal 3ds Max splines and after that applying a modifier called "surface." This modifier makes a surface from every three or four vertices in a network.

Project Workflow:

Each venture is unique, however, there are by and large advances that apply to almost every model you make with 3ds Max. Once you've introduced 3ds Max, begin the program by double-tapping its work area alternate way.

Note: You can likewise begin 3ds Max from the Start menu or utilize some other standard Windows strategy. On the off chance that you begin 3ds Max from a Command Prompt window or a group record, you can include order line switches. 3ds Max is a "lone report application," which implies you can tackle only a solitary scene at some random minute. You can run numerous occurrences of 3ds Max and open an alternate scene in each example, however doing as such requires a considerable measure of memory.

Topics in this section:

Planning Ahead

Modeling

Lights and Cameras

Animating Characters

General Animation

Rendering for Final Results

How far you prepare is dependent upon you. Be that as it may, it can realize how 3ds Max shows models. To make a model, you can begin with an assortment of 3D geometric natives. Materials control the presence of the surfaces of articles. You make lights with different properties to enlighten your scene. Characters make enthusiasm, connecting with one another or with articles in the scene. You can vitalize protests and in addition characters. Rendering adds shading and shading to your scene.

4.6 Adobe After Effect

Figure 30: Adobe After Effects[16]

Adobe After Effects is a computerized visual impact, movement illustrations, and compositing application created by Adobe Systems and utilized in the after generation procedure of filmmaking and TV creation. Notwithstanding different things, After Effects can be used for keying, following, compositing and movement.

For titles, shapes, 2D animations, adding special effects.

Create motion in the text, images, and any other layer in Adobe Premiere Pro it is a lot easier to do in After Effects.
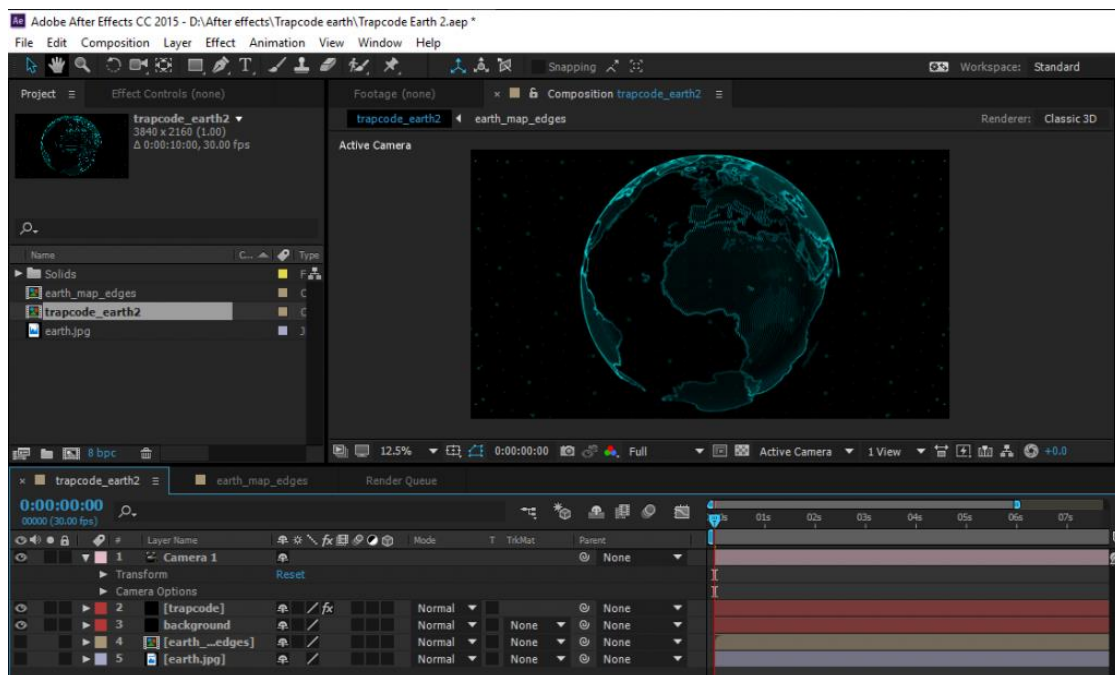
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Figure 31: The is the After Effect enterface

Plug-ins:

After Effect has broad module bolster; an expansive scope of outsider modules are accessible. An assortment of module styles exists, for example, molecule frameworks for reasonable impacts for rain, snow, fire, and so on. With or without outsider modules, After Effects can render 3D impacts. A portion of these 3D modules utilizes essential 2D layers from After Effects.

Notwithstanding 3D impacts, there are modules for making video look like film or kid's shows; recreating discharge, smoke, or water; molecule frameworks; moderate movement; making energized outlines, charts, and other information perception; computing the 3D development of a camera in a 2D video shot; dispensing with gleam, clamor, or gear lines; deciphering timetables from FCP or Avid; including top of the line shading adjustment; and other work process upgrades and visual impacts.

Adobe after effect used for:

Adobe After Effects is an advanced visual impact, movement designs, and compositing application created by Adobe Systems and utilized in the after generation

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procedure of filmmaking and TV creation. In addition to other things, After Effects can be used for keying, following, compositing and liveliness.

Use both Premiere Pro AND After Effects:

It might be self-evident; however numerous video ventures require the utilization of both Adobe Premiere Pro and Adobe After Effects. Truth be told, I utilize both in 90% of my activities these days. I'll alter video in Premiere Pro and after that include titles utilizing After Effects. I'll alter the sound in Premiere Pro and afterward use After Effects to make a movement realistic of something in the video.

Utilizing Adobe Dynamic Link, I can utilize the two projects in the meantime. They converse with one another – so cuts inside Premiere Pro can be effortlessly altered in After Effects without trading and re-exporting. As of late, Adobe Premiere Pro included the Essential Graphics Panel, which is another approach to make titles. This makes it less demanding than at any other time to make After Effects quality illustrations appropriate inside Premiere Pro. All things considered After Effects is the best alternative for entangled movement illustrations and visual impacts.

Difference between Adobe Premiere Pro and Adobe after Effects:

Edit your recordings in Premiere Pro or After Effects?

Use After Effects to edit my videos?

These are basic inquiries I get from new video makers. Debut Pro and After Effects resemble Word and Excel – made by a similar organization, however for various purposes. Also, you can utilize them together. Here is the contrast between Adobe Premiere Pro and After Effects – and what program you ought to utilize. [16]

4.7 Adobe Premiere Pro:

Figure 32: Adobe Premiere Pro[17]

Adobe Premiere Pro:

Adobe Premiere Pro is a timeline-based video editing app developed by Adobe Systems and published as part of the Adobe Creative Cloud licensing program.

Adobe Premiere Pro CC 2015:

Premiere Pro CC 2015 is the latest refresh to Adobe's leader non-straight video altering bundle. Since the product is only accessible by means of the Creative Cloud benefit, refreshes are more incremental and there is less excitement when a noteworthy new discharge arrives.
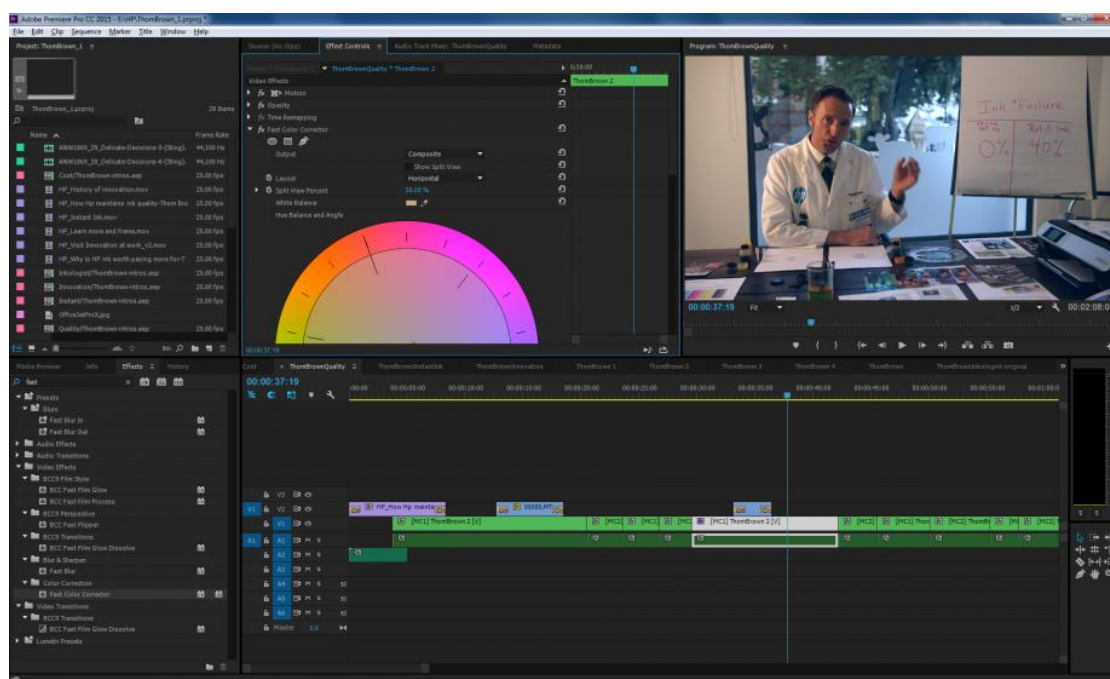

Figure 33: The is the Premiere interface

Premiere Pro is a video altering program. Its key usefulness is to alter video cuts together. Regardless of whether this is a meeting with ball, a story film, a music video, or some other sort of video – Premiere Pro is the program for this.

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Premiere Pro has bunches of different functionalities like including content and changes, altering sound and including impacts.

Premiere Pro's course of events is superior to After Effects for altering video and sound together. Trimming cuts and moving them around your course of events is much less demanding to use than After Effects timetable. [17]

History Premiere Pro:

First launched in 2003, Adobe Premiere Pro is a successor of Adobe Premiere pro first launched in 1991. It is outfitted towards expert video altering, while its kin. Debut Pro is the updated successor to Adobe Premiere and was propelled in 2003. Debut Pro alludes to renditions discharged in 2003 and later, while Premiere alludes to the prior discharges. The debut was one of the principal PC based NLEs with its first discharge on Mac in 1991. Adobe quickly relinquished the Mac stage after form 6 of Premiere. Adobe Premiere Pro CC 2015 – Workspaces and Collaboration:

Albeit Premiere Pro has had customizable workspaces for some time, with 2015 there is currently an entire choice of these, the Color choice being only one. There are likewise Assembly, Editing, Effects, Audio, and Met logging designs. All can be reconfigured and spared, and you can make your own also. The Welcome screen you see when you first load the product has had a makeover, as well, in spite of the fact that you most likely won't invest a great deal of energy taking a gander at that.

