# PRODUCT VISUALIZATION USING COMPUTER GENERATED IMAGERY, DEVELOPING CONCEPT, SHORT DIRECTION, ANIMATION, POST-PRODUCTION

**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

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**DAFFODIL INTERNATIONAL UNIVERSITY**

**DHAKA, BANGLADESH**

**26th DECEMBER, 2019**

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## APPROVAL

This Project titled "**Product visualization using computer generated imagery,"Developing Concept, Short Direction, Animation, Post-production"**, submitted by Mir Mahmudul Hassan 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 December 26, 2019.

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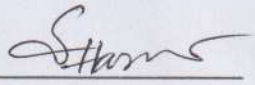

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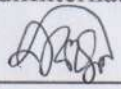

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## DECLARATION

We hereby declare that, this project has been done by us under the supervision **Arif Ahmed, Adjunct Associate Professor, Department of MCT** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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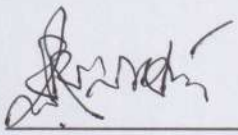

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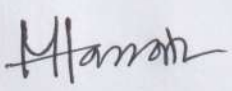

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I owe everything to my family who encouraged and helped me at every stage of my personal and academic life and longed to see this achievement come true. I dedicate this work to my pious grandfather, my sincere and generous father and my loving mother. Every breath of my life and drop of blood in my body is dedicated to my family. I love you all.



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# ABSTRACT

The project aims to create a short product animation of a smart phone. Which can be used for the purpose of advertisement and attracting consumer attention. The entire project was created using CGI (computer generated imagery) technology. My part on the project consisted of Developing Concept, Short Direction, Animation, Post-production for the project. Which were used for creating the concept, shot direction of scenes, color grading, adding sounds, 2d images or texture all in 3D. It was done using tools and techniques in Photoshop, Illustrator, After effects, etc. In future, the project can show people of different industries the capability of CGI to produce attractive advertisements for products.



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# CHAPTER – 1

# INTRODUCTION

## 1.1 Introduction:

Animation is about generating sequential drawings or pictures by way of various procedures for creating movement. It creates an optical illusion through which we are able to see still images or drawings rapidly moving. Animation is the only medium that can bring our fantasies to life. 3d animation is the future with the advance of technology such as AR and VR. This took our entertainment sector to a new Hight and connecting real and virtual with the help of 3d. Making 3d animation is complex and timing consuming process. Every Elements has to have an accurate value to make a realistic 3d animation.

Artists and Filmmakers uses Computer Generated Imagery (CGI) as a tool to better tell their stories in abstract ways. CGI is not just computer-generated imagery but also combination of thoughts, designs, experiments, and art of artist. In recent years the use of 'Computer Generated Imagery' (CGI) in advertisement industry has grown immensely. A big percentage of advertising industry is adopting CGI for better telling their stories. Now a Days Big Mobile phone companies such as Samsung, Apple, Xiaomi, Huawei uses high quality CGI advert to attract its consumer. Such as Galaxy S10 advert of 2019[1], Redmi Note7 of Xiaomi brand [2,3]., iPhone x [4,12].

Apple, Samsung, Xiaomi, Huawei Makes high quality standard 3d advert. Their most of the 3d advert are more simple, attractive, entertainment and communicative. Their short duration 3d adverts says thousand words. The numerous features of the phone are conveyed effectively to the viewer which boosts product selling chances. Brands 3d advert deliver a realistic virtual showroom experience on mobile. Now a day's people's like to watch the latest feature available Offered by their favorite brands and 3d advert offering them more attractive and dynamic visualization.

This project report displays the review of working process of making a standard mobile advertising with the help of different techniques and 3d software's. The report is the guide for the making a CGI mobile advert animation that portrays modelling to animation of the product and final output for customers in the market. The animation has to very eye catchy. So that it can attract viewer attention and hold it. Syncing the animation to music can help achieve this. It will also add a rhythm to the animation making it look much more interesting. I will have to aim for snappy and fluid motions during the animation to achieve a good fun quality of animation. Cinema 4d [14] will be my choice in animating the advert, as it good for motion and abstract art making.



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## 1.2 Project Goals:

The goal of this project is to create a CGI Advertisement which portrays mobile phone features in abstract, attractive, entertainment and commutative manner. Our country is still quite behind in producing good quality CGI for product advertisement. Often Bangladeshi mobile adverts fail to fulfil its purpose compare to others outside of country. Local mobile companies are also unaware of the uniqueness of 3d advert standard in recent mobile industry. There is a huge market for advertisements in Bangladesh. It is rapidly growing. Expected to grow by $457 million between 2017 and 2020. This report clarifies the step by step to create a standard mobile advert which can be compared with outside advert of our country, Also branding for out mobile phone companies.

Mobile CGI Adverts is generally fun to watch and creates a higher viewer engagement than traditional adverts. It helps us to be a lot more creative as we can present almost anything in animation, we don't have to stick to what is realistic or possible as you would with live. As 3d is developing in Bangladesh, in future it will be create a great impact in Bangladesh. With CGI, we can show our product from all angles, in different colors, and in all variations.
live-action advertisements are time-consuming process than Animation. We can immediately edit an animated work but the actual video editing when the work must be done after the initial shooting. Investing in animated advertising can give local mobile companies a much larger return while still providing a means to attract our country customers.

## 1.3 Target Audience:

Our target audience this project are young people of age from 18 to 35 people who loves to see attractive features and pleasing color with their taste for their phones. Communicating with audience is the primary target for this advisement. The goal is to establish interest and mind set to buy the tempting upcoming mobile. With this in mind we have decided to use gradient color for our phone advertisement and keep it in one gradient color because it catches eyes, gives different tone, vibe for taste of youth and gradient color are more expressive the traditional one solid color .We have used gradient color of purple and sky blue where purple is used to express royalty, power, ambition, independence, peace, pride, mystery, and magic. On the other hand, blue used for trust, loyalty, wisdom, confidence tranquility and calmness for the youth to middle age.



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## 1.4 Project Timeline (Gantt chart):

Gantt is can be said as backbone and very important for any project to keep up with the plan. Gantt represent the Project schedules, Activities, Clear visibility of Dates and Time Frames and helps to effectively manage the Team. This graph is like a bar diagram where the works will be done are marked with bars from the being date to complete date of the final point of project. This project will take time span over a sixteen weeks schedule. The timeline is very tight so it has to be managed correctly and this the guide which will keep us on track.

Table-1.4.1: Gantt chart of Product visualization using computer generated imagery of mobile Adverting.Green mark parts are done by me.

| | | | Week | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Numbers | Task | Total Duration (weeks) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 01 | Research | 1 | | | | | | | | | | | | | | | | |
| 02 | Brainstorming | 1 | | | | | | | | | | | | | | | | |
| 03 | Concept development | 6 | | | | | | | | | | | | | | | | |
| 04 | Collecting reference | 3 | | | | | | | | | | | | | | | | |
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| 07 | Lighting | 5 | | | | | | | | | | | | | | | | |
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| 09 | Editing | 2 | | | | | | | | | | | | | | | | |



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# CHAPTER – 2

# LITERATURE REVIEW

## 2.1 CGI Works In 3D Advertisement Industry:

3D advertisement is the recent industry standard for product visualization.3D in advertising industry is offering a wide range scope for 3d artist to display their creativity, which is essential for attracting consumer at present 3d based generation. Popular mobile brands such as as Samsung, apple, Xiaomi, Huawei, Oppo are successful at their sales through creating market value among its consumer with help of CGI based mobile Advertising and is one of their primary means for Advertising products for them. Iphone is focus on to take a giant leap forward in mobile photography giving extra edge to image quality with high resolution and zoom which was beautifully displayed in the promo for IPhone X [4,12]. Their camera angle, movement, color tone, transitions and blending shorts are inspiring and I will be focusing to get those kind of short in our advert.

Samsung is focused on their design and processing platform targeting business class people. Their main focus was extra-large display, elegant design, multitasking platform, also better camera quality, those features were attractively shown in their Galaxy S10 advert [1]. This type of work has inspired us to work on our short division of 3d Avert mobile. The color and concept brands uses for communicating and delivering for target are quite fantastic, holding rhythm to the animation is unique. The mobile 3d advert quality of our local brand far behind then of outside our country. Also, its hard to find any 3d advert for local brand such as Walton. Compare to outside brands our local band fails to create impression among user and our country is not developing in advert industry.

Recently, OPPO released a new series called Reno, hoping to encourage everyone to make life more imaginative through creativity.[5]. So, they hope to create a magical city, but the seemingly ordinary scene will be unexpectedly changed. The main feature of their product was the 10X optical zoom. So they tried a lot of exaggerated lens movements, hoping to let the audience intuitively feel the "zoom" experience.

Another china company which is creating great market value with their CGI 3d advert is Huawei[6].There is more clear and simple target the core feature their giving to consumer such as dust/water resistance , longer battery etc. are amazingly visualized. Huawei p9 design work was inspiring in 2016[7].Also honor 20 promo[8] where The fantasy environment and amazing imaginary animals are emphasized with stylized color and lighting condition to create a variety of exotic tonality. Honor logo identity is created with growing exotic plants & owers. As the viewer camera gradually penetrates into the logo, the plants and owers start to grow plentifully, and they are shown in the whole screen. The



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variety of Wonder natures is displayed with Honor 20. Those kinds of color and abstract things should easily attract customer.Xiaomi is also has established them as high quality brand in asia. Their mobile 3d advert visualization is extra ordinary. such as the advert of Redmi K20 Pro[9] , or Xiaomi Mi 2[10], Xiaomi Redmi 5 [11]. The concept of their mobile was nicely presented with abstract design. All the features were abstractly presented and a smooth and cool color visualization is done matching their mobiles color.

Those types of work inspiring for 3d advert in advertising industry. As our country is in search of quality, if we can follow and deliver that kind of visualization, our country mobile can also get high market for 3d Advertising. As Bangladesh is getting familiar with 3d works, so our country brands need to acknowledge the important of 3d advert for showing more futuristic feature to audience and attract their attention.

## 2.2 Storyboarding:

Storyboard is used to step by step visual representation of our story, narratives, and sequence of events. It can be also said as a blueprint for the 3d animation .it helps to visualize and sync with other part of the scene (Such as audio, transitions, etc). Storyboarding is an essential part of producing an animation, which help to check whether the narrative in the script makes any sense when it's translated into a series of visual shots. Storyboarding helps artist to visualize camera angles, composition, point of view, hookups and continuity, object and character motion, cuts, posing, and, pacing

## 2.3 Modelling:

In CGi 3D modeling is a technique that uses to create a 3Dimensional object with the help of 3d software. Artists make a 3d model by manipulating the state of the basic shape or deforming the mesh to desired model with the help of different 3d software's. Every 3d Model has vertices, edge and face or polygons though which user manipulate 3d object and computer calculate those so give user desire shape. There many type of modeling which can be used for 3d model among them notable are polygonal modelling where primitive shapes as polygons are manipulated , curve/line modeling where models can be created by the help of line drawing surface are created , and sculpture modeling where artist mold shapes like clay and easily gets desire model and so on.



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Here the poly modelling techniques are shown. From start a simple cube is modified with the exclude, bevel tools etc the vertex, faces,edge are modified

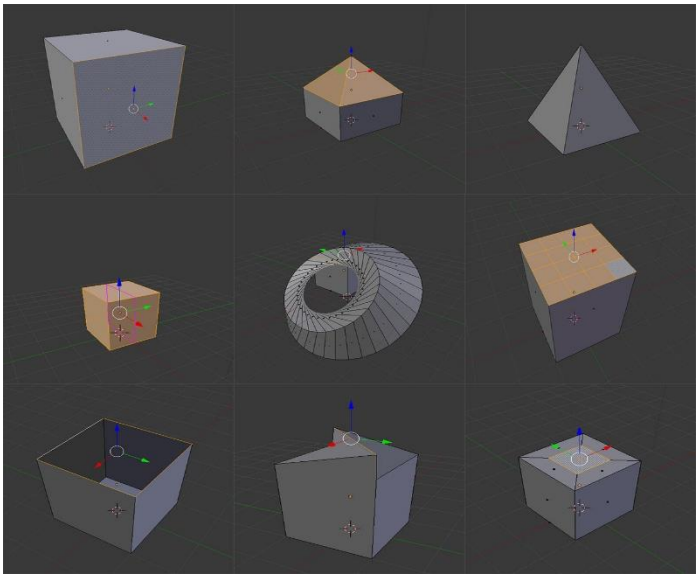

Figure 2.3.1: Polygonal Modeling

Another technique to make 3d models is the curve modelling. This is technique the user draws line and then those is extruded in to mesh for further modelling. Different type of shapes can be drawn with different curve or line tools

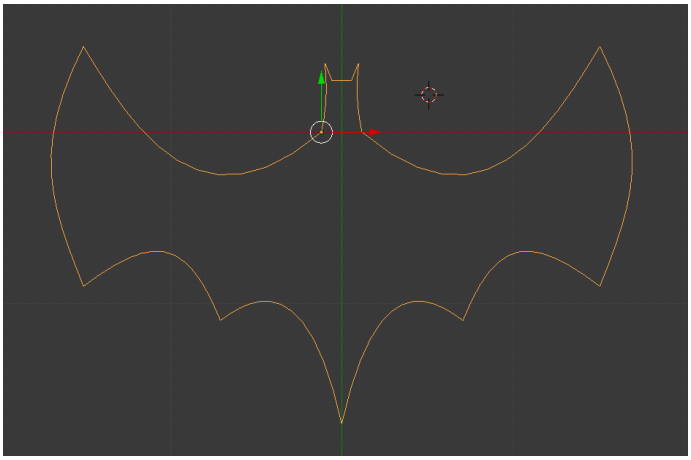

Figure 2.3.2: Curve modelling



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3d sculpture technique very creative form of making 3d model where the artist can create abstract model by molding geometry shaped with brushes and tools that push, pull, pinch and smooth make it easy to create detailed sculpts .

