"A COMPARISON REVIEW ON ARCHITECTURAL DESIGN SOFTWARE"

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Abstract –*To design to create or to build there are lots of software and methods but many architects, students and designers often fall and entangled due to the still increasing no. Of software and their demands. So just not to fall into this vicious circle, this thesis aspires to balance out between the finest and all-embracing software in this industry. To accomplish this thesis, it was based on two ways. The study of human groups the first way to achieve the task. The survey was done with engineers, architects, companies and other consumers of this software like students. Their remarks, suggestions, interpretation, inclination or taste helped contemplate this thesis. Two programs for creating and building two programs for rendering and envision. Indeed, the second way was sharing projects to be done via this software. Sketchup and Revit for the first differentiation. The second ones were Lumion and Vray. Individually every program was examined on several points for e.g.The user's cooperation, tools turnout, determined time for building typical models, etc.*

Key Words; **Architectural Software, Revit, SketchUp, Lumion, V-Ray, Design of buildings, Software comparison, Architectural modeling.**

1. INTRODUCTION

The preferred software for its own use depends on lots of points. While studying them is, students learn about software with every new designer comes fresh orders by the already stood design teams and companies, for the use of software but still the goal of this thesis is to uncover the most convenient and universal architecture software. The testing of the program helps in this Revit and sketch up the model-based programs and the two programs for rendering and envision. Observation is made on the following: - tools, determined time for creating the typical model, the ability of users to cooperate, components, exporting ability, etc. The conviction for each suggestion comprises two ways. The first way had the background record of architects and engineers, remarks and specifications of some building companies, the outlook and apprehension of software by usual users and students. Hence, the survey was held. Each feedback influenced this thesis. The second way was building and designing on my own via marked software. Self-observation does affect the overall differentiation. Therefore, the final outcome assists in examining the easiest to use the software. Every designer is capable to realize and ranking characteristics for himself. Conditions are built on self needs and skill with coming professional demands.

2. ARCHITECTURAL MODELING SOFTWARE

2.1 Revit:

Autodesk the largest creator of software for designer's builders and engineers brought Revit and released its first version in 2000. The aim was to have a handy program but cheaper and it proved its aim through the same axes grid, analogue tools like walls, column, etc. Revit is all about the particulars of development from a building to conception to decommissioning. This data are helpful for continuity and controllers of the building while up and running. So as to make Revit the all-inclusive software for designers in 2013 MEP Version of Revit joined with Revit structure and Revit architecture to one program. Also, the project done on Revit can be intercepted to IFC Files. Revit has started to grow marketable and desirable. As in because this product put forward new vision and techniques and offers the easiest explanation. With the different brain comes different types of people. Some prefer their own old ways but some are open to exploring in new and fresh..

Fig -1: Revit Ready Model

2.2 Sketchup:

SketchUp has an entirely different form of work. The main importance is on the inborn use of this software. The user has to naturally know how to bring out his own vision. Usually, the software is more in use in companies that design furniture and interior items. Last Software a small company that released it was the first version in 2000 but gained fame when it went under and was purchased by Google. But a bit later SketchUp was again sold by Google to Trimble Navigation and after which the company has been developing version after version of the software. The only difference is the eligibility to transfer to another file format. This program usually never comes with

preliminary settings but the user if wishes can keep dimensions and property while projection or for later use. In fact, the key elements of the software are a tool Push/Pull which basically helps to form a 3D object only by one action. Till today's date updated the version of the software has no direct tools for columns or walls or floors. Sometimes there comes a situation where other software's are preferred because in SketchUp every part has to be created individually which at some point is faster and convenient such as for custom structure. If working in the initial stages of the project, then SketchUp would be the best option as it's easy to create an interior structure or plans and also when the basics of the project are to be explained. With many advantages come some disadvantages too. Such as it needs a considerable amount of time, also you need to design in layers so as to showcase the interior which makes it a bit tough. In addition, SketchUp cannot evaluate any construction part but holds the power to export to CAD for other works and formats. It helps you get a more realistic outcome as it's equipped with a huge components library. Anything can be added to the project from the library. At last, this program may be the initial stage program but it's best to put forward your own creation and vision with exporting ability.

Fig -2: SketchUp Ready Model

3. RENDERING SOFTWARE

It's somehow a duty of an architect to build a project which stuns and stimulates the viewers to buy. A large part of the human race looks up to architect so as to fulfil their dreams for a living space. Let's suppose, a family would like oblique walls and triangular windows but not everyone wants this. This ultimately brings this to an architect to examine the needs and then create a project. The development of a model is what helps with the further process. Now they help us judge the pros and cons of a building, capture the structure and ideas and recognition the approximate cost. But these projects are not highly presentable because they lack the perfect graphic style. However, via visualization software, the model can be turned into something real. Being straightforward every project is meant for sale so accordingly the photographs have to bring out the mastery and reveal the best possible of the building. Now the situation makes us realize the significance of visualization software.