Synergistic working and the cloud are progressively in vogue, and Adobe has been creating instruments to use this for a couple of years now. More connections with these offices are presently incorporated with Premiere Pro CC. You don't get the full scope of what can be put away in the Creative Cloud Libraries inside Premiere Pro CC, in any case. Video resources are excluded, just Lumetri Looks, illustrations, character styles and hues. You can make libraries of advantages, synchronize them by means of Creative Cloud, and offer them with partners so they seem ok inside their very own duplicate of Premiere Pro and can be utilized on their activities.
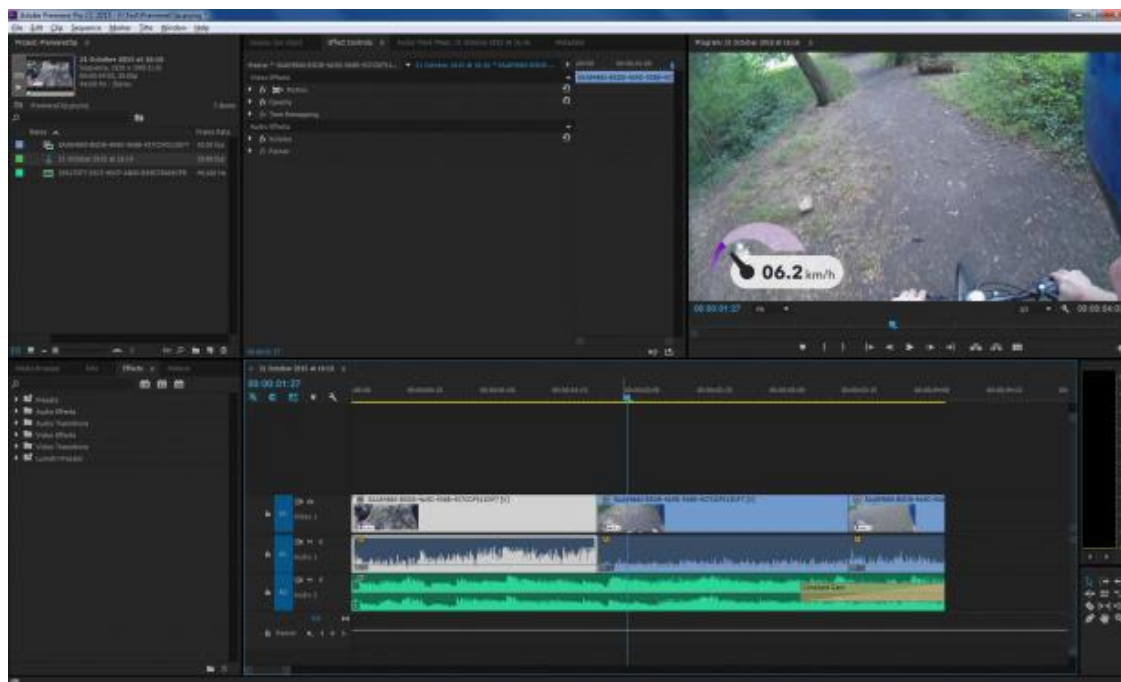
Figure 34: The is the premiere pro rendering scene

4.8 Adobe Illustrator Software:

Figure 35: Adobe Illustrator[18]

Adobe Illustrator is a vector designs proofreader created and promoted by Adobe Systems. Initially intended for the Apple Macintosh.
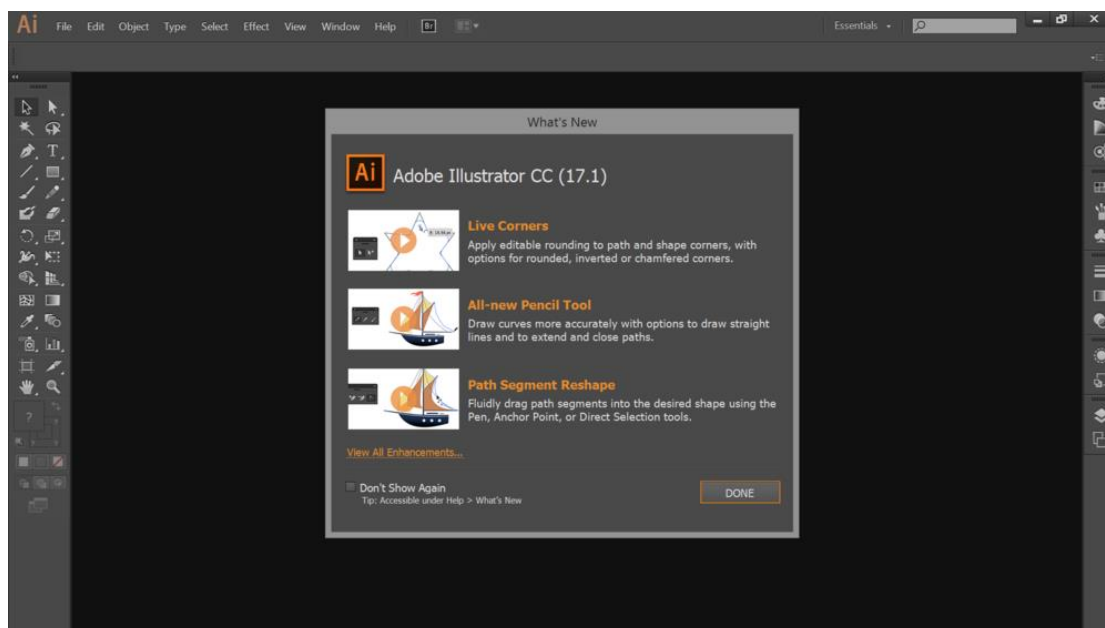
Figure 36: The is the adobe illustrator enterface

Version CC:

Alongside Creative Cloud, Illustrator CC was discharged. This form was the first to be just sold in a membership-based administration demonstrate, in accordance with the other programming in the once called Creative Suite. As a component of Creative Cloud, this rendition acquired upgrades that subject, for example, shading, text style and program settings matching up, sparing records to the cloud, and reconciliation with Balance and different highlights, for example, another touch-perfect sort device, pictures in brushes, CSS extraction, and documents bundling.

The most current test for - Illustrator is additionally one of Rob's most loved applications. Like many Photoshop users, when first learning it- he was frustrated with the tools and the different way of working! However, when a fashioner figures out how mind-boggling Illustrator is that you get to really fabricate interminably scale-capable pictures without any preparation you'll be snared.

Tools:

A sidebar that shows up at the left of the screen with an assortment of instruments to choose, make, and control items or fine arts in Illustrator. These apparatuses can be chosen as following: drawing, composing, painting, reshaping, cutting and cutting,

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imagery, moving and zooming, and graph. Some instruments have a little triangle at the base right of the tool stash symbol. A little triangle has the choice to see or grow some shrouded instruments by hold down the mouse catch on the triangle.

A few models of fundamental apparatuses in artist are determination devices, paintbrush instruments, pen devices, pencil devices e.g. Determination instruments are utilized to the format, change, and sort out the work of art by choosing, situating, and stacking object precisely. In addition, choice apparatuses can gathering, bolt or cover up, and measure objects. Paintbrush devices can be utilized to adjust the presence of the fine art. There are distinctive kinds of brushes: calligraphic, dissipate, workmanship, design, and bristle. Pen devices make straight and bent lines for the fine art and they can add grapple focuses to ways and erase from ways. Pencil devices enable the client to draw and alter freehand lines.

4.9 Adobe Photoshop:

Figure 37: Adobe Photoshop[19]

Photoshop was created in 1987 by the American siblings Thomas and John Knoll, who sold the dispersion permit to Adobe Systems Incorporated in 1988. It can alter and create raster pictures in numerous layers and backings covers, alpha compositing and a few shading models including RGB, CMYK, CIELAB, spot shading, and duotone. Not withstanding raster illustrations, it has restricted capacities to alter or render content, vector designs (particularly through cut-out way), 3D designs and video.
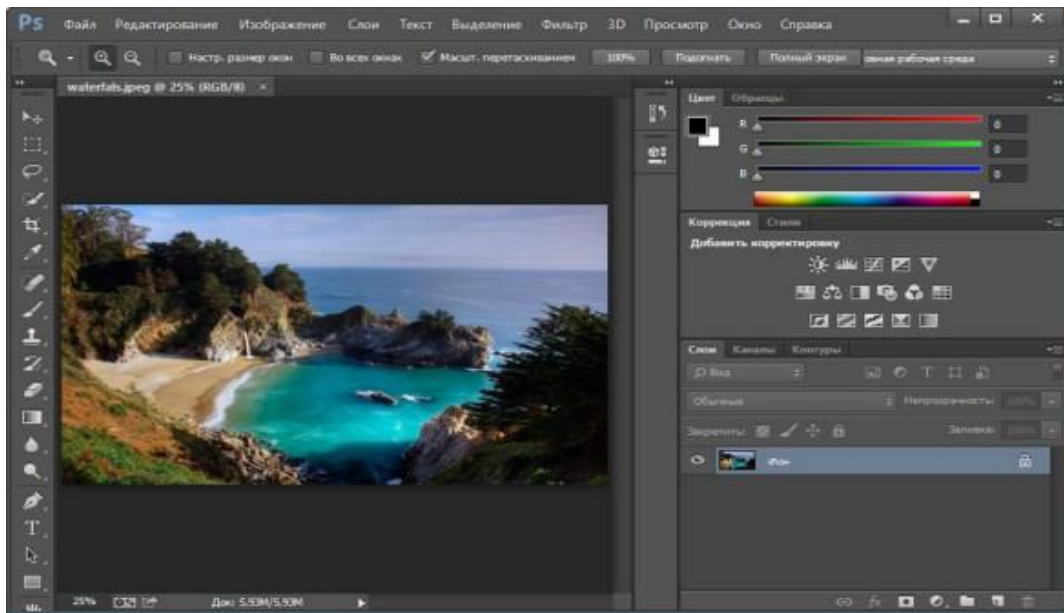
Figure 38: The is the adobe Photoshop interface

We are working Photoshop CC 2015 was developed on June 15, 2015,In this version was lots of function and very user-friendly, some new feature was -

Artboards

Adobe Stock marketplace

Design Space (Preview) offers a designated mode for websites and mobile apps designers

Camera Raw as a filter

Some Layer styles can now be added up to 10 instances

Redesign image export feature

Adobe Camera Raw 9.1

Linked files in CC Libraries

Real-time healing previews.

File Format:

Photoshop records have default document augmentation as.PSD, which remains for "Photoshop Document." A PSD record stores a picture with help for most imaging choices accessible in Photoshop. These incorporate layers with veils, straightforwardness, content, alpha channels and spot hues, cutting ways, and duotone settings. This is rather than numerous other record groups (e.g., .JPG or .GIF) that confine substance to give streamlined, unsurprising usefulness. A PSD document has a most extreme tallness and width of 30,000 pixels, and a length point of confinement of two gigabytes.