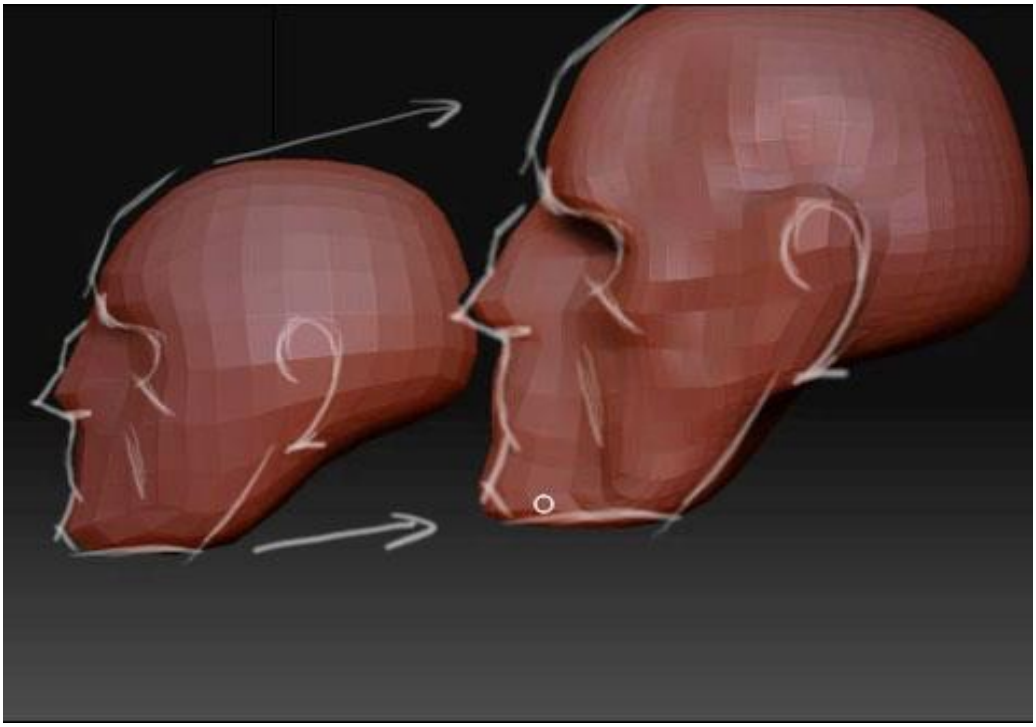

Figure 2.3.3: Sculpture modeling

## 2.4 Texturing:

Texturing is one of the main stages of three-dimensional model creation Texture is an image that is being projected on a surface of 3d dimensional object that gives the impression of a real object. Texture has coordinated which are pairs of numbers stored in the vertices of a mesh. Those coordinates which are three-dimensional in their nature, represents a position within the texture's volumetric space. Texture gives realistic details to the surface.

3D model may have multiple materials assign to it but only has one texture. Texture controls various channels of object surface such as RGB surface, Greyscale surface, alpha channel surface and others. There are also multiple properties maps combined to get



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illusion of realistic effect. Those maps are Bump map, Normal map, Displacement map, Reflection map, Specular map, Height map, occlusion map and others. Texture can be made by an artist by a 2d software such as photoshop and sometimes artist prefer to take photograph of real life object to get realistic details their desired object.

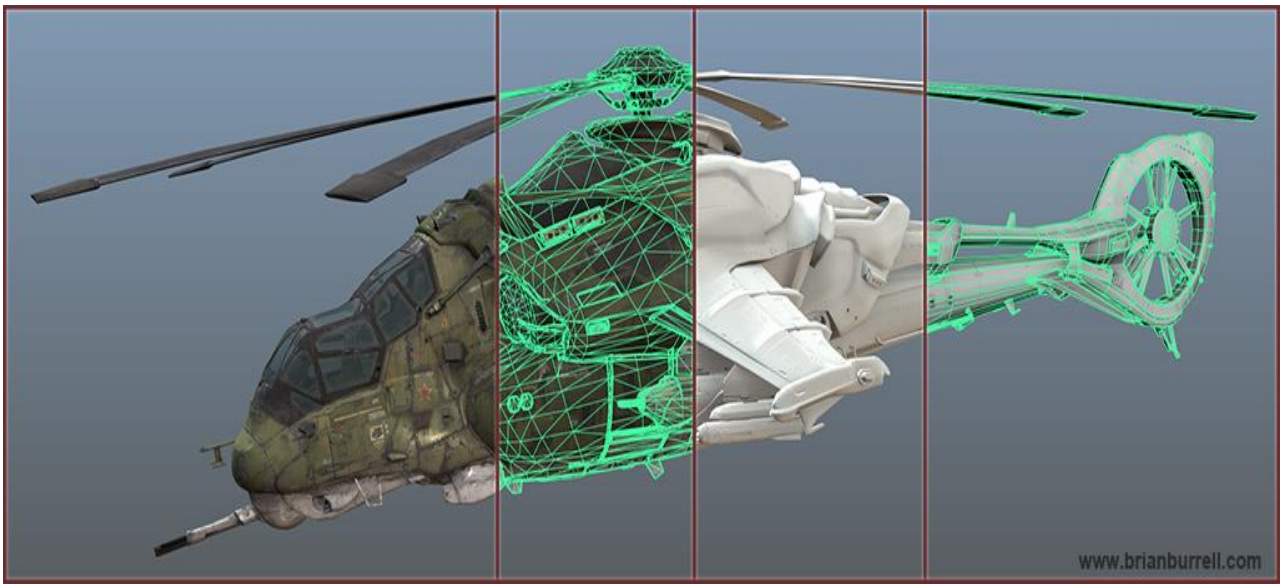


Figure 2.4.1: Texture model of a helicopter

## 2.5 Lighting:

In CG for creating hyper-realistic 3D scenes lighting is a critical part. one of the most important elements of any visual representation is lighting as it helps to the human eyes to perceive visually. For creating a perfect real world like scene in cg, we have to use real world examples and to study how these virtual renderings are achieved. A 3d artist has to have deep level of knowledge on how real-world light interacts and reacts in different situations. Light one of the most important aspect because it setup the mood of viewers and make a flat molded model realistic as the illumination from the light source simply bounces back from the objects that we see in the field of sight. In cgi light can Enhance or creating the mood of a scene, Create the illusion of depth, Create the illusion of volume, Reveal the substance and qualities of materials, integrate visual elements, set a visual style and Create



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visual interest. There are many type of lights available different 3d software according to need such as Ambient Light, Area Light, Diffuse Light, Specular Light, Positional Lights, Emissive Light, Directional Lights, Spot Lights etc. For getting studio type lighting and reflection on object we imaged based lighting with the help of HDRI map. HDRI is a panoramic photo, which has all angles of an area from a single point and contains a large amount of data which helps to the illumination of CG scene.

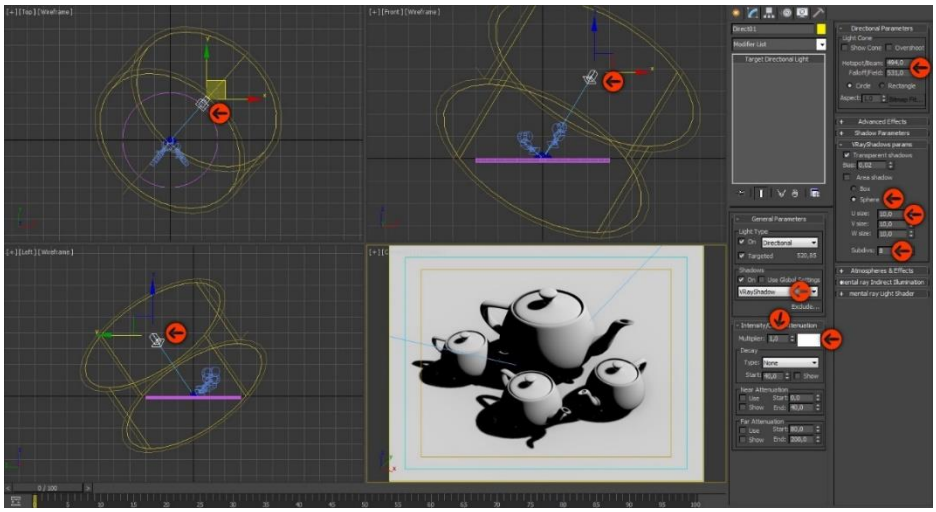

Figure 2.5.1: light setup for a scene

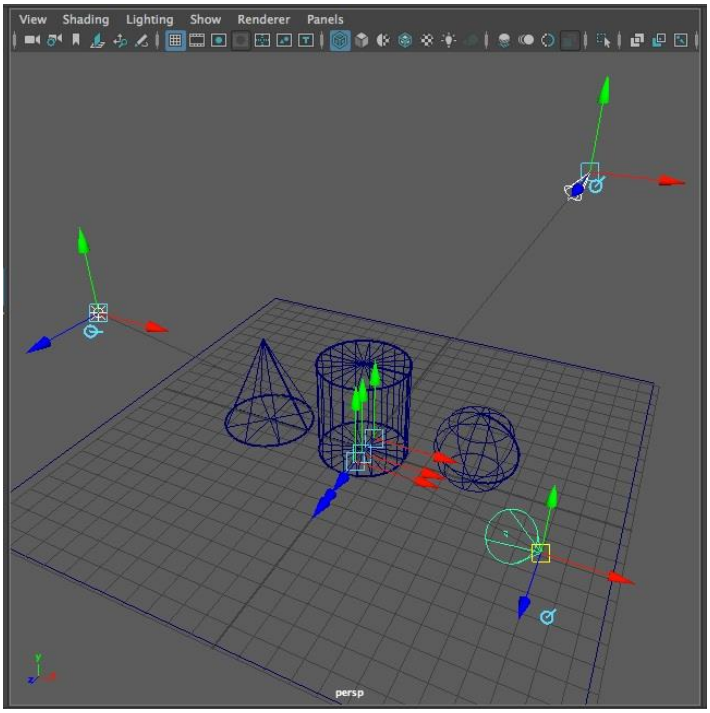


Figure 2.5.2: light setup for a scene



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## 2.6 Rendering:

Render engine is a module responsible for generated CGI. the job of a rendering engine is to convert the applications internal model into a series of pixel brightness's that can be displayed by a monitor. Rendering engine gives the final appearance to models with visual effects such as shading, shadows, reflections and motion blurs, texture mapping. Render engine calculated all the aspect such as geometry, texture details, light, so on in one frame and give output as picture format. It is time consuming process. There many famous render engines available, serving for different purpose of users. Among them few are Vray, Arnold, corona, Iray, Mental ray, Maxwell, Octane renderer, keyshort etc are highly used in industry for rendering of CGI.

Figure 2.6.1: Render Engines



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## 2.7 Simulation:

3D Simulation is basically complex calculation done by computer to find the interaction of a large number of object and particles with each other which affected by the natural physics type forces such as gravity and wind to show real life alike results. This a very time consuming but very interesting process that combines with 3d. With the 3d simulation software one can easily create realistic fire, smoke, explosions, and other gaseous phenomena. There are a lot of software available at the market to do the simulation works and plug-ins for using in 3d software such as Realflow, Houdini, Autodesk Max, Autodesk Maya.

Here the smoke simulation has been demonstrated,with the help of real life physics this simulations are done and real life alike smoke with fire is made in various softwares.

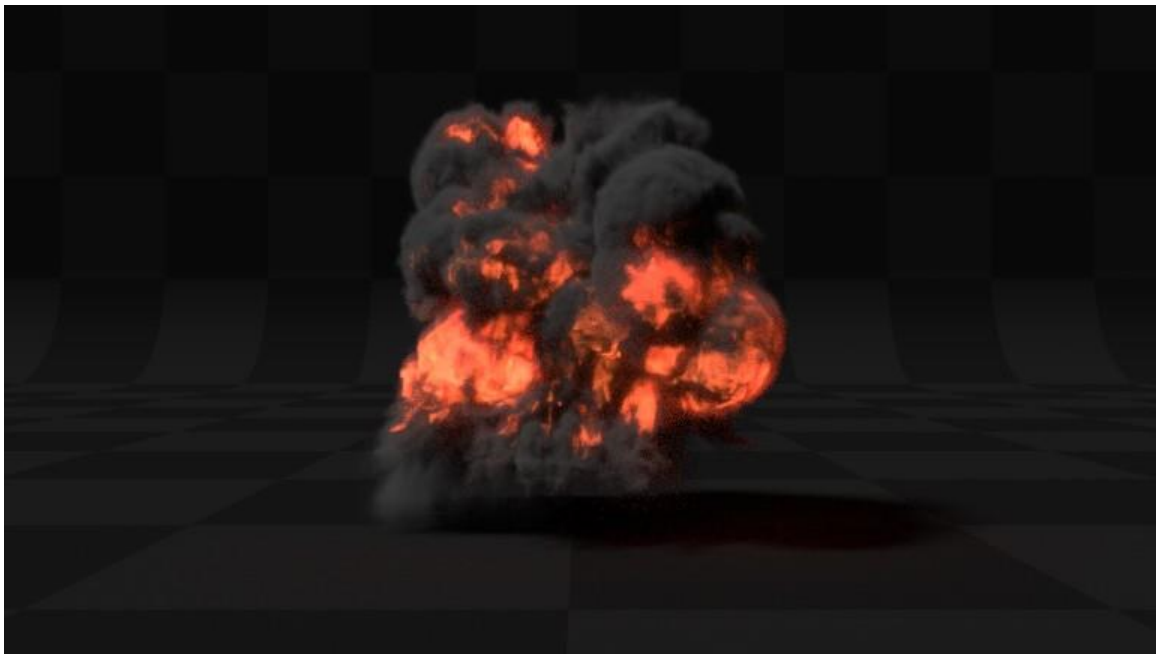

Figure 2.7.1: Smoke Simulation



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Particle simulation where thousands of particle are emitted from a mesh object and react with different forces and physics in a specific life span.usally particale simulation is to create the complex such as hair.