3.1 Lumion:

Lumion has the potential to create video and HD quality pictures which in turn make it the most welcomed software among Architects. This program works well with Revit and SketchUp and turns these models into a more realistic image, which might make it difficult to pick the real one. Yet the biggest advantage to Lumion is that it works in real time too. This program offers a rich library which the user has to edit. Each article has to be then adjusted according to the requirements such as the colour, lighting, scale, etc. All of these in the end makes it accurate near to being real. Lumion hence has a big library of added members which are editable and movable. Such as trees, cars, furniture, etc. These additions bring liveliness to the model. For landscape design, it has some tools for water bodies, mountain, and forests and can be reviewed even faster. It also holds the capacity to select nature or weather conditions offering some special tools for the wind, clouds, the sun, etc. Visual of rain or snow can also be given. After all the processing, experimentation and managing, the outcome is an almost real-life model. This program takes care of reflection, shadows, etc. In case while the rendering is going and wishes to have some additions Lumion let's refill them. Still refreshing can take enough time mostly because of the model being complex. Moving ahead of the images allows making videos too. The object can be put into motion in the video. Sadly, this program doesn't work with some other software's components. Motion and directions can be added to the object in the model for the video. Waves to the water bodies or positions of the sun and cloud can be done by the user. Now all of this fun and ease has got a twist. Every computer or operating system cannot perform its functions. It requires too many specifications. And the truth is that lumion is an impulsive and inconsistent software. It might fickle any day. Thereforelumion is best for envisioning a fantasy with the exception of needing strong computer equipment. Thus, it brings you to the point and concise way for putting your concepts out.

Fig -3: Lumion Ready Model

3.2 VRay:

VRay is a more kind of simple and trouble-free program letting you create realistic images and also behave like a plugin for the main program. It is likely to use this program for Revit only after exporting it Colada format. Also doing this may let you lose some elements. This program is a sample of non-automatic work need. After transferring the material library it lets you change or modify each article It almost has 100 points. The most famous is Reflection and Translucency with the power to edit them. For this, the operator should know the physical rules of light. Now some disadvantages that it does not contain its own components, each part has to be built in another program. Also, it needs to upload images of the sky and grass. It lies to the user to adjust every part. Nonetheless, there is no real-time working possibly. So you need to wait till it renders. Yet the image quality can be chosen, but it will make the rendering process take more time. This program can't function with big models besides it does not require heavy computer equipment In many instances replacing it with Photoshop is better. Yet to operate as a plugin brings in more consumers for Vray. It's a better choice for the ones without strong computers.

Fig -4: Vray Ready Model

4. CONCLUSIONS

4.1. Architectural Modeling Software:

Each operator has its own views and ways in software which he works according to. The general overview of this thesis can be used for any architect by importance percent change. Individually every program has its own pros and cons. Perhaps the usage of distinct software while different stages of the project count as a good step. Usage of software at their desired or required fields may give a rise in their performance. All programs for building design do carry IFC formation transfer. Thus, it is necessary to have good bonding and support among architects and engineers for the project. Each program has its own capacities and they are different as well. Revit and Sketchup perform their own systematization while creating drawings, ideas and views. It is recommended to all the users out there to have huge collections in series for building endless designs. In this case, Sketchup leads the race as it has its own 3D Warehouse. This may be best for the interior but when it comes to building design the articles are not adaptable nor are automated to types of building. Instead, Revit responds well in such situations. Running parallel Sketchup and Revit are almost similar and are competition to each other. But while working on these thesis differences showed up such as transporting abilities, tools, cost, etc. It was on the user now to choose which suits him best. The adaptability of Revit by a lot of users relied on points that made the work easy for the consumer. Perhaps the preference by many led to the popularity. Being the oldest, the finest field of Revit is the tools and coordination of the architect and engineer. Looking the other side, it holds the worst exporting abilities and is poor in ingrown creation. Speaking honestly Revit is better than Sketchup in a lot of options but the cons of Revit leaves an impact on the game of this program. Revit helps a lot in connecting members of one project but lacks speed and the user has to face many bugs. Also, the Revit has a small library with fewer elements than in Sketchup. And this brings lots of users back to Sketchup. Henceforth the conclusion is that rendering software's are required for better presentation and understanding and mainly for advertising. The compared program's had their own specialities. Lumion gave the finest with highest HD Quality images, and videos with fast envision. Whereas Vray comes to the rescue when having weak equipment. Coming to a further end, the thesis was mainly done on the power of the user to choose. The result showed that there was no software as per any single user. Therefore, we can only rely on the possibility of such a program that caters to all requirements of every kind of user in the future. If there are advantages then come disadvantages too and so goes with the programs. Still, the main focus was the study of some programs for differentiation. Which in the end will help select the right, convenient and worthy software.

4.2. Rendering Software:

Lumion is able to portray images and videos much better. Whereas Vray works on another set of the frame. Mostly in cases of fast surface rendering but with no extra power or component. Each examined program for visualization and modelling can be used with almost all design software. Before starting rendering it needs to be transported to the third format to be able to work in

lumion and vray. The all in all comparability goes very clear. Lumion has more subscribers ass compared to Revit. Lumion has proved to be useful while offering various methods of creation and the potential to work with all model types. While the other side Vray is an easy simple tool like a plugin for quick rendering on done models. It's better in replacing Sketchup with rendering tools.

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