As far as possible was obviously picked subjectively by Adobe, not founded on PC math imperatives (it isn't near an intensity of two, as is 30,000) however for simplicity of programming testing. PSD and PSB groups are recorded. Due to Photoshop's fame, PSD documents are broadly utilized and upheld to some degree by most contending programming. The .PSD record configuration can be sent out to and from Adobe's different applications like Adobe Illustrator, Adobe Premiere Pro, and After Effects.

Photoshop tools:

After stacking Photoshop, a sidebar with an assortment of devices with numerous picture altering capacities appears to one side of the screen. These devices normally fall under the classes of illustration; painting; estimating and route; determination; composting; and retouching.

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CHAPTER 5

Model Review

5.1 Introduction

At first, we were working on a layout of a master plan which provided us by our honorable Department Head. The Master Plan was given to Daffodil International University 2040. Based on the master plan we start to make 3D models, our main target was to create 3D Architectural Visualization of Daffodil International University 2040. Which we named Daffodil Educational Smart City.

We have done several models in Sketch Up, 3Ds Max, Autodesk Maya. which have 2 parts.

One part is 2024

Second part is 2040.

In part one- 2024 we can see that (Augmented Reality) AR & (Virtual Reality) VR.

In part two- we are going to visualize the whole model according to a master plan.

In this chapter, we will discuss our modeling...

A model from different reference Like the existence of model now-

Diu Main Gate.

Green Garden.

Guard's Room.

Basketball Court.

Main Playground.

Shohid Minar.

Golf Field.

Swimming Pool.

Academic Main Building.

Academic Building 2

Academic Building 3

Auditorium

Student Hall (Female).

Student Hall(Male)

According to master plan in 2040 we can find an over view architectural visualize of Daffodil Educational Smart City 2040 with 3D Animation and also we can view this project by Augmented Reality (AR) and Virtual Reality (VR).

This model is:

Shopping Mall & Cineplex.

Daffodil School.

Library.

Hospital.

Convention Hall.

Pump.

Teacher Residential Area.

Gym.

Teacher & Student center.

Hotel.

DISS(Trust building)

Railway Station

Metro Train.

Play-Ground 2.

5.2 Model plan

2024 models details:

All the models are done by SkecthUp, 3ds Max 2015 and texturing as usual done in SkecthUp. Discribing below-

Diu Main gate:

Making the model of Daffodil International University(DIU) main gate inspired by the original main gate of DIU. In the main gate in the ground floor have the indoor games and also on the 1st floor have the guest room. All over this a nice decoration for a new era gate of DIU.

Figure 39: This is the original picture of Daffodil International University gate

Green Garden:

Green garden is a garden where the whole place surrounded by green plants. Student and teacher get their best breakfast and lunch in the green garden as usual. The teacher and student get together here and also On the 1st floor there is the arrangement for meetings.

Figure 40: This is the original picture of Daffodil International University gate[19]

Green Garden Restaurant was established by the Daffodil Family since 29th of March - 2018 . It is surely understand for Whole grounds are green perspectives and number 01 positioning of Green Campus in the Bangladesh at Dattapara, Ashulia Model Town, Ashulia, Savar. The Green Garden Restaurant offers a Great tasting and Delicious Varieties sustenance's menu to our Valued customers. The Menu Changes via Seasonal and it is given a superior administrations by Professional Service staff. The Restaurant would be an outstanding amongst other Restaurant. The Restaurant Pride itself on its being fresh, Organic. Hygiene, with the nourishments being set up in a basic way with the end goal to fulfill to our costumers essence. It is one of the IT well disposed Restaurant in the Bangladesh and WiFi are accessible by Surrounding by Green Garden.

Main Playground:

A playground, play park, or play area is a place particularly designed to permit student to play there. Daffodil playground was mainly made for the University's Student. There are Cricket ground, Football ground. There is also a golf ground[20].

Figure 41: This is the original picture of Daffodil International University playground[20]

Shaheed Minar:

Shaheed Minar is a symbol of "Martyr Monument". In memory of those who became martyrs for language movement in 1952, memories are remembered. This pillar has been built with respect to language martyrs. In keeping with the central Shaheed Minar beside the Dhaka Medical College, we have done the modal of the Shaheed Minar of Daffodil International University.

Figure 42: This is the original picture of Daffodil International University Shaheed Minar

Academic Main Building:

The University provides bachelor's, master's and doctoral degrees via its 23 departments, themselves contrive into 5 faculties. Running all department, university have lots of facilitics like: Faculty room, classroom, library room, lab room, common room, indoor game room etc.

Figure 43: This is the original picture of Daffodil International University-Main Campus.

Auditorium:

Great and excellently decorated auditoria with all the facilities of modern audio-visual element have been constructed in Daffodil university. With seating settlement for almost 500 people. Different types of seminars, workshops, symposia, cultural programs, carnival, exhibitions, educational movie shows and so on host are used by this auditoria.

Figure 44: This is the original picture of Daffodil International University-Auditorium

CHAPTER 6

Model Output

Gattering all the 2024 models and 2040 models output, describing below about these models:

Diu Main Gate.

Green Garden.

Library.

Basketball Court.

Main Playground.

Shohid Minar.

Golf Field.

Swimming Pool.

Academic Main Building.

Academic Building 2

Academic Building 3

Auditorium

6.1 Main Playground:

In front of Main academic building we have playing surface football ground. The field dimension made by the master plan main gound dimension. Textured as usual in SketchUp.

©Daffodil International University
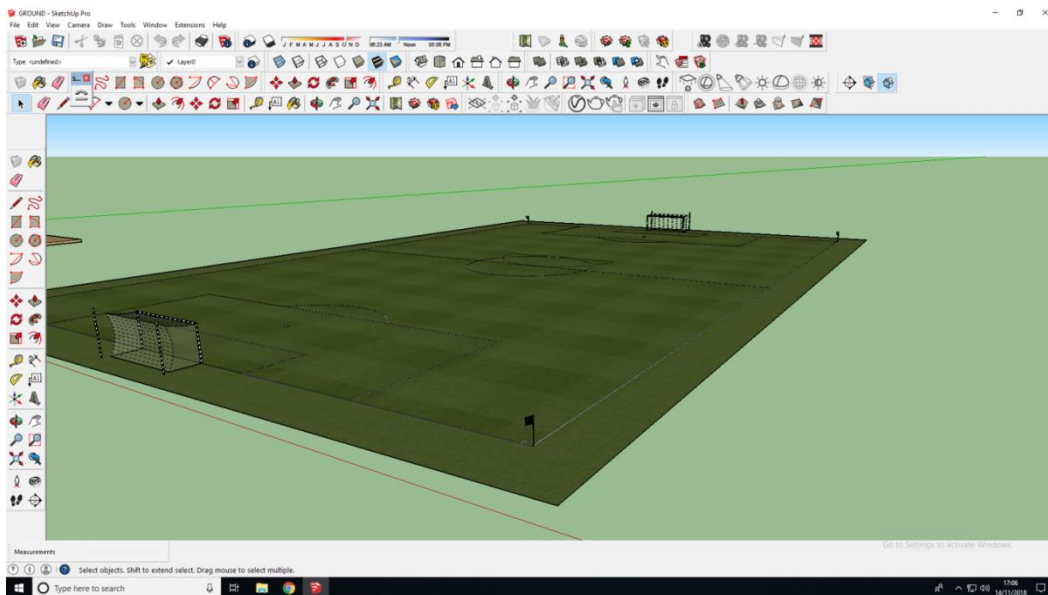
Figure 45: This is the Main Play Ground model with texture

6.2 Golf Field:

In front of Main academic building besides the main play-ground, besides the main ground there is also a playground for golf. This also plan out by our master plan. It is a low poly model, textured by SketchUp and making the goal bar by also making in SkectUp.
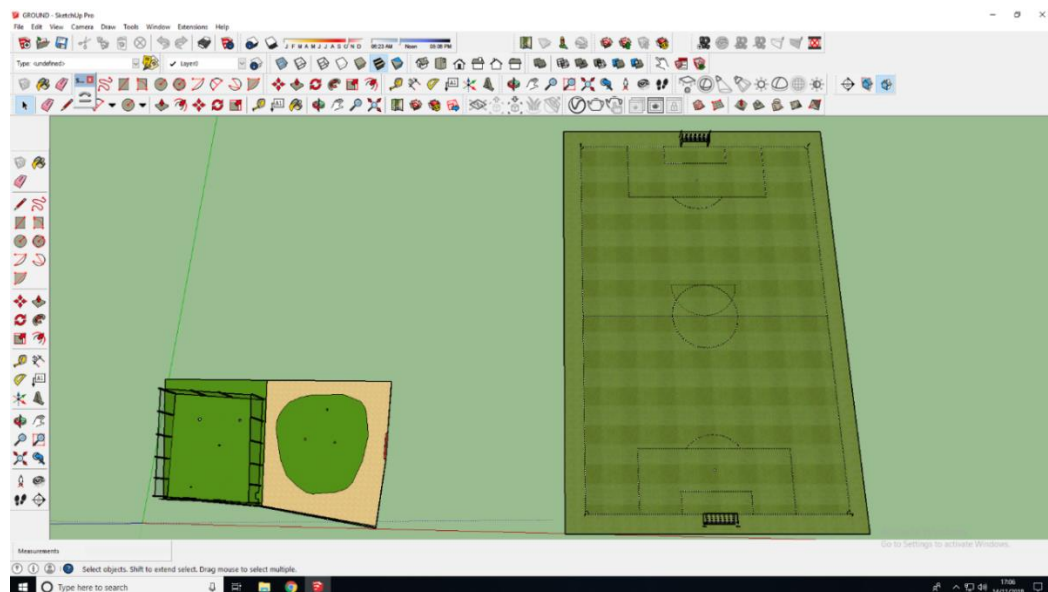
Figure 46: This is the Main Play Ground and golf field model with texture