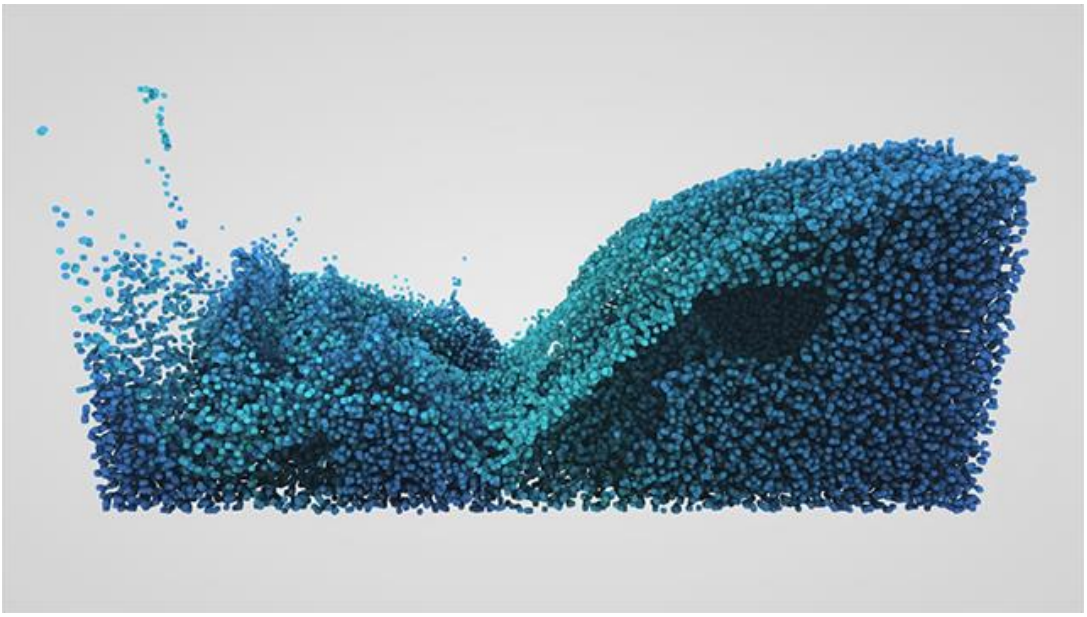

Figure 2.7.2: particle Simulation

Fluid physics are being used to simulate the water simulation properties.

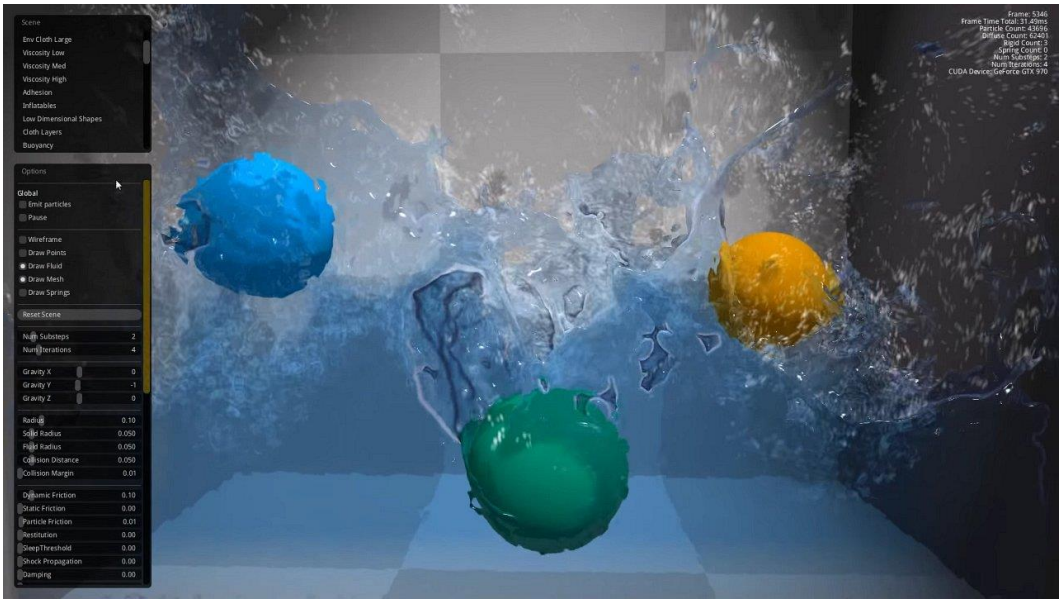


Figure 2.7.3: fluid Simulation



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# CHAPTER – 3

# CREATIVE PROCESS

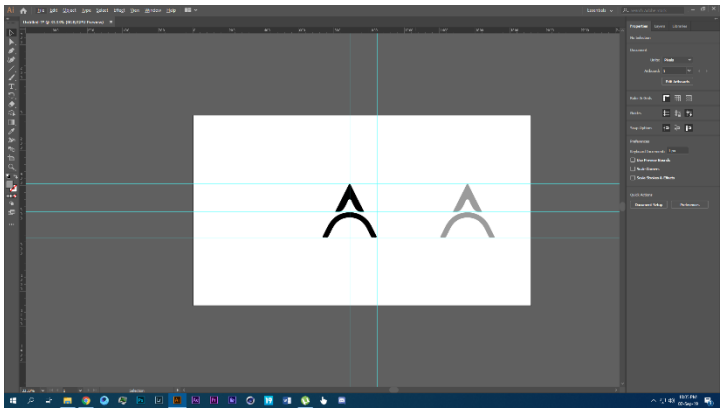
## 3.1 Generating idea:

The creative process is a step of preparation of a new idea through illumination, implementation, and evaluation. For an artist generating creative, unique idea and simple idea is what separate them from others. This stage was backbone for any project. We had to generate an idea that will attract our target audience. Timing has to be perfect as advert are small in size and time. we had to sit with all the group members and brainstorm to generate a perfect idea, goals, way of execution, what we are going to include what we not going to include, what will make our project different from others.

## 3.2 Branding:

The success of Advertisement depends on its ability to attract its target audience. Advertisement is to make target audience to familiar and a bond with the upcoming product, to make them believe this coming product is the one they are looking for. For this reason, having a brand identity was crucial for our advertising project. So, we decided to make our own brand and named it “Ava”.

So, we make our own logo for the “Ava”. The inspiration is was simple and aesthetic. As we named our brand ava we were focused on the letter A and V and blending it (figure).



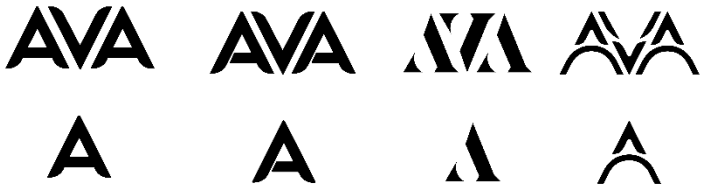


Figure 3.2.1: “Ava” logo building process



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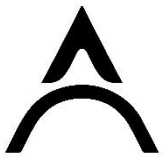

Figure 3.2.2: “Ava” logo

We have decided to use this as logo and it goes with our goals for this project and best display for our brand advertising We also wanted to make a small UI design for our mobile brand, and came up the this idea.

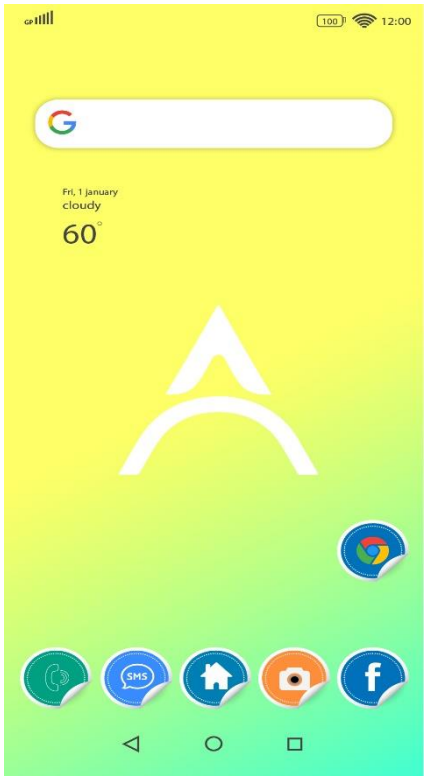


Figure 3.2.3: UI for Ava mobile



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## 3.3 Design inspiration:

Mobile phone has become evert day partner. And when it come to electronic device everybody wants some elegant design. Design is first way to attract consumer toward any product. Sometimes design connect user with the Mobile phone. There are many mobiles in market such as Hawaii, one plus, Samsung whose design, shapes of camera, sides, color inspired us to create our own model.

Figure 3.3.1: Hawaii phone

One plus and Hawaii are one of the finest designed set available in the market and their new upcoming feature has inspired to use them in you own mobile phone advertisement

Figure 3.3.2: One plus phone



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Figure 3.3.3: Four type color

Here I have used four different color for your mobile phone which were the Indigo cyan, Amber bronze, Cobalt blue, carmine cerise. Those are the gradient color which were specially target for the young aged peoples

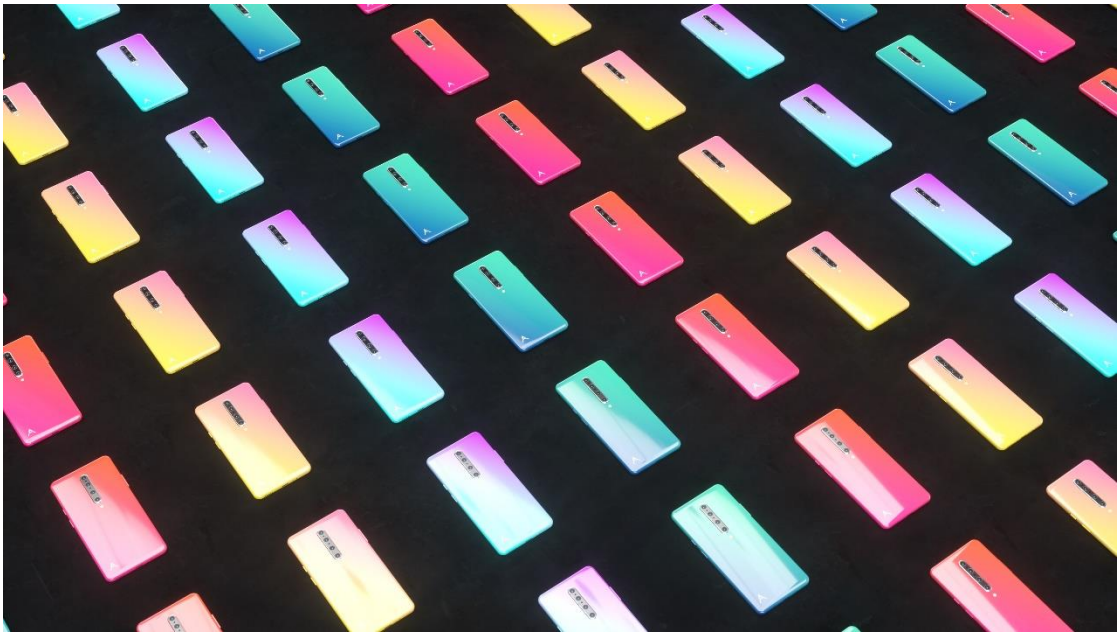

Figure 3.3.4: Four type color in serials



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# CHAPTER – 4

# STORYBOARDING

## 4.1 Storyboarding:

Storyboarding is basically illustration of each shot of the story or animation. Those illustration keep to keep tract with the visualization of the artist with the making of the Animation. Sometime All visualize element can't be made or not dynamic, so artist can easily change the story boarding according to need. Our storyboard was simple and we focused on the feature of the phone. There many adverts which inspired for shot division of story boarding example Galaxy S10 advert [1], ], Redmi Note7 of Xiaomi brand [2,3], iPhone x [4,12] . . The color and concept brands used for communicating and delivering for target audience are quite fantastic, holding rhythm to the animation is unique.

Our first shot is A tunnel of mobile shaped, and the camera is taking us inside the tunnel to the phone.