6.3 Diu Main Gate:

The model of Daffodil International University(DIU) main gate making in SketchUp. In the main gate on the ground floor have the indoor games and also on the 1st floor have the guest room. Each floor height consists of 10 feet. Getting enter the green campus of DIU gate have a nice decoration in this era.
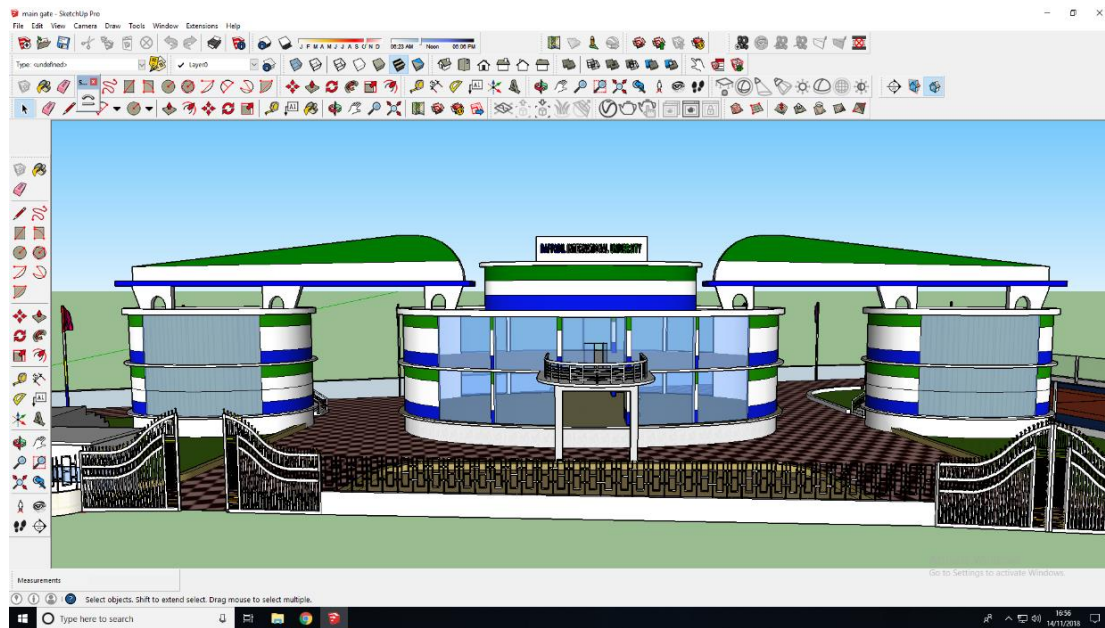
Figure 47: This is sketchUp Main Gate model

6.4 Green Garden:

Green garden is a garden where the whole place surrounded by green plants. Student and teacher get their best breakfast and lunch in the green garden as usual. The teacher and student get together here and also On the 1st floor there is the arrangement for meetings. This green garden wall made by glass and hight above 10 feet long. The eye-catching sight of this green garden is a curved area[19].
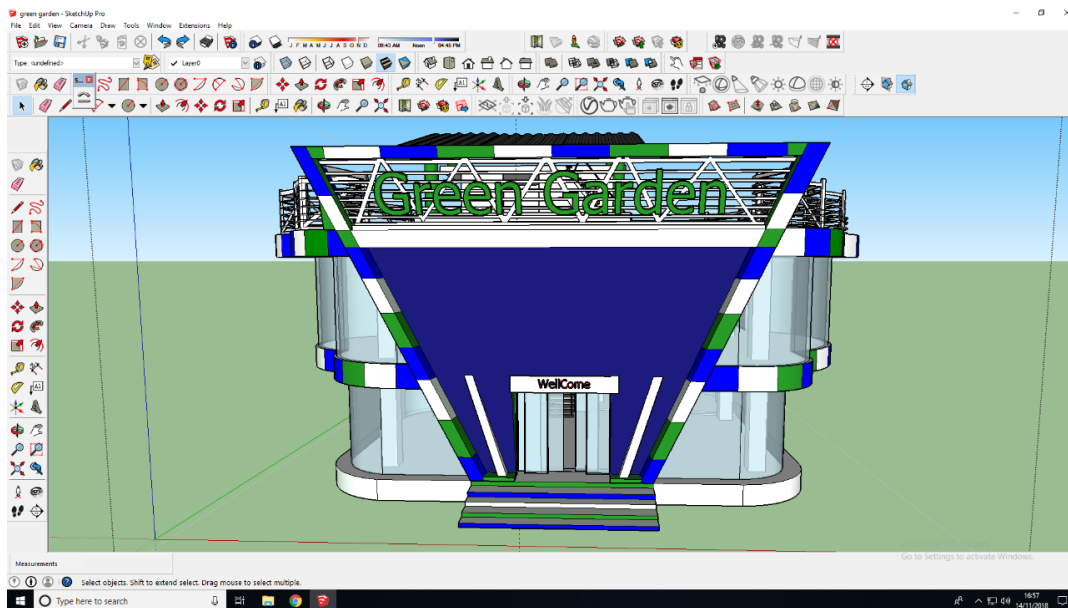
Figure 48: This is the original picture of Daffodil International University-Main Gate

6.5 Library Idea:

Figure 49: This is the reference picture of Library

The working of the library comprises of two volumes - circular and liquid. At ground level the curved state of the building diminishes the building zone, makes a helpful passerby joins and a huge green recreational zone. The third floor of the building "spreads out" evading the trees and framing different shapes reassures up to 15 m. They make profound shadows and a great microclimate for the lower levels. On this

floor we put general accumulation live with a perusing room. Because of an intricate shape the perusing room is seen as the rotation of inside and outside spaces making an agreeable situation for guests. From the highest point of the building access to an open green rooftop porch gives wonderful view towards the green zone. The glass veneer makes a solid association between the outside and the inside.

Scene: Thought permits protecting existing trees on the site framing a greenbelt around the building. This greenbelt will be the passionate foundation for the library and be changed with each period of the year.

Maintainability:

Vitality - Photo voltaic cells are to be situated on the rooftop and will enhance the structures power necessities. A water reusing framework will be used to gather and store precipitation from the rooftop. The rain water will be reused for use in restrooms. The building shape is advanced to utilize normal sunshine understanding. The perusing room has twofold layered mechanical draperies permit controlling the entrance of sunlight based warmth and light. The upgraded state of the building and introduction give successful ecological control: east, west and south exteriors are planned with exceptional glass and shading.
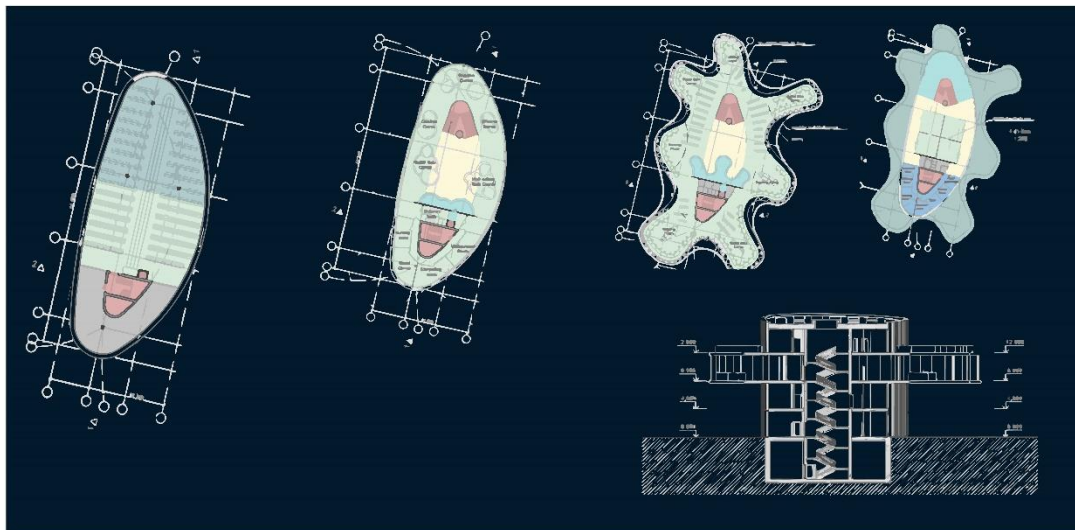
Figure 50: This is the model outline layout of Library

6.6 Shaheed Minar:

Shaheed Minar stands beside the DIU Main Gate. It's a modern architecture. We make this model in SketchUp. In a layout we make this with 5 stairs and In the upper part, we divided this model into 5 pillars. The pillar of the middle one holds a red circle and the upper part maintain corner curved as usual.
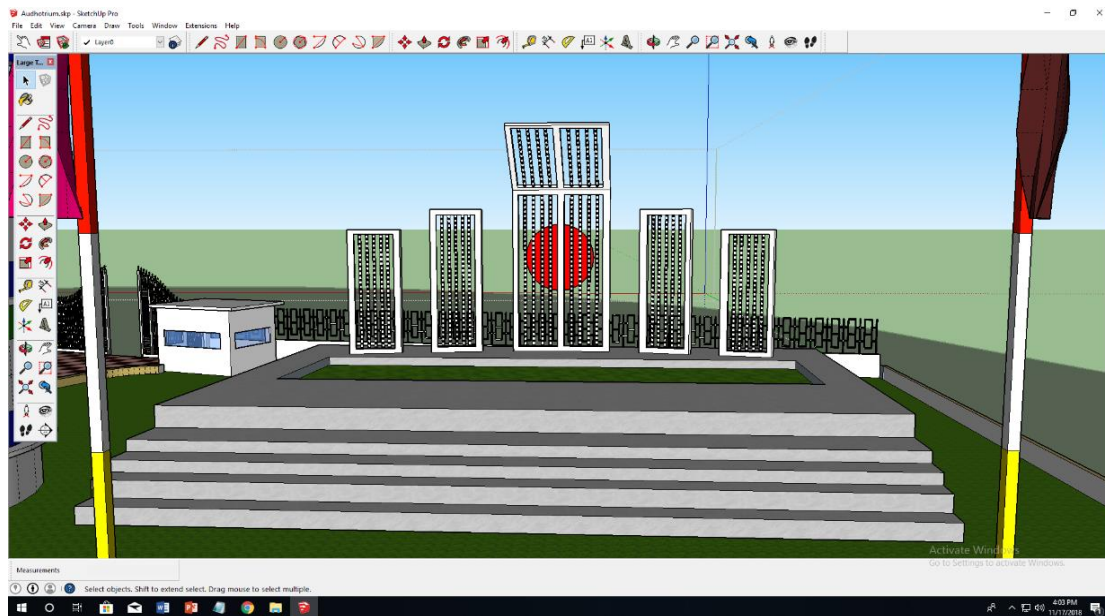

Figure 51: This is the model output of Shaheed Minar

6.7 Academic Main Building.

The academic main building made by SketchUp. It's holding the 6th floor. Including this building have the teacher's room and also a basketball field. Each floor hight dimension measured by 10feet long and it's also big facilities to meet teacher room in a bridge way lane. On the 3rd floor, the skeleton has been removed by 20 feet for design, same for the 4th floor also. We textured it according to our main campus building.
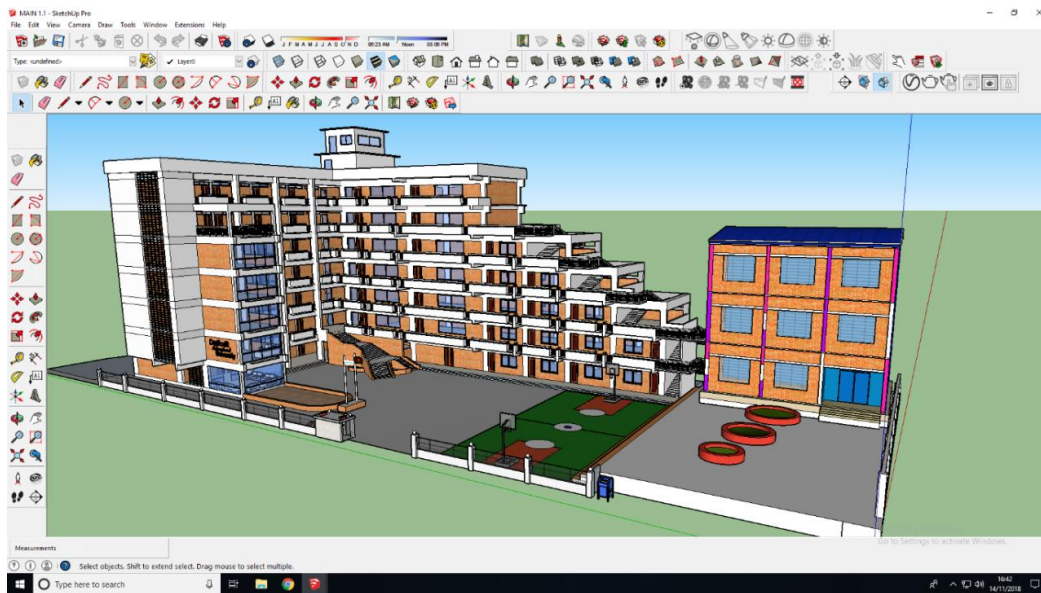
Figure 52: This is the model output of Main Academic Building

6.8 Main Academic Building 2:

The Academic building 2 consists of three volumes - elliptical and other two Rectangle shape. At ground level, the elliptical shape of the building reduces the building area, creates a convenient pedestrian link and a large green recreational area. Elliptical building arranges on the 5th floor and maintaining each floor by 10 feet long. The rectangle builds consists of the 10th floor and other is the 7th floor. Each floor maintaining 10 feet long according to all build.
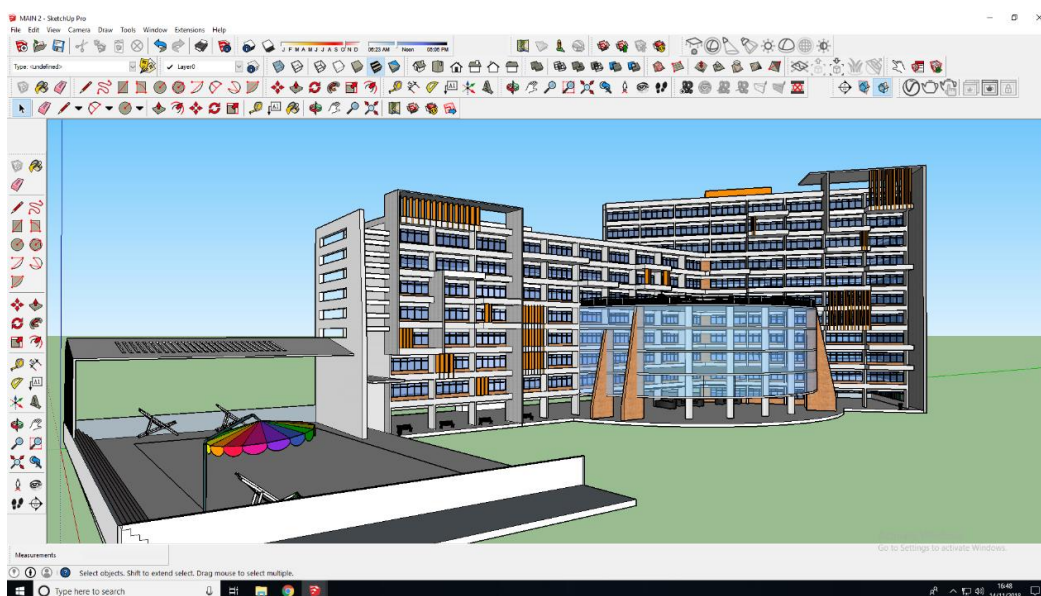
Figure 53: This is the model output of Main Academic Building 2

6.9 Four Academic Buildings
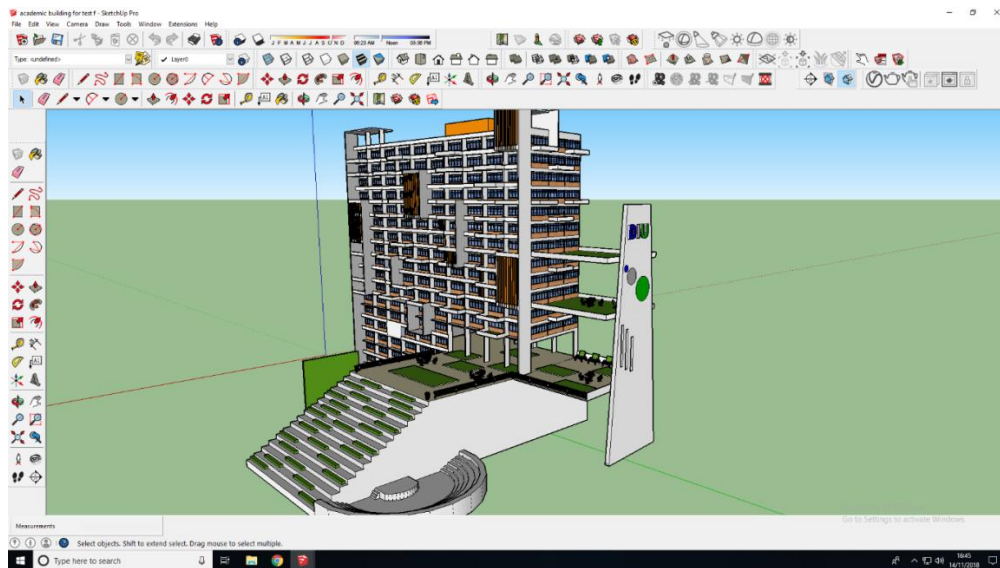
Figure 54: This is the model output of 4 Academic Building

6.10 Auditorium:

In the auditorium, we focused on his basement. The stage stands on a high ground from the basement. It stands on several steel pillars. Students and Teachers gather here for a seminar. We set up this auditorium by SketchUp and textured as usual in Sketchup.
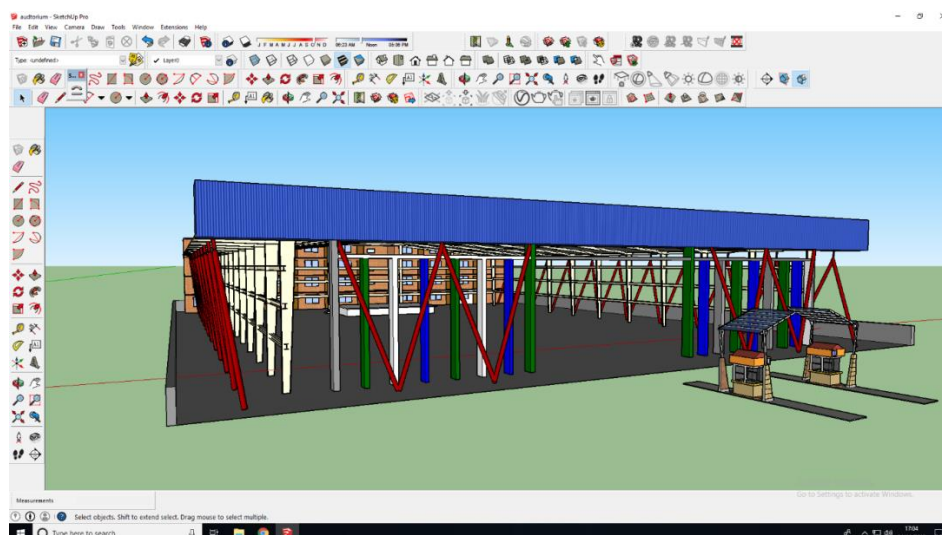

Figure 55: This is the model output of Auditorium

Behind the main building, there is a space for female student hall. It's the 5th floor and its bounded by the wall textured and glass texture. This building also done in SketchUp and textured also.
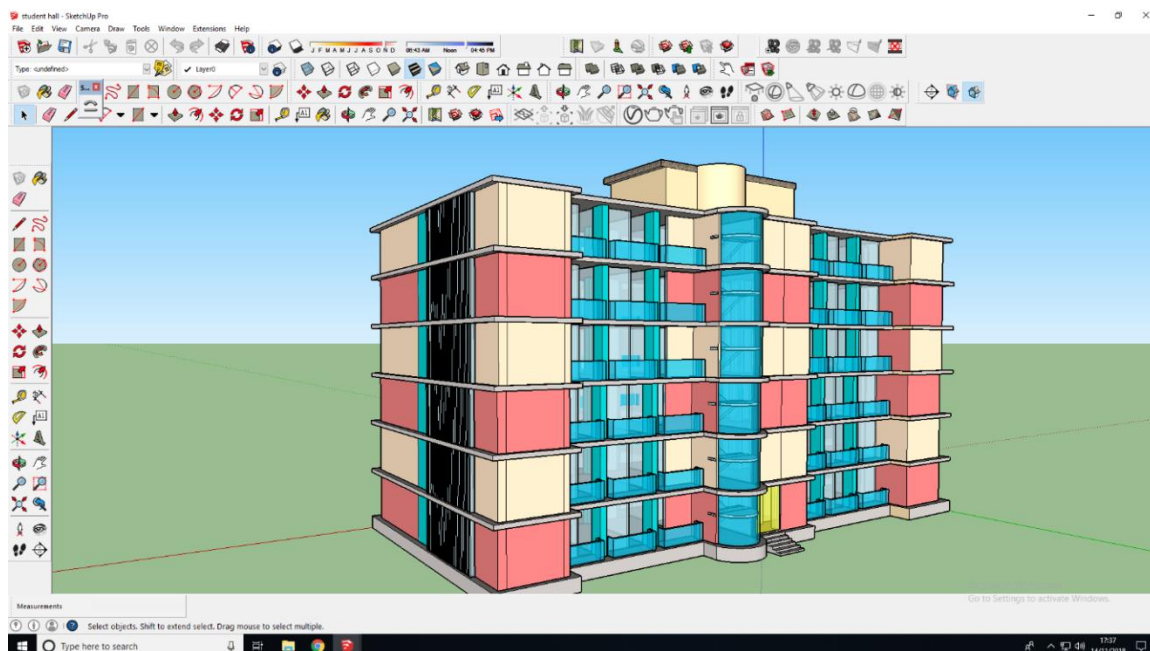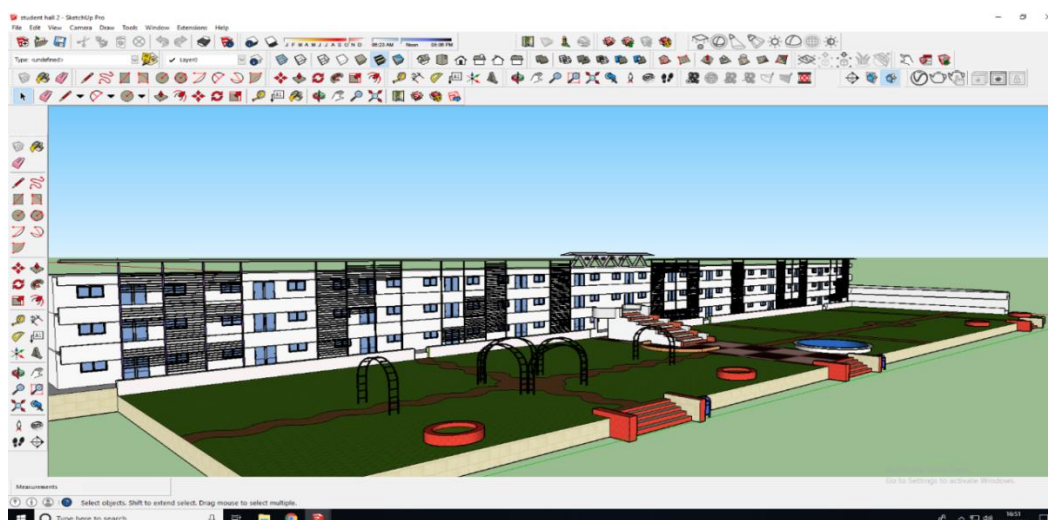