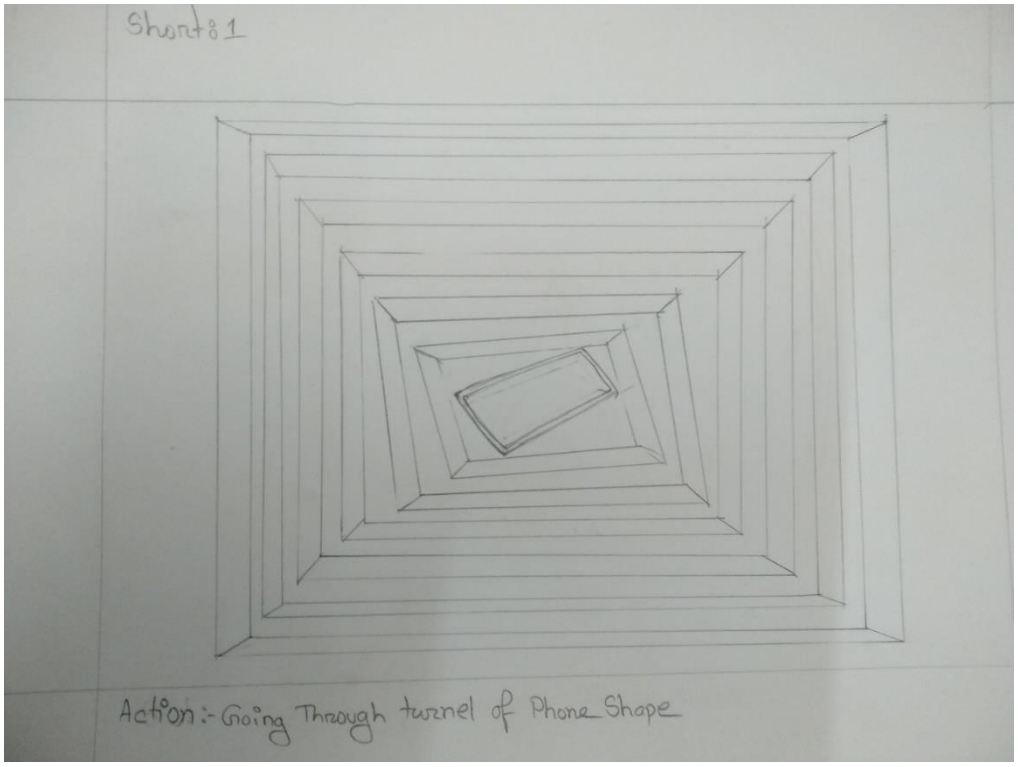


Figure 4.1.1: tunnel of phone shape



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Going inside the tunnel audience will see our phone and its brand logo animating inside the phone ,

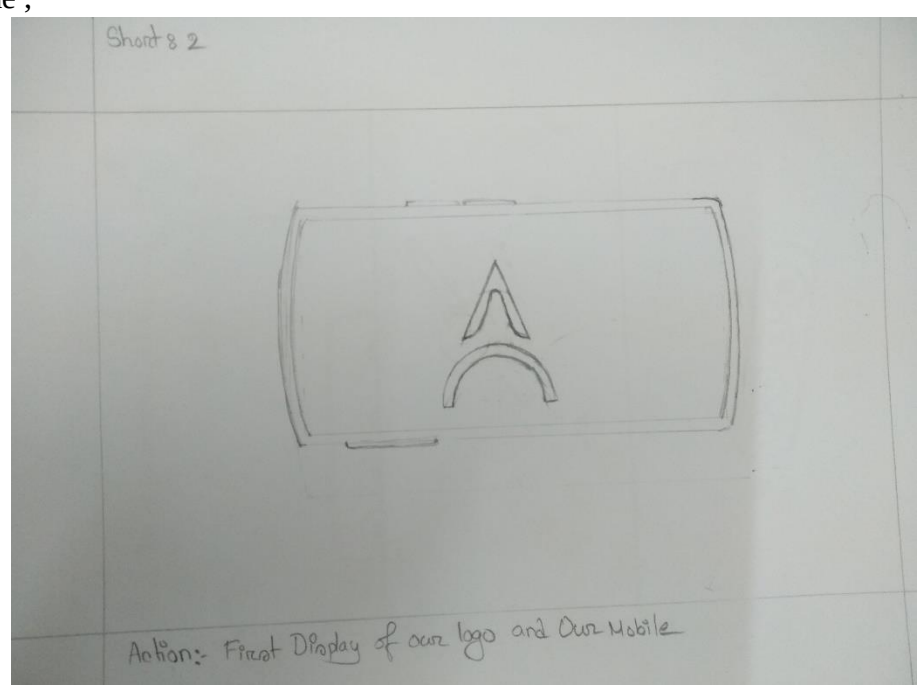


Figure 4.1.2: logo and mobile reveal

In this scene we will be showing our mobile phone, from various angels ( side view , front view ,back view)

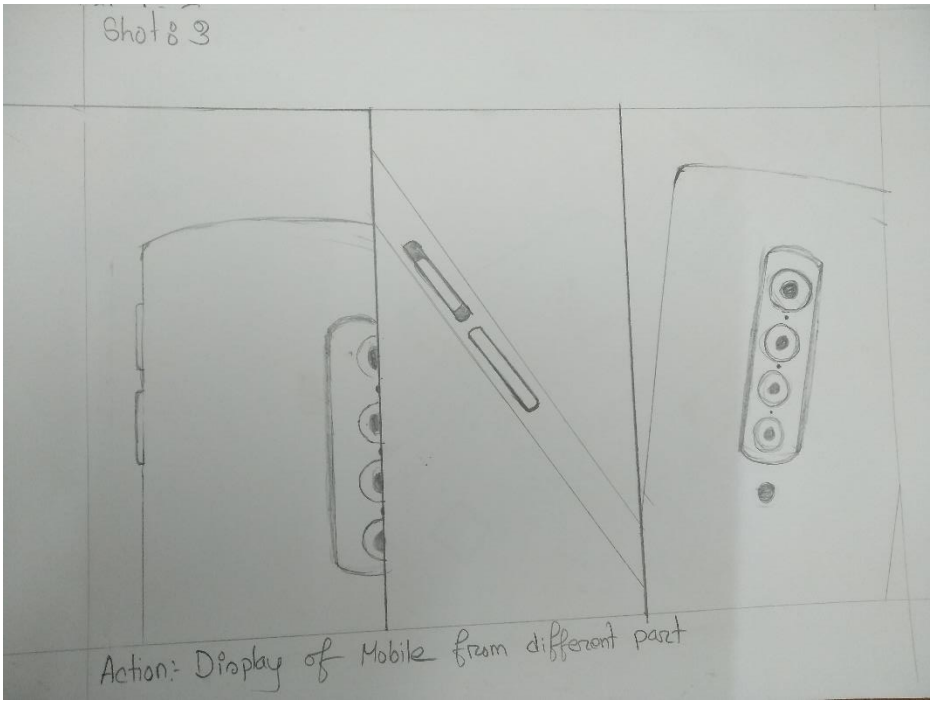


Figure 4.1.3: camera angle shots



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This scene is all about showing the processor kirin POWER with dynamic flow over the surface of motherboard surface.

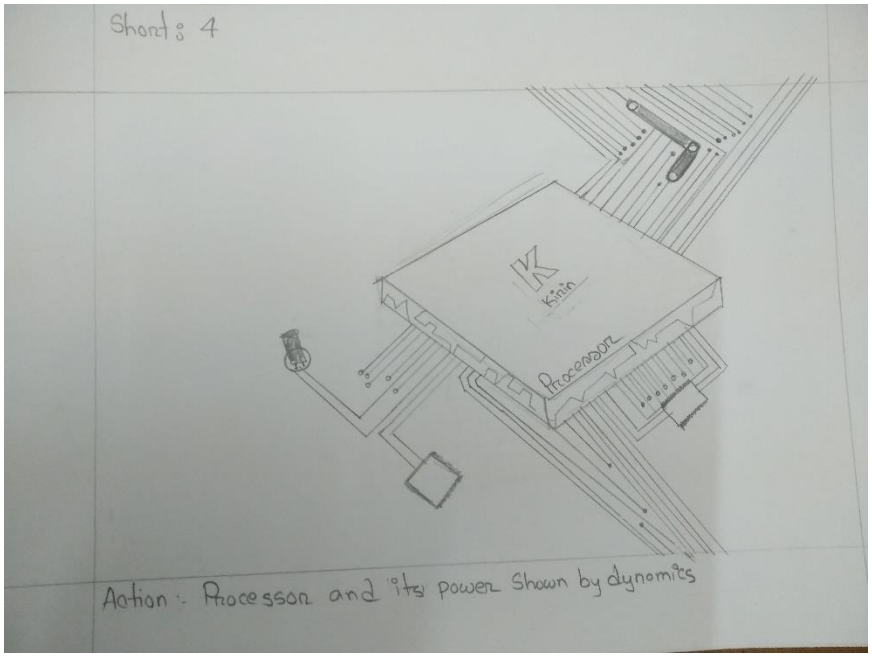


Figure 4.1.4: Multitasking processor

In this scene the battery life of the phone will be displayed by phone greater than a city, which is beautifully demonstrated by this concept

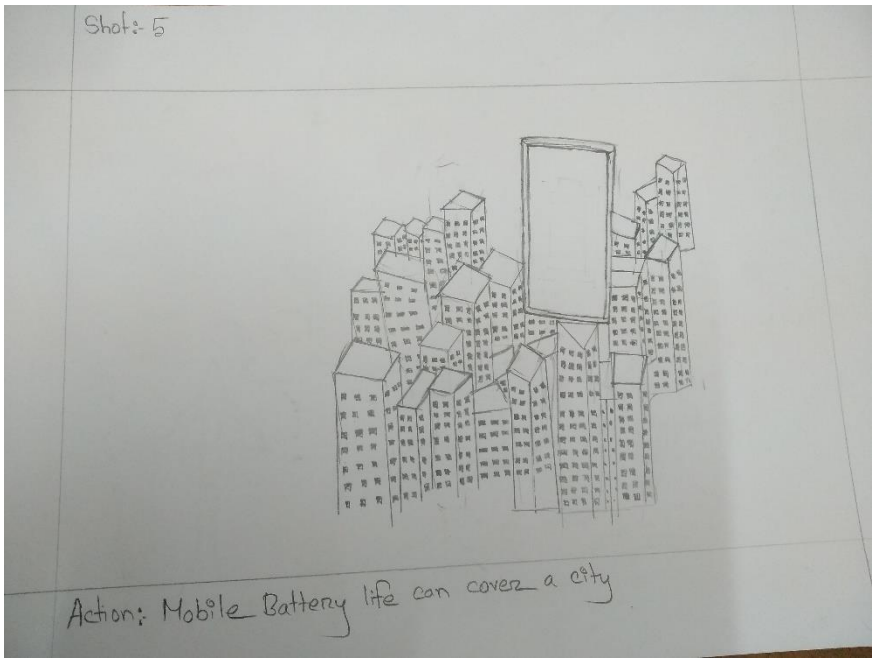


Figure4.1.5: battery life like building



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this shot is about the charging of mobile phone and its very fast like jet plane. Which will be displayed by charger flyer at the speed of jet.

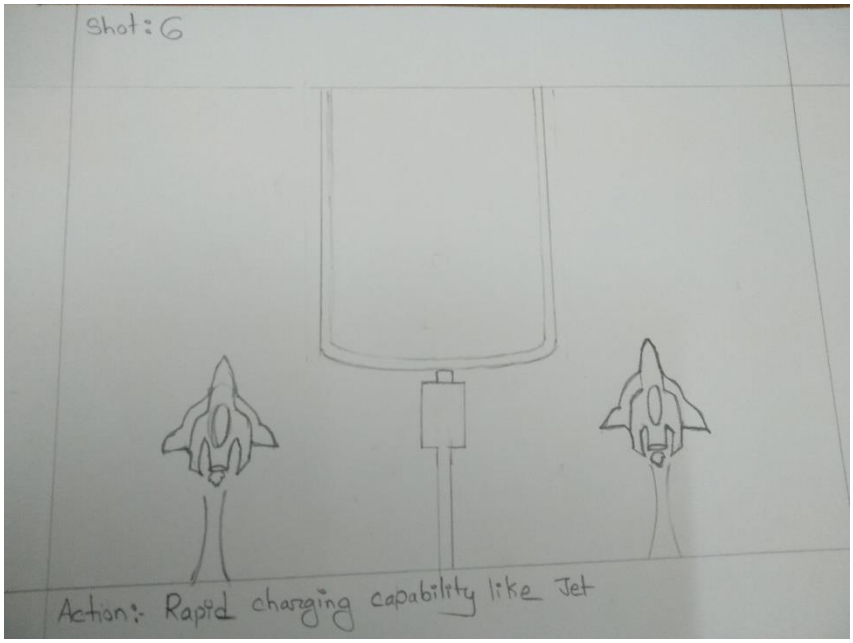


Figure 4.1.6: fast charging

In this scene a we will reveal the pop up camera where the ball bunching over the pop up camera and suddenly the camera reveals it's self with smoke dynamics.

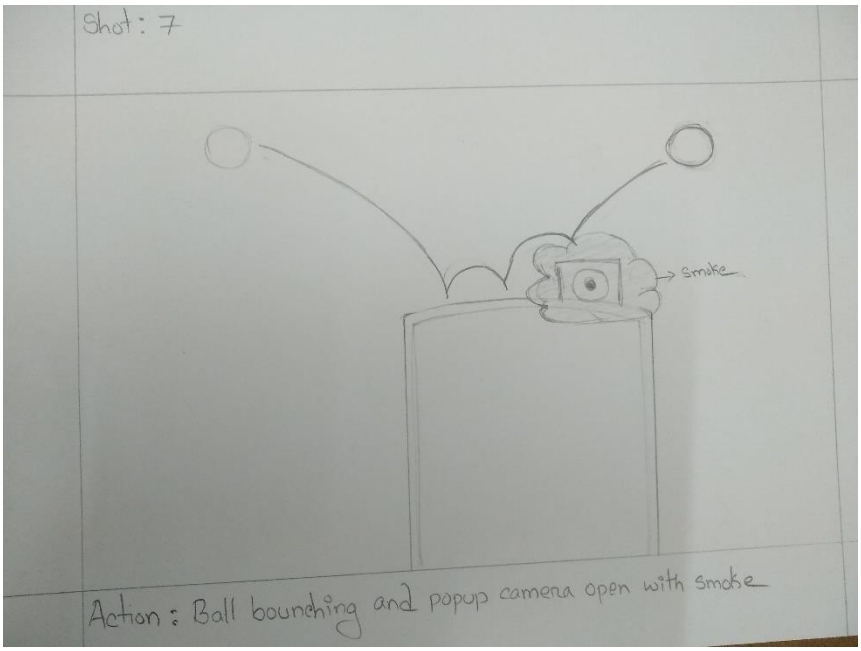


Figure 4.1.7: Pop camera reveals



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This is  the most exciting part where all the lens will be displayed part by part to show backside camera  depth.