Figure 56: This is the model output of Student Building(Female)

6.12 Student Hall(Male):

Besides the main building, landscape building there is a space for male student hall. It's the 2nd floor and its bounded by the wall textured and glass texture. This building also is done in SketchUp and textured also.

Figure 57: This is the model output of Student Building(Male)

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6.13 Shopping Mall & Cineplex:

Making the convention hall its seems like its complex but we make this till 5th floor. In the ground floor, we create a space for the parking area and 1st, 2nd and 3rd floor for the shopping mall and the 4th n 5th floor for Cineplex. We did this in SketchUp and creating abstract texture for this model.
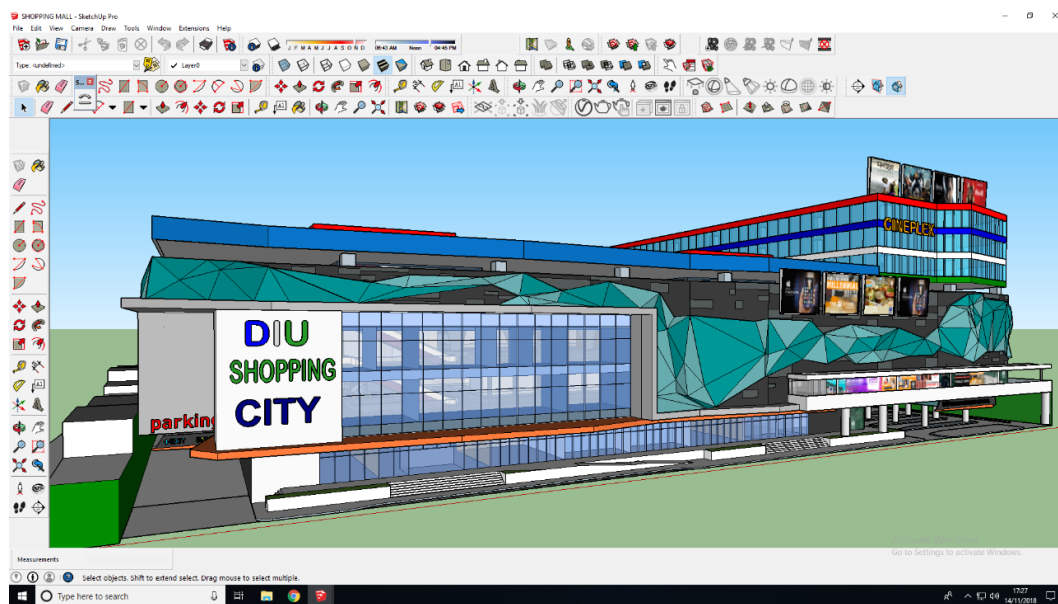

Figure 58: This is the model output of Shopping Mall & Cineplex

6.14 Daffodil School:

The mission of DIS is to enable youthful personalities to develop and learn in an amicable situation bringing about the overall advancement of our youngsters. Every understudy's maximum capacity is sustained in a well disposed of, mindful environment, which encourages scholarly, social, enthusiastic and physical development. We make this school model on 2nd floor. In front of school building there is a guardian room and also space for cycle parking area. The architecture of this building fully decorated by color content and textured in SketchUp.
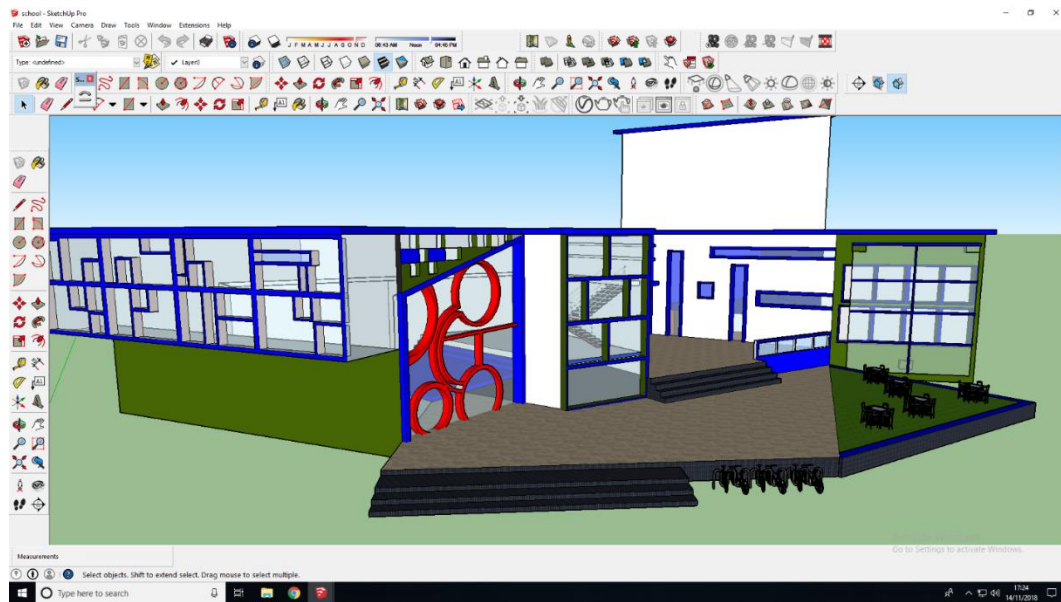
Figure 59: This is the model output of Daffodil School

6.15 Hospital:

Hospital are intricate associations, and subsequently, a recreation show that incorporates all administrations given by a doctor's facility is probably not going to be achievable to fabricate. For a reenactment modeler, the fundamental undertaking is to lessen the intricacy to a dimension at which displaying goals can be accomplished. The hospital building 2 consists of two volumes – one side elliptical and other one square shape. At ground level, the elliptical shape of the building reduces the building area, creates a convenient pedestrian link and a large green recreational area. Elliptical building arranges on the 5th floor and maintaining each floor by 10 feet long. there is also The rectangle builds consists of the 7th floor and other is the 7th floor. Each floor maintaining 10 feet long according to all build. Two building connected by a midway bridge. We did this in SketchUp and textured also in SketchUp.
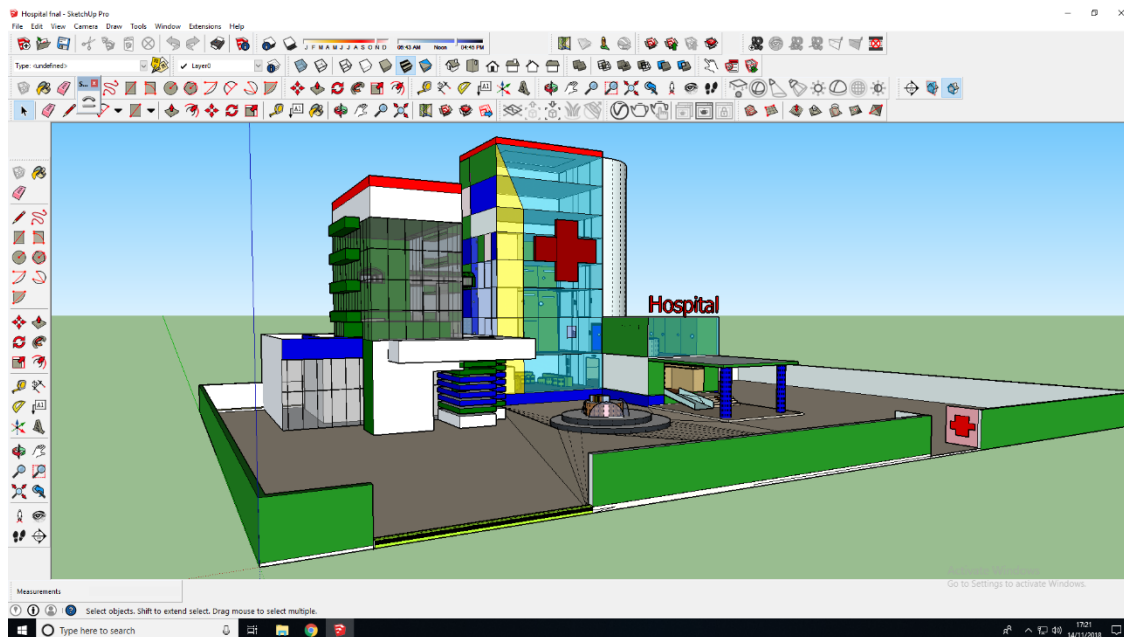
Figure 60: This is the model output of Hospital

6.16 Convention Hall:

A tradition focus is a noteworthy resource for the economy of its host city, drawing very much stuffed wallets inside the scope of neighborhood organizations. Davis Langdon and Everest see how to assemble an effective focus. DIU convention hall maintains till 2nd floor, as usual, it maintains the function of Diu campus. We divide into two parts. One textured with white color with a solid box and others one also divide into two parts. This model is done by SketchUp.
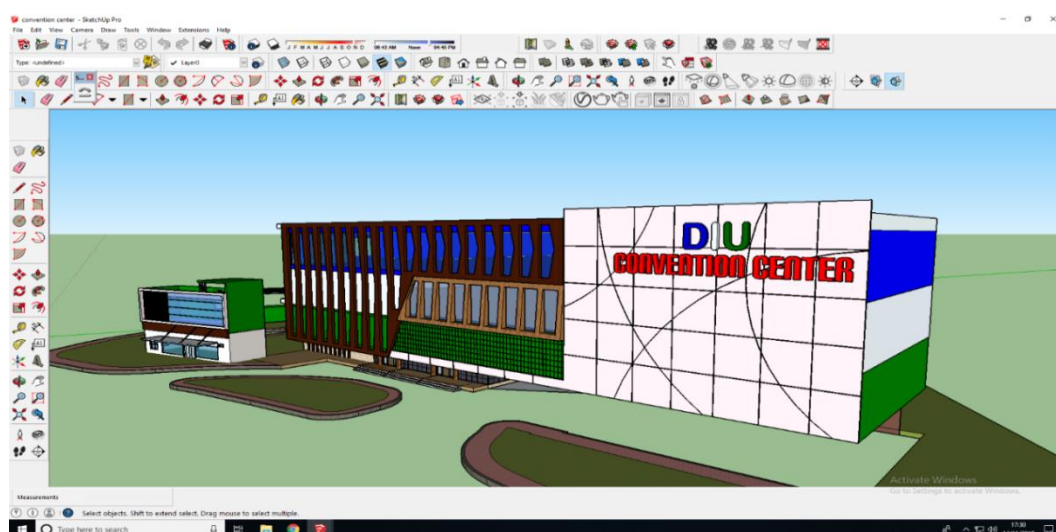

Figure 61: This is the model output of DIU convention center

6.17 Pump:

A filling station is an office that offers fuel and motor greases for engine vehicles. We made this model in our own concepts for the DIU bus. Creating space for the in-going and outgoing. Here is also a reconstruction area for DIU bus. We did this in SketchUp and textured also in SketchUp.
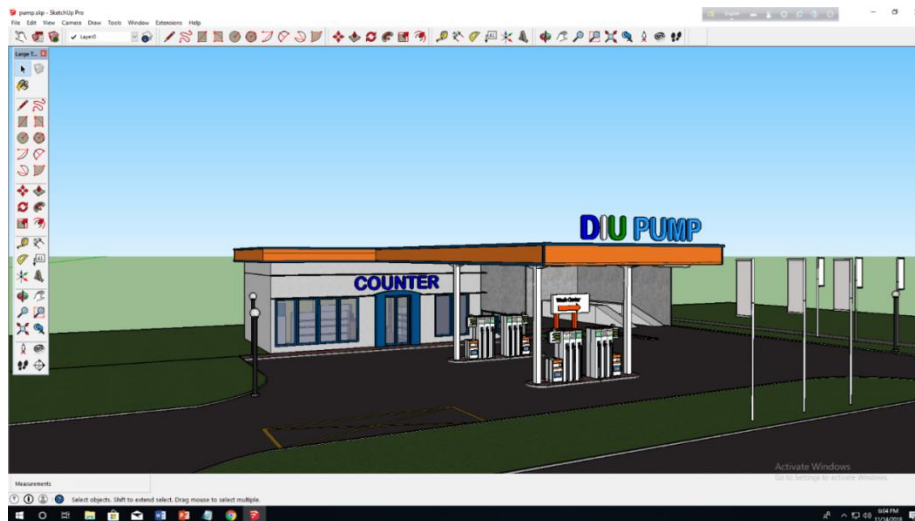

Figure 62: This is the model output of DIU Pump

6.18 Teacher Residential Area:

Teachers will be accommodated here according to the plan of 2040. Teacher will stay in the campus area, the students can access the teachers facilities easily also. In every building we set up with 3rd floor. This model is made in SkecthUp and also textured in also SkecthUp.
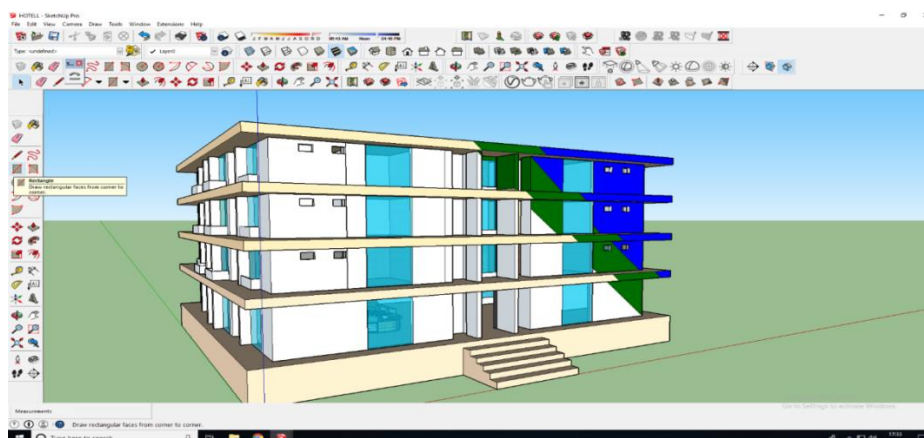

Figure 63: This is the model output of Teacher Residential Area

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6.19 Gym

The most important reason that gym center class is so essential is a direct result of the physical action. gym center furnished us with exercise every day. ... It isn't simply physical advantages, however, rec center likewise gives us mental advantages which cause us to to think and capacity better in our regular day to day existences.
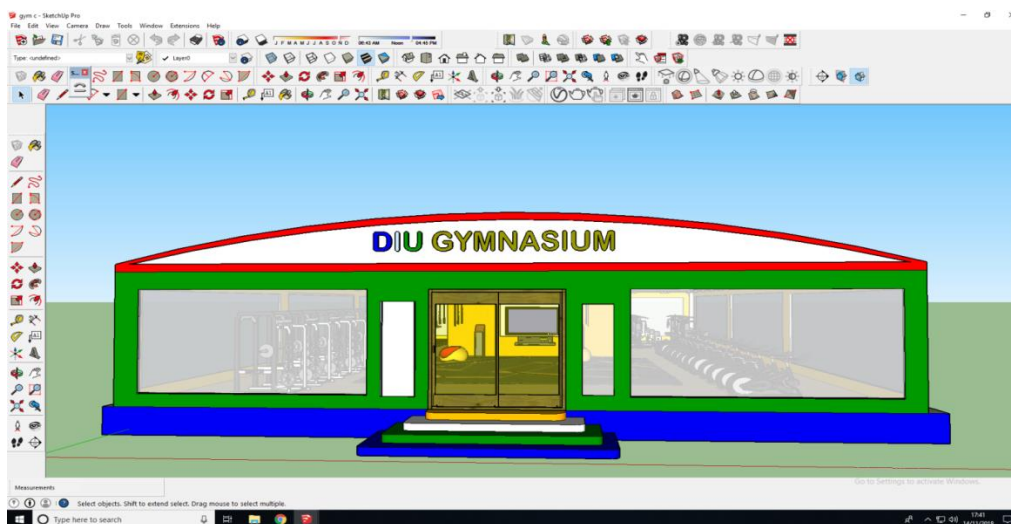

Figure 64: This is the model output of DIU Gymnasium

This is the front door of the gymnasium:

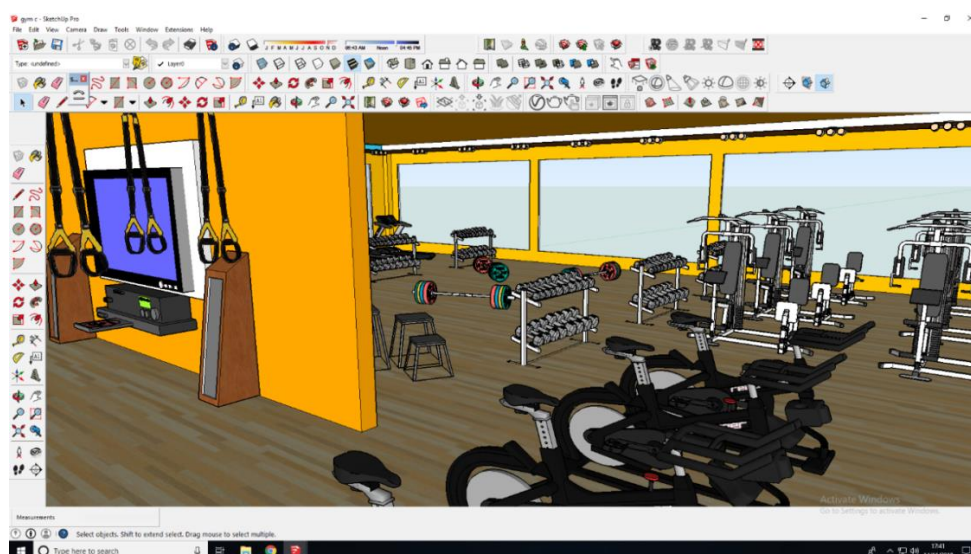This is the indoor instrument of the gymnasium, we also make this instrument model in SkecthUp.

Figure 65: This is the indoor model output of DIU Gymnasium

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Gym equipment:

Dip Station.

Bench press.

Incline bench press.

Hammer strength machine.

Cycling.

lat pull down machine.

Dumbles.

Pull up bar and so on.