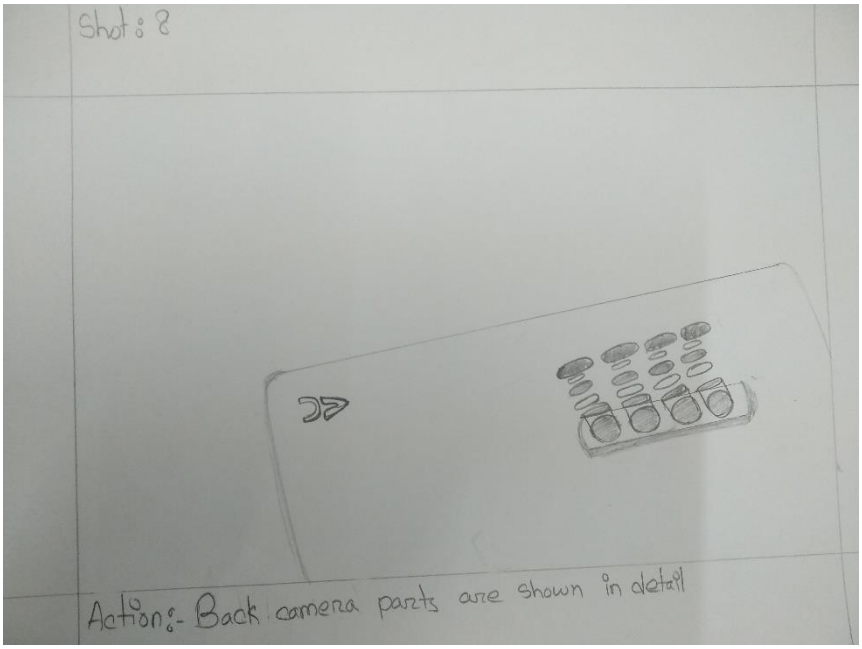


Figure 4.1.8: Backside camera lens details

This scene is all about continuing momentum for attraction with four different color set shown with bit.

Figure 4.1.9: Four type of mobile color shown



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There will be a lot parallel mobiles lying flat on floor and All those mobile phones in a row Will flip to show make more attractive scene.

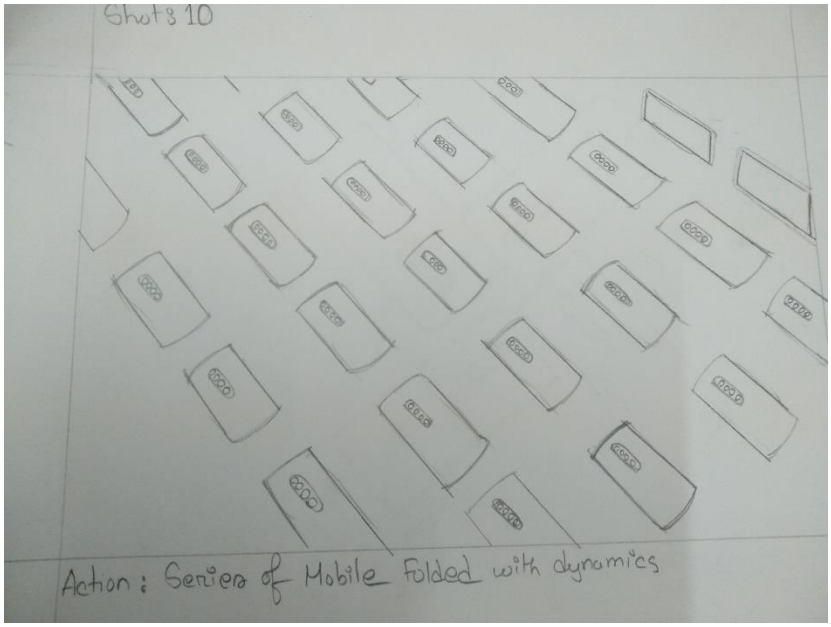


Figure 4.1.10: Mobiles Flipping

The advert will be closed by displaying four different kind of mobile rotating and will be available soon and displayed with our moto line

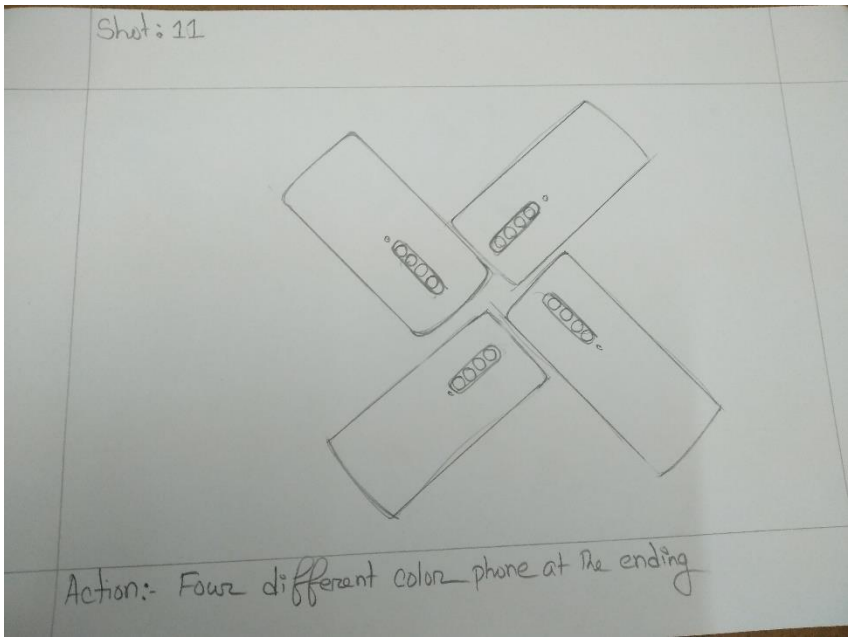


Figure 4.1.11: mobile rotating with tag line



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# CHAPTER – 5

# ANIMATION

## 5.1 Introduction:

We used key frame animation technique to animate our product of various scene. Key frames have been smooth with the help of curve editor. Then we animated scene from different Angeles in attractive ways

## 5.2 Animation procedure:

In After Effect the charge logo created with the help of wave effect and making the revealing

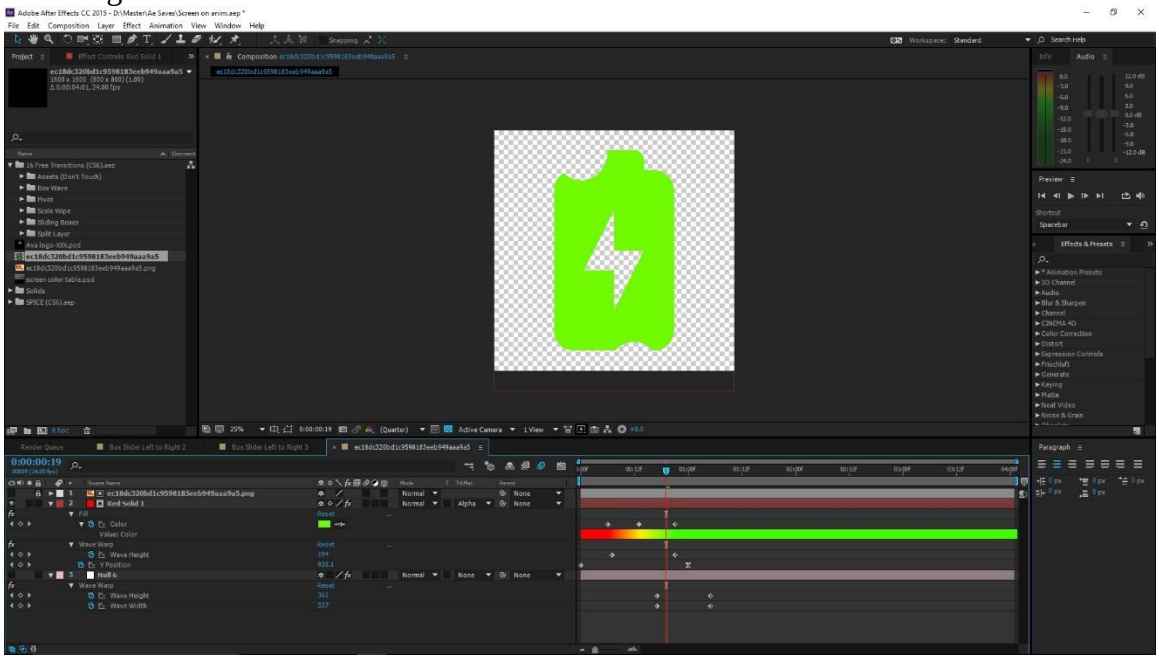

Figure 5.2.1: charge animating in After Effect



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Applying and animating the ultra-charging option in scene

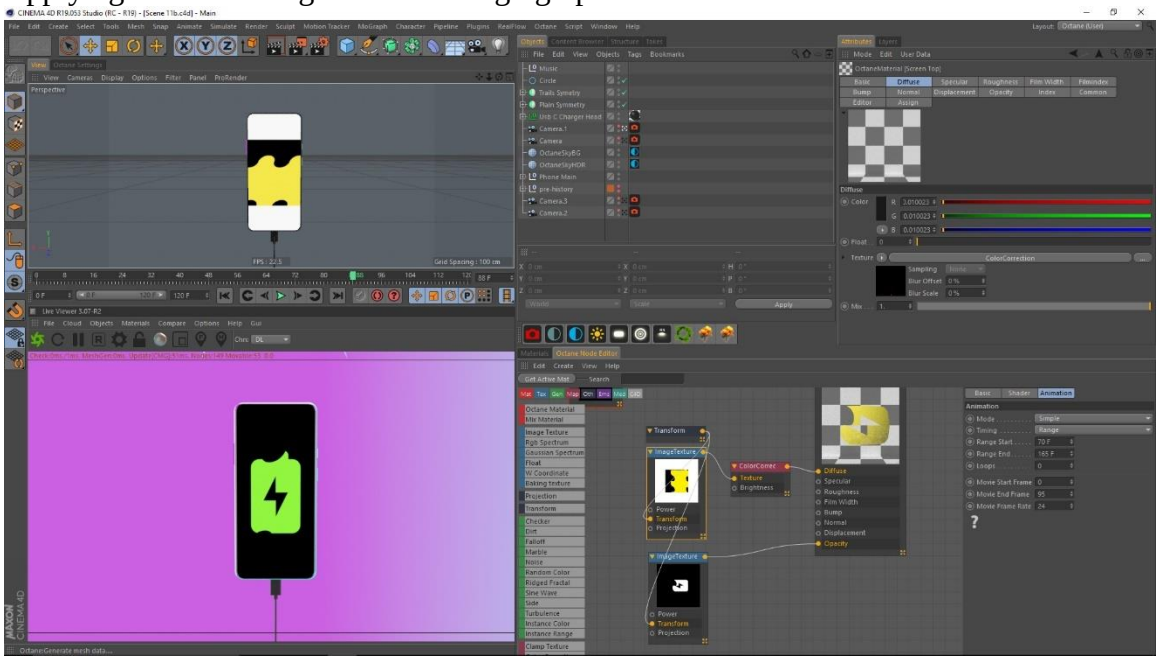

Figure 5.2.2: Charge animating applied

In After Effect the brand logo created with the help of solid and scaling and position changing

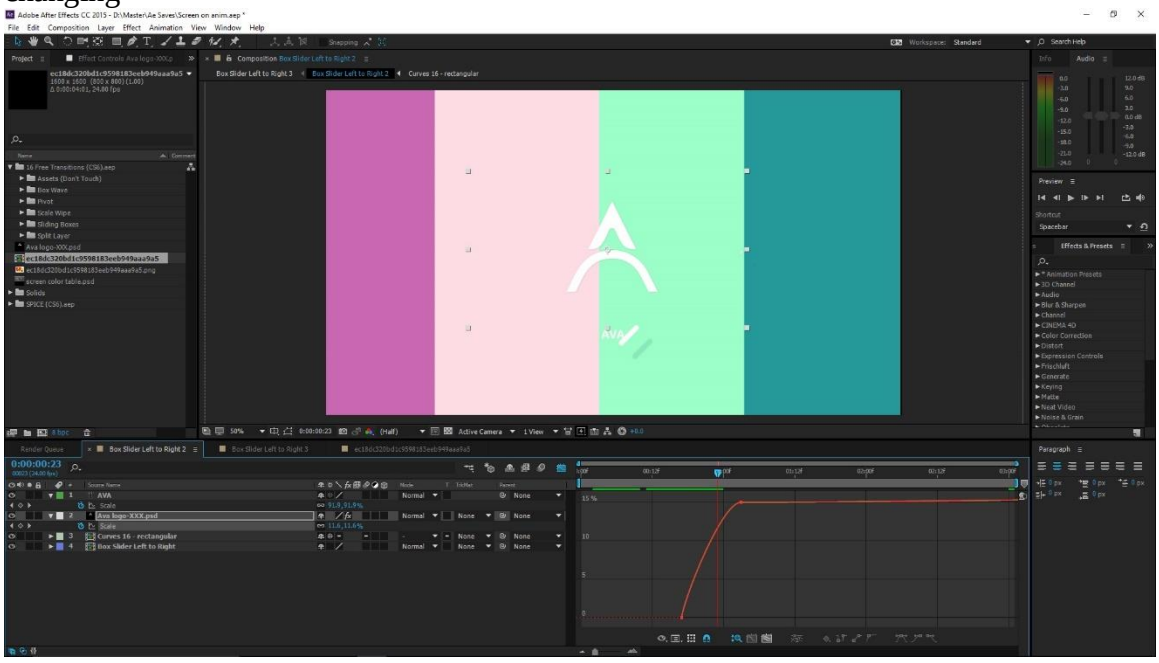

Figure 5.2.3: logo animating in After effect



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He the animated logo in the after effect is being applied in side the scene to match the direction and outcome of the shot

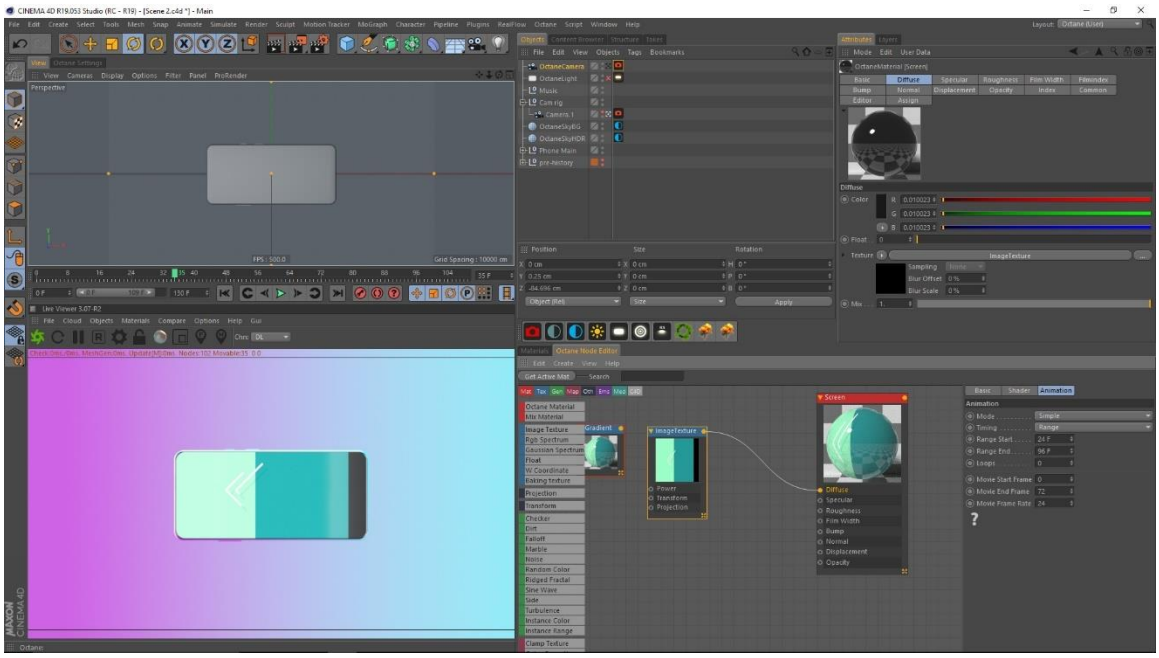

Figure 5.2.4: logo animating applied



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# CHAPTER – 6

# POST PROCESSING WORK

## 6.1 Introduction:

This project post production works were done using after effects to edit the various scenes together combining the video with sound, and color gradating using curves, vibration, hue/saturation and to output final render.

## 6.2 Post processing work procedure:

Post processing is very important aspect in the animation. The whole mood depends on it. All the elements are being combined and made ready for final.Exporting all the files of the render, audio and other files.

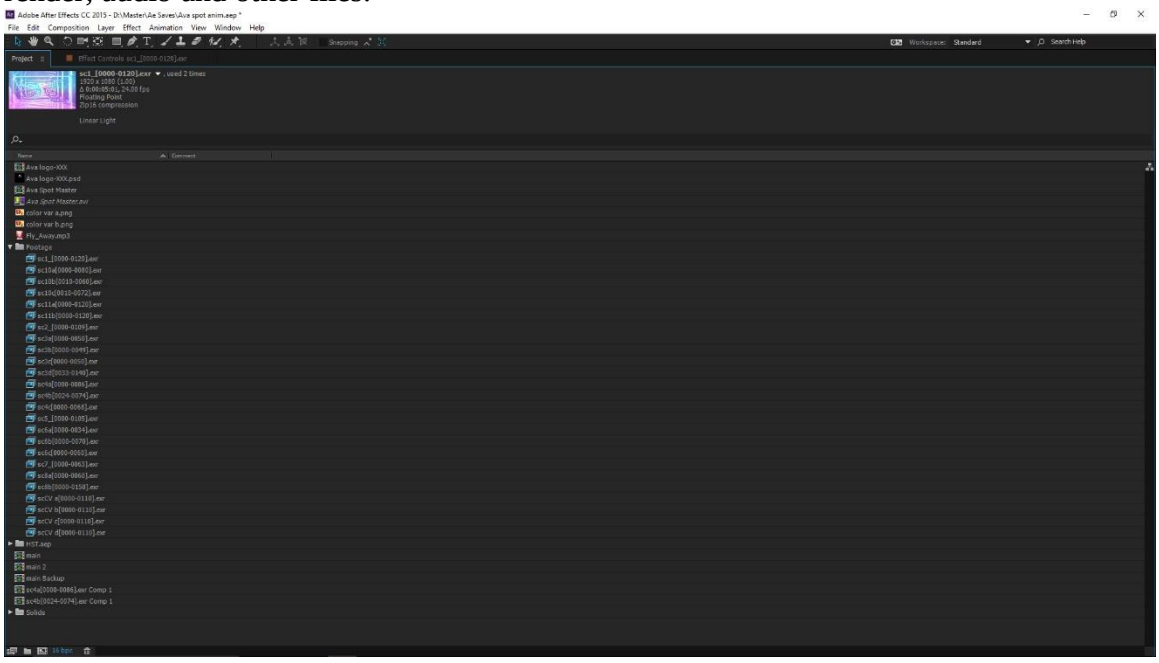

Figure 6.2.1: Setting up project



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All the files are being cut and arrange according to the need of motion. There may be a lot of layers to work in the timeline.

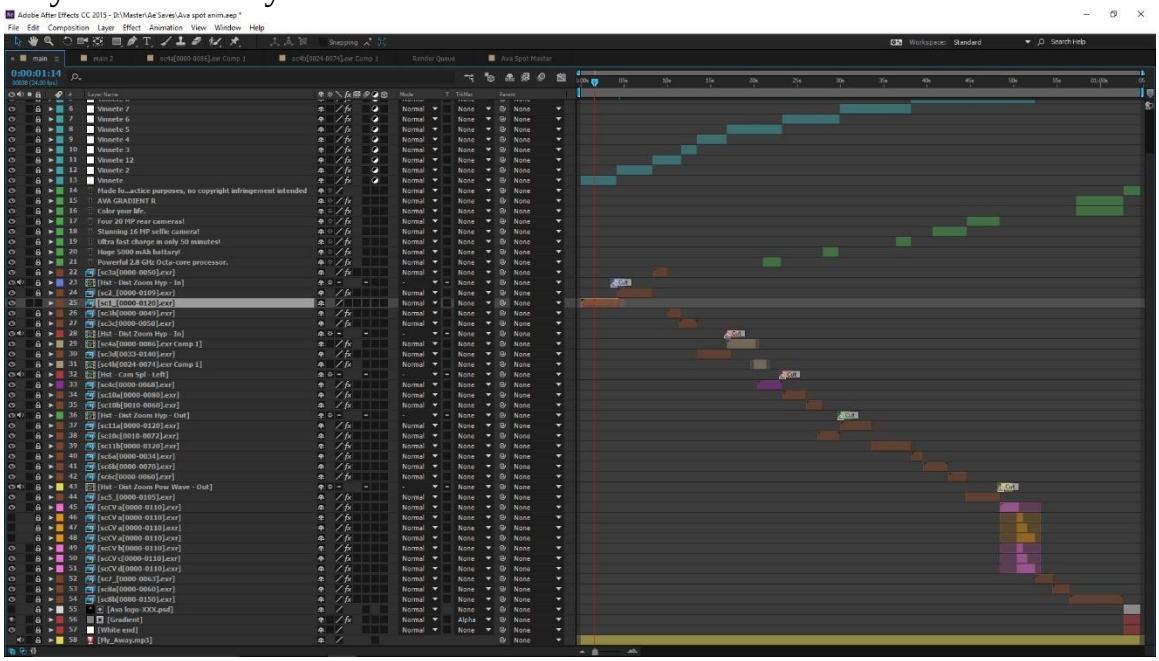

Figure 6.2.2: All the layer arranged

Raw footage is being imported and then they were color corrected by the use of different effects.

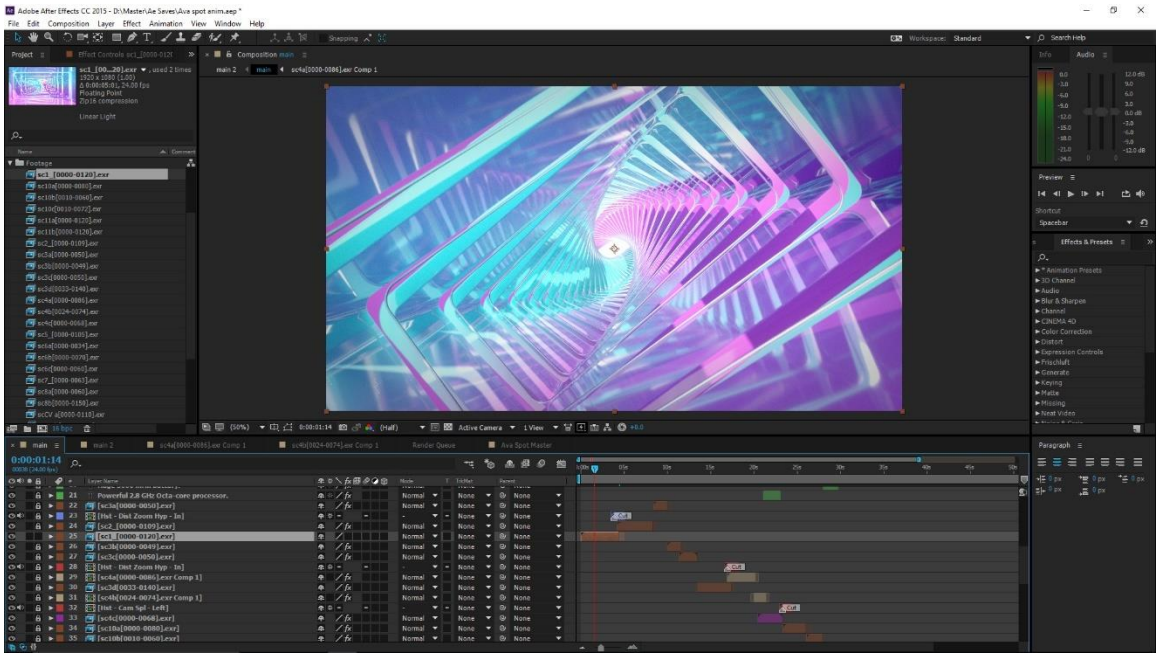

Figure 6.2.3: raw footage



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Using the effects such as levels, con curves, vibration , Rsmb.

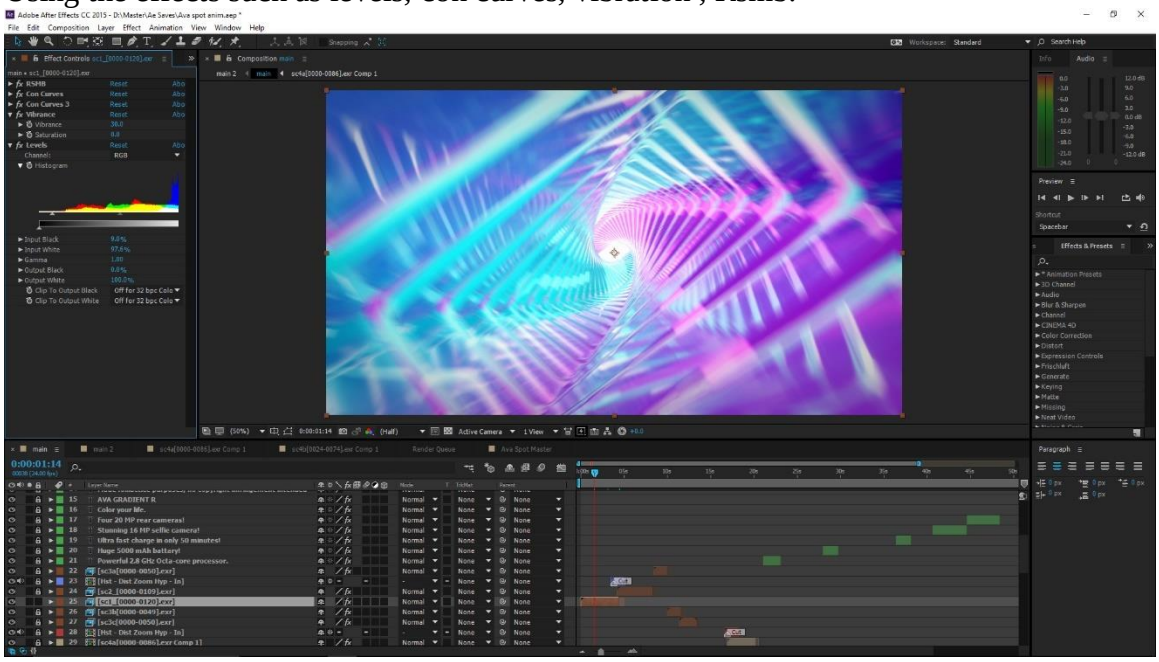

Figure 6.2.4: Effects on raw footage

Raw footage is being imported and then they were color corrected by the use of different effects.

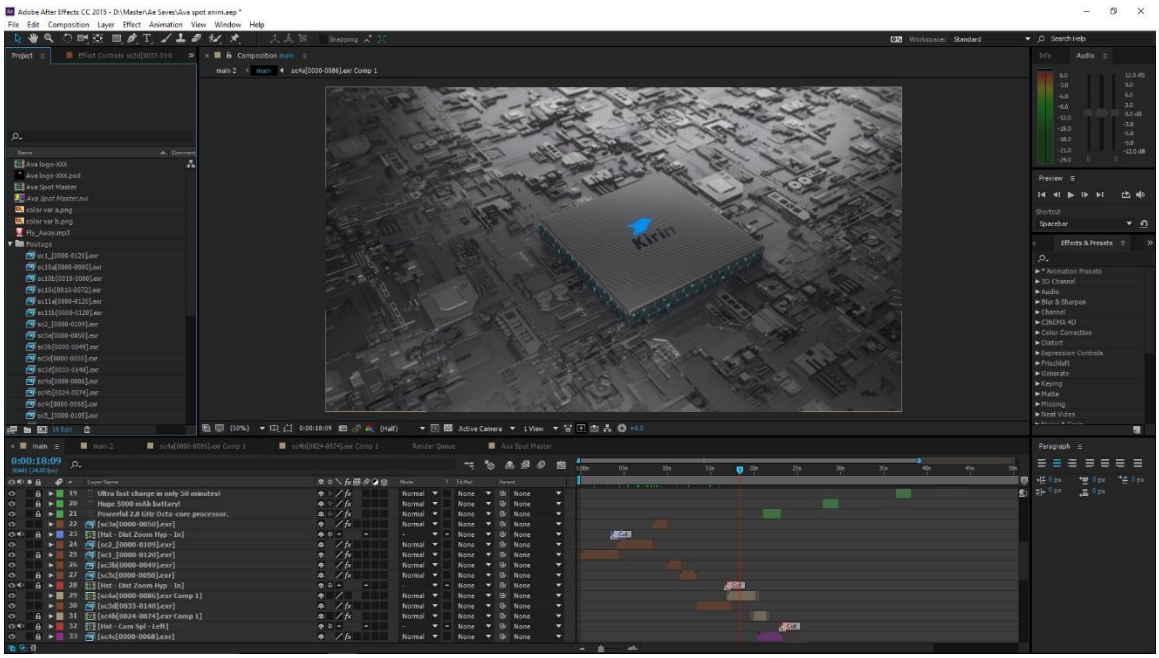

Figure 6.2.5: Raw footage



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Using the effects such as levels, con curves, vibration , Rsmb, hue/saturation.

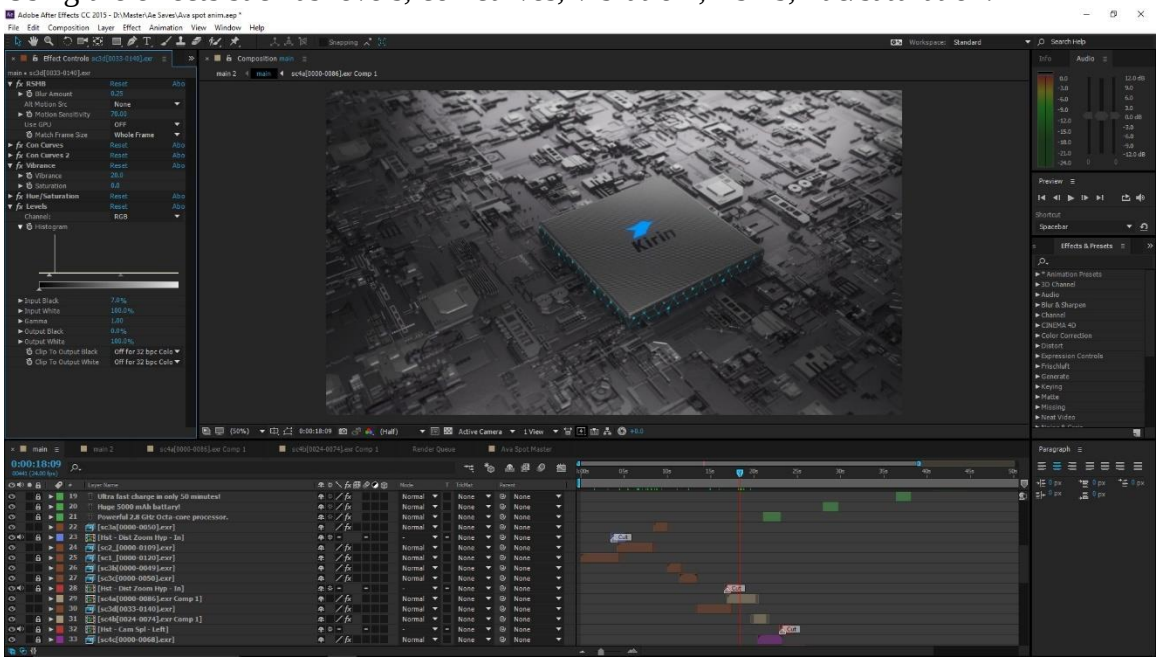

Figure 6.2.6: Effects on raw footage

Raw footage is being imported and then they were color corrected by the use of different effects.

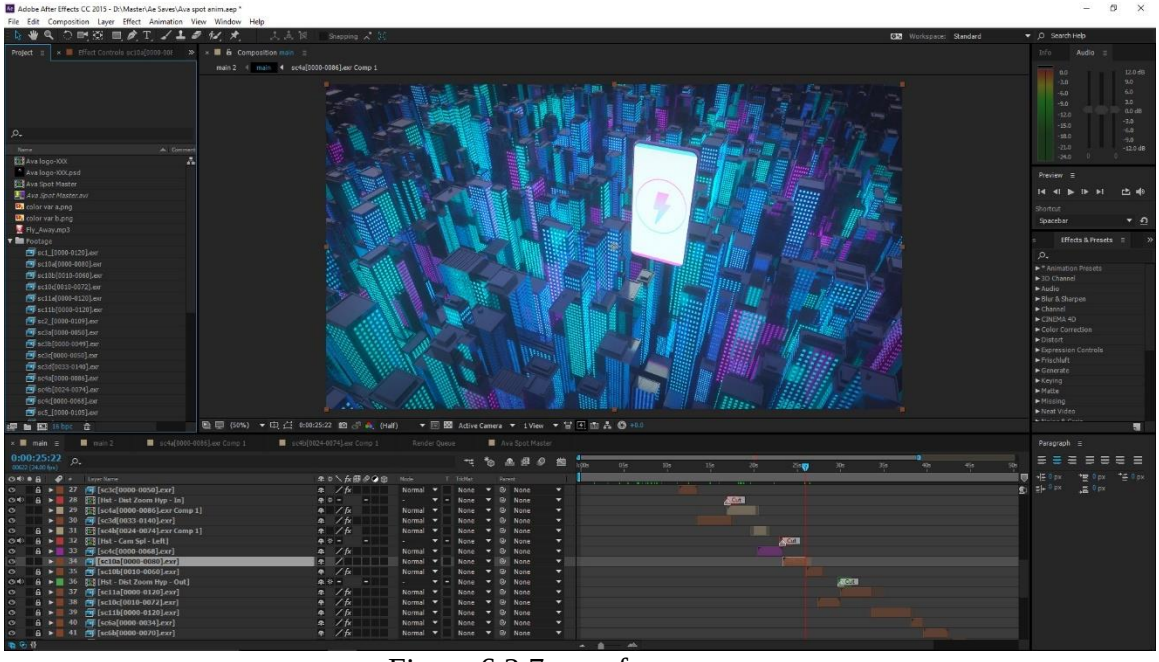

Figure 6.2.7: raw footage



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Using the effects such as levels, con curves, vibration , Rsm.

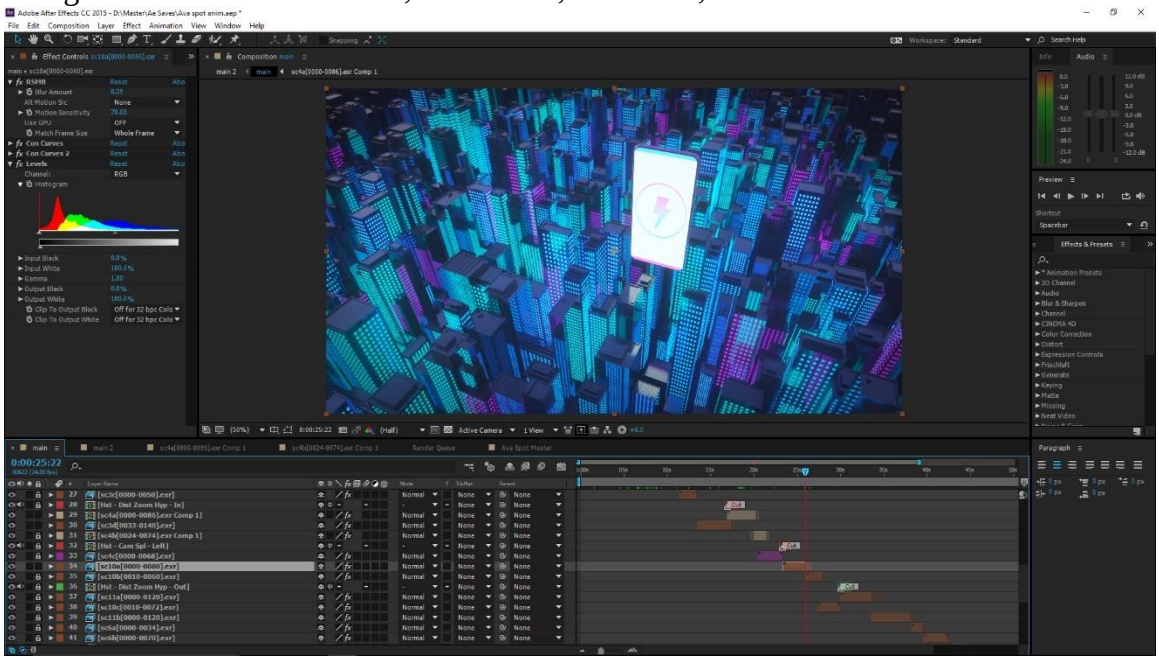

Figure 6.2.8: Effects on raw footage

Motion bro plug in used for creating transitions. which is very dynamic and famous for creating transition in the after effect. And has option to change the blending of scenes as per user need.

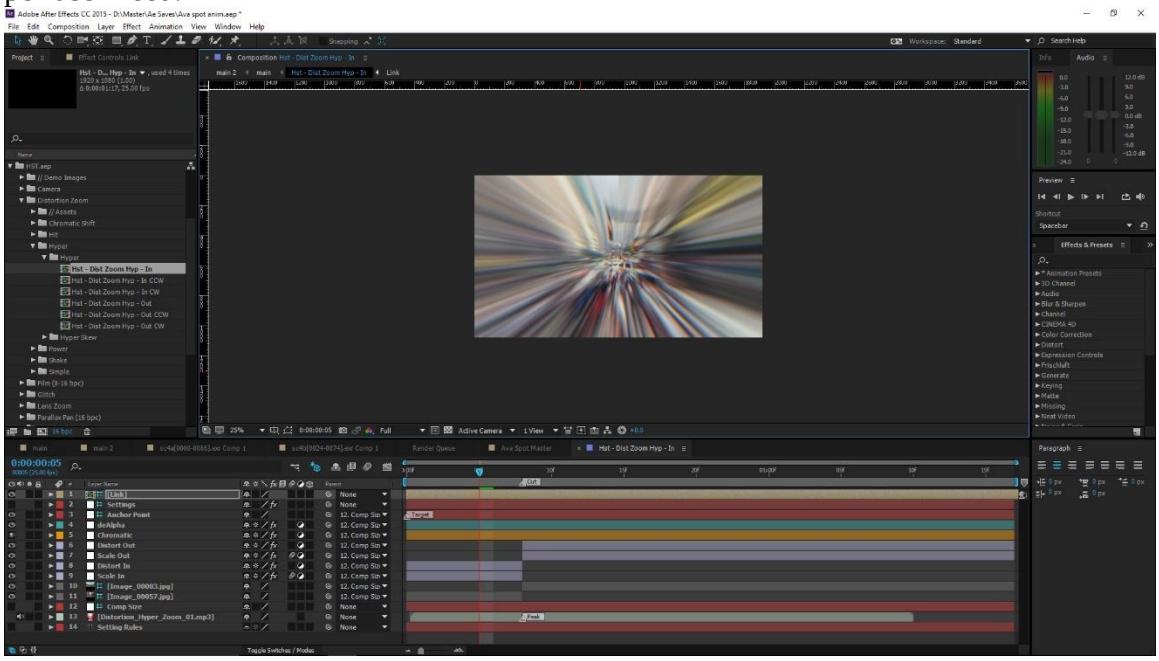

Figure 6.2.9: Motion bro transition



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All the elements are being given a specific effect in the adjusting layers.

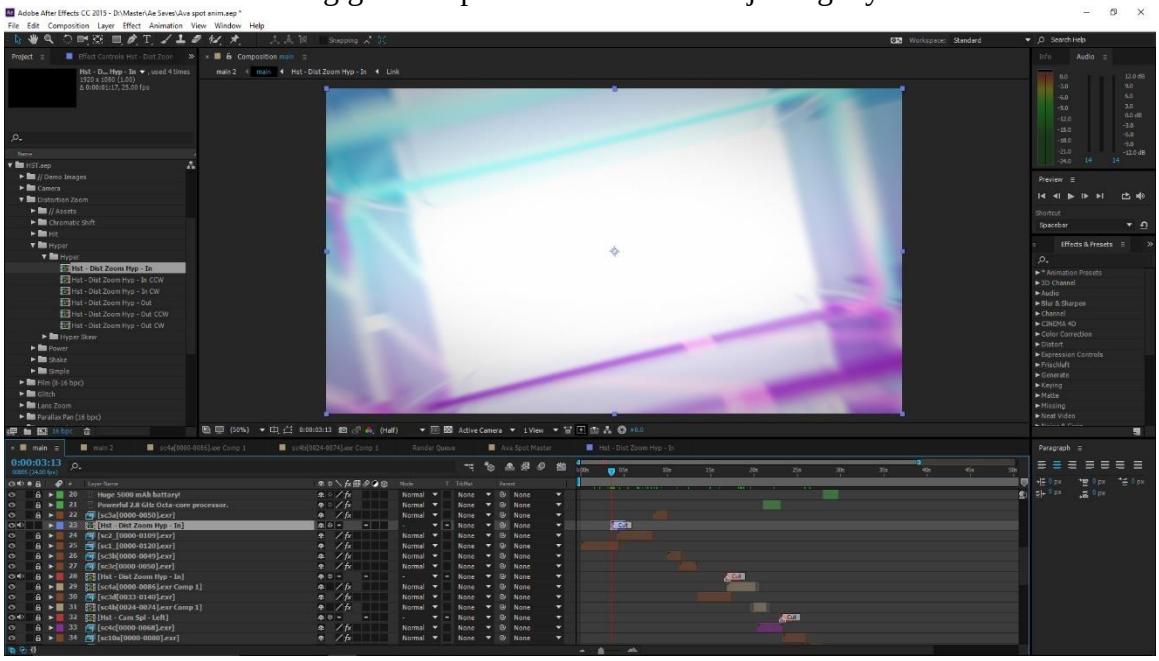

Figure 6.2.10: Adjusting layers

Adding sound and sync with footage with sound to match the beats and basses. This is very important factor as the whole mood depends on the sound base and bit and audience are most like to get attract because of this.

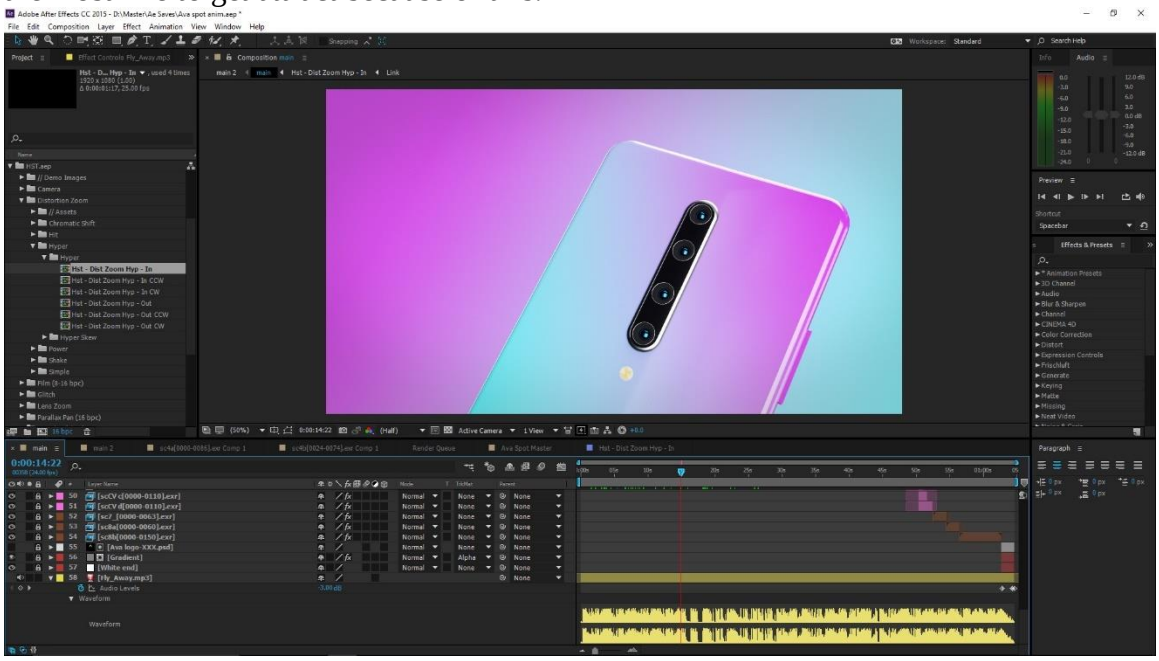

Figure 6.2.11: Sound syncing



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Rendering final output as the H.264. which is very common mp4 format which can be used in any players or uploading in the websites.

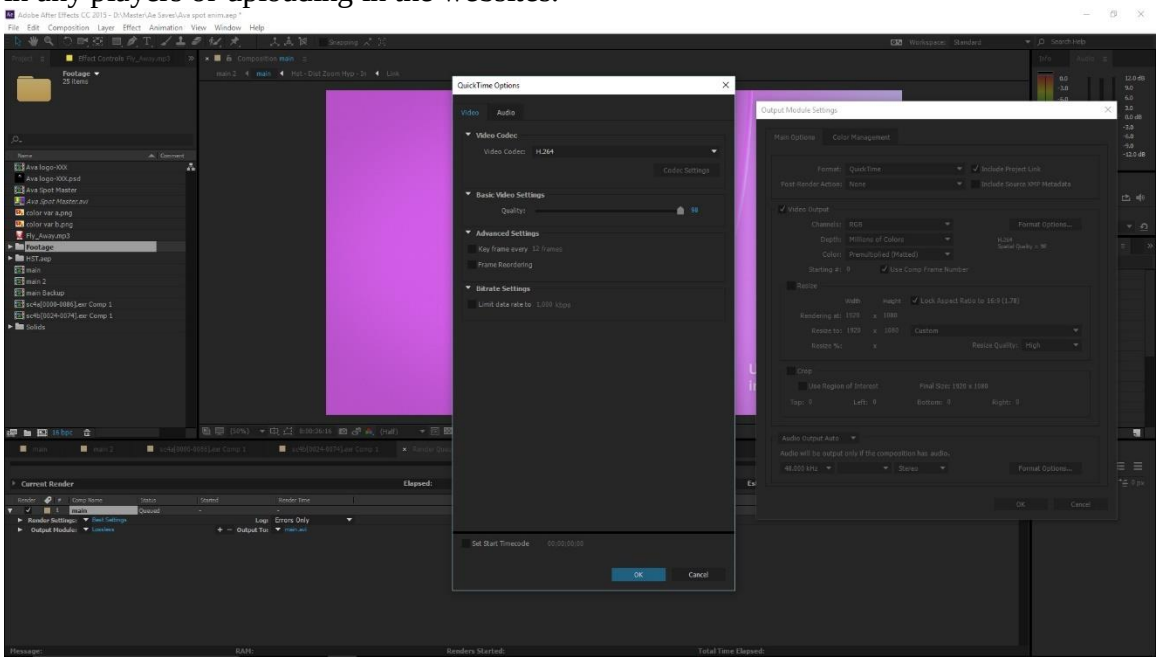


Figure 6.2.12: Rendering final output



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# CHAPTER – 12

# CONCLUSION

The ever-changing mobile landscape gives brands lots of room to be creative in how they market to consumers in the space. Now, rather than seeking engagement through banner ads or videos on mobile, advertising technology company has leveraged 3D adverts to help brands target and engage with their audience. 3d advert deliver a realistic virtual showroom experience on mobile, which is more compelling and immersive than traditional 2D ads.

This project will be challenging for me. Making a quality standard advert maintain color, concept building and catching the eye of viewers at the whole advert will be difficult. In our country 3d advert is not that much flourished because of budget issue. Local brands are not interest in investing 3d advert as it is costly but there are unaware of the fact that it is the most standard and abstract form to create consumers, also will give them much more return. With CGI, you can highlight your product's best features. With CGI, we can show our product from all angles, in different colors, and in all variations.

The concept of 3D mobile ads is certainly innovative in our country, but creating a quality 3D ad is no easy task. The high quality has to be delivered by showing mobiles attractive features frame by frame is quite a hard work. With 3D ads, shoppers are able to experience your products and explore them in more detail than through any static image.

Our target is provide a quality full CGI 3d Mobile advert which will be standard like those of Samsung, apple and others. As the technology is Bangladesh changing we should welcome 3d in advertising sector rather than only traditional live action.



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# REFERENCE


1. Samsung(Feb 20,2019),Galaxy S10: Official Introduction, retrieved on July 20 ,2019 From "https://www.youtube.com/watch?v=ZCfgkIyD9g0"
2. Argus World (Mar 16, 2019), Redmi Note7 Official Trailer Commercial, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=k67CYdqrqYU"
3. Xiaomi Egypt ( Mar 25, 2019),Redmi Note 7 Product video, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=GZx3OhKzbao"
4. Apple (Sep 12, 2018), Introducing iPhone XS and iPhone XR, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=9m_K2Yg7wGQ"
5. SOMEI 孙世晟 (April 14th, 2019), OPPO Reno, retrieved on July 20,2019 From "https://www.behance.net/gallery/78916539/OPPOReno?tracking_source=search-all%257Coppo%28oppo%29"
6. Gadget Icon (Oct 16, 2018), HUAWEI Mate 20 Pro Official video, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=fYkKY8KRIc8"
7. Master Pictures Inc. (April 25, 2016), HUAWEI P9 Brand Film, retrieved on July 21,2019 From "https://vimeo.com/164085857"
8. Master (June 19th, 2019), HONOR 20 PROMO : WONDER, retrieved on July 20,2019 From "https://www.behance.net/gallery/81789227/HONOR-20-PROMO-WONDER?tracking_source=search-all%7Coppo."
9. Sparrows News (May 28, 2019), Redmi K20 Pro Official Promo, retrieved on July 20,2019 From https://www.youtube.com/watch?v=h0eKwTn-8ko.
10. Yambo studio (December 11th, 2017), Xiaomi Mix Mi 2, retrieved on July 20,2019 From "https://www.behance.net/gallery/59594365/Xiaomi-Mix-Mi-2?tracking_source=search%7CXiaomi%20mi"
11. Gulbahar Technical (Dec 7, 2017), Xiaomi Redmi 5 , retrieved on July 20,2019 From "https://www.youtube.com/watch?v=AAC_pqOTd0w"
12. Motion graphics collected (May 7, 2019), Some Experiments with animation and camera settings.., retrieved on July 20,2019 From "https://www.instagram.com/p/BxJpJRAItrk/"
13. Wikipedia,Path tracing, retrieved on July 20,2019 From "https://en.wikipedia.org/wiki/Path_tracing"
14. Maxon, Cinema 4d (r19), Retrieved July 21, 2019 From"https://www.maxon.net/en-us/"
15. Timbaland (Jun 16, 2009),Timbaland, OneRepublic – Apologize, retrieved on September 20,2019 From https://www.youtube.com/watch?v=ZSM3w1v-A_Y




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## APPROVAL

This Project titled "**Product visualization using computer generated imagery,"Developing Concept, Short Direction, Animation, Post-production"**, submitted by Mir Mahmudul Hassan 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 December 26, 2019.

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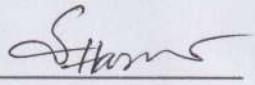

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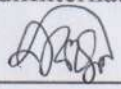

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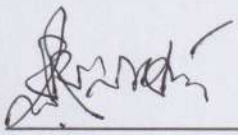
## DECLARATION

We hereby declare that, this project has been done by us under the supervision **Arif Ahmed, Adjunct Associate Professor, Department of MCT** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

**Supervised by:**



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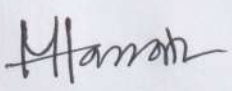
**Submitted by:**



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At first and foremost praise is to “ALLAH the Almighty” the greatest of all, on whom ultimately we depend for sustenance and guidance to complete my final project.

Now, I would like to thank and express my deep and sincere gratitude to my supervisor **Mr. Arif Ahmed - Associate Professor**, Department of MCT, Daffodil International University, Dhaka. Deep knowledge and keen interest of my supervisor in the field of "3D Modeling and Animation" to carry out this thesis. His endless scholarly guidance, patience, continuous encouragement, continuous and vigorous monitoring, useful advice, reading many lesser drafts and correcting them at all stage have completed this Report. I appreciate all his contributions of time, support and ideas.

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# ABSTRACT

The project aims to create a short product animation of a smart phone. Which can be used for the purpose of advertisement and attracting consumer attention. The entire project was created using CGI (computer generated imagery) technology. My part on the project consisted of Developing Concept, Short Direction, Animation, Post-production for the project. Which were used for creating the concept, shot direction of scenes, color grading, adding sounds, 2d images or texture all in 3D. It was done using tools and techniques in Photoshop, Illustrator, After effects, etc. In future, the project can show people of different industries the capability of CGI to produce attractive advertisements for products.



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# CHAPTER – 1

# INTRODUCTION

## 1.1 Introduction:

Animation is about generating sequential drawings or pictures by way of various procedures for creating movement. It creates an optical illusion through which we are able to see still images or drawings