6.20 Teacher & Student center:

Teacher and student center build in beside the academic building 2. We make the center like a acting in the stage play, spreading his own experience is the place to spread out for this teacher and student center. We made this combining teacher and student in a room. Around 200-250 people gathering here. Making this teacher and student center from the outline of the master plan. Making in "SketchUp" and textured by SketchUp.
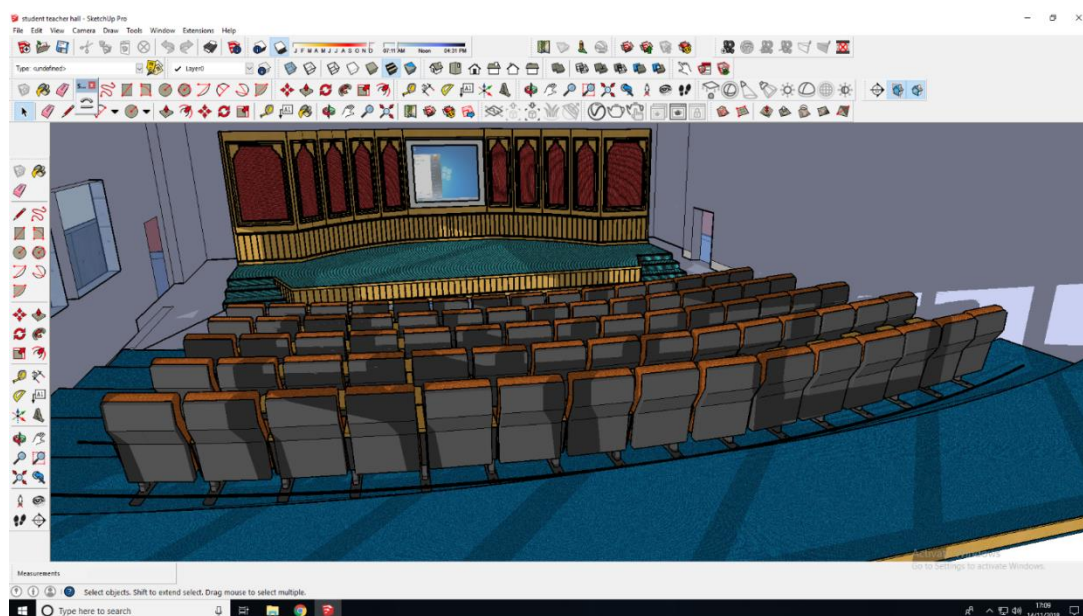

Figure 66: This is the indoor model output of Teacher and student center

6.21 DISS(Trust building):

This is the whole model of DISS. We make this as our own concept. DISS is a trust-building where make the activity of expanding trust between people so that they can work more effectively. We make this model as like a residential area. This model is also made in SketchUp and also textured in Sketch up.
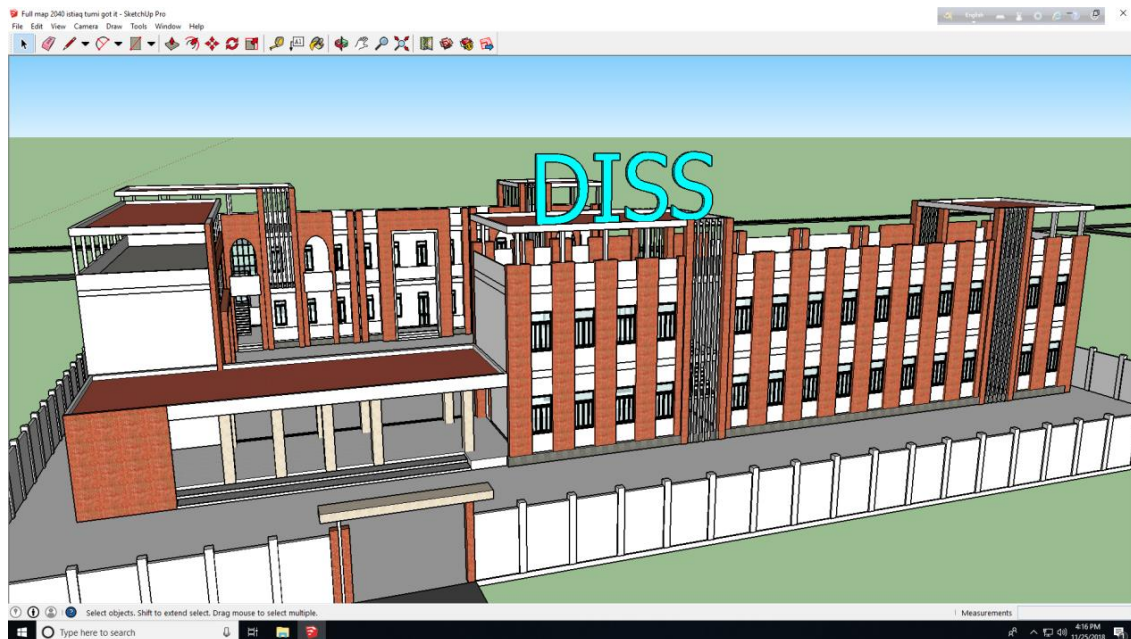

Figure 67: This is the indoor model output of DISS

6.22 Railway Station:

In 2040 the uses of railway station will increase day by day among this smart city. For this, we have planned out making this metro train as the concepts from 2040 master plan. Life becomes easier with this platform. There is two station This model is made in 3ds max and textured in SketchUp.
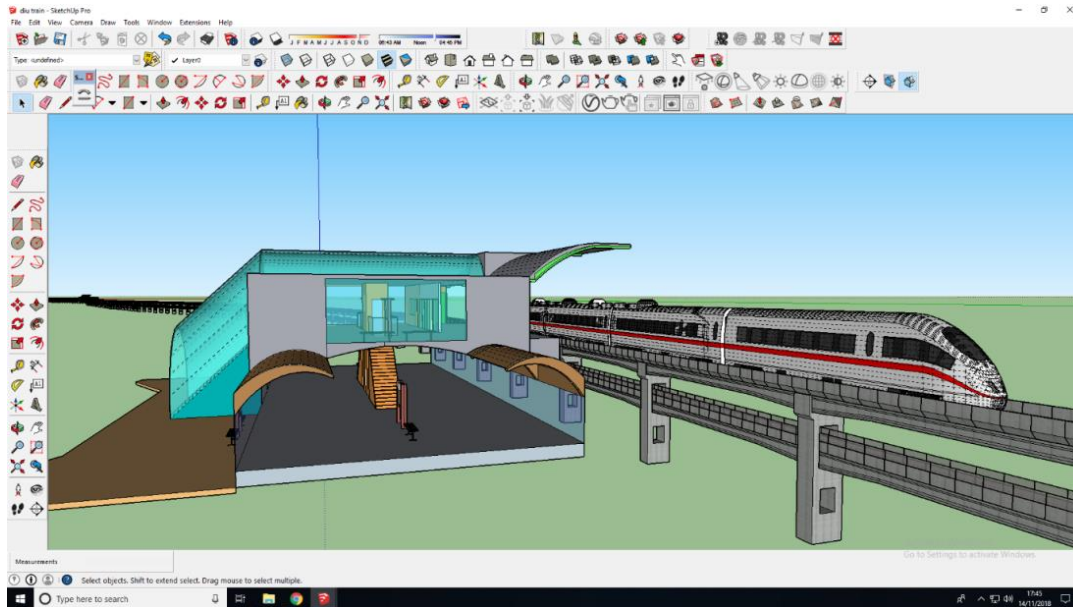
Figure 68: This is the indoor model output of Railway Station

6.23 Metro Train:

In 2040 the uses of the metro train will increase day by day among this smart city. For this we have planned out making this metro train as the concepts from 2040 master plan. This model is made in 3ds max and textured also in max 2015.
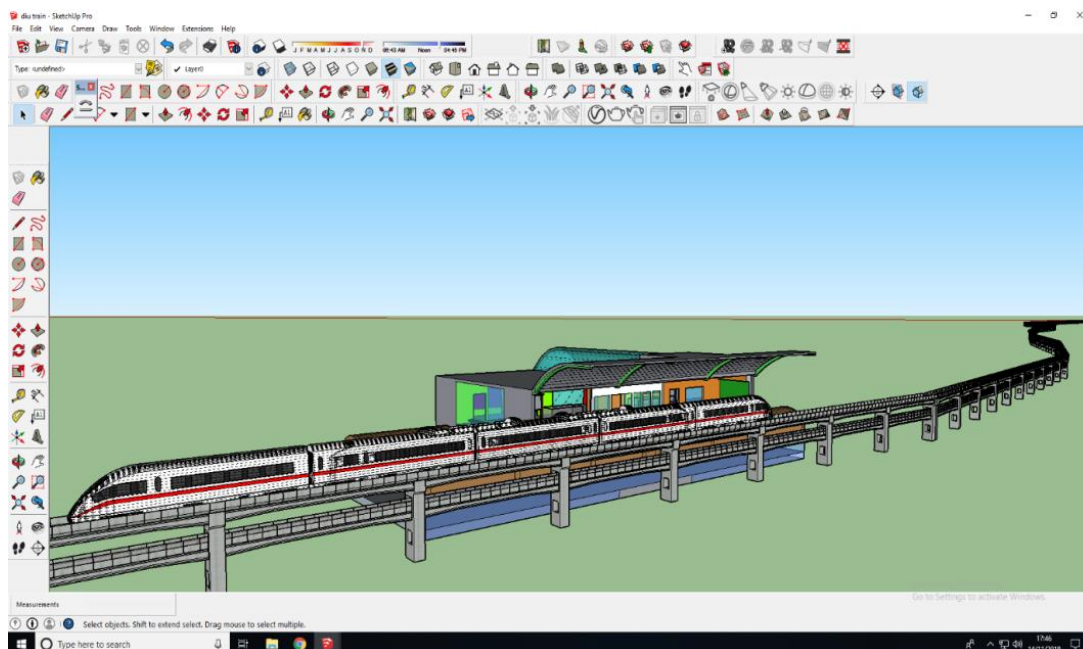

Figure 69: This is the indoor model output of Metro Train

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CHAPTER 7

Conclusion

Technology Evaluation As the project revolved around SkecthUp and AutoDesk 3ds Max it was necessary to learn. This created a large stress on the project initially which pushed it slightly behind schedule. This is to be expected with any new technology; however, taking on DIU Green campus environments increases the more risk. Creating models in SketchUp was a good learning experience [1].

Representation of various cameras, edges, surfaces and lighting makes a moment reaction environment; this decreases the time required to design key components however increases the requirement for experimentation. It ought to likewise be noticed that the 3d yield is exceptionally great for engineers with no past involvement in such an amazing situation.

As a means for creating simple animation; Max seems a little out of its depth. Whilst it offers a coding environment to create animation it sometimes seems too heavy to handle even slightly complex tasks – especially making a model.

Creating curved, rectangle, square model, Max seems a little out of its depth. Whilst it offers a coding environment to create animation it sometimes seems too heavy to handle even slightly complex tasks – especially making a model.

The animation was developed to be simple but as realistic as the original one. Overloading the animation with more functionality with "Augmented Reality" and "Virtual Reality". Instead of adding additional functionality it was reasoned that implementing the existing functionality would be the best way to extend the animation.

What we have gained from this project:

This project has enabled us to utilize new environments. Both environments are cutting edge and used in with our patients level, so it was nice to get a taste of what we could enter into when we graduate. It would be good if more modules used newer technologies as it creates new challenges and allows the output to look a lot better. We are genuinely proud of what we accomplished in both modules. The "Augmented Reality(AR)" and "Virtual Reality(VR)"was something completely new to us. We done a short course about "Augmented Reality (AR)" and "Virtual Reality(VR)"and its requirements expandable enough so that, we could challenge ourselves and produce a really nice looking DIU EDUCATIONAL SMART CITY 2040 animation n also with AR and VR.

Physics has always interested to us so the forces within the module interested us and we enjoyed implementing them within the project.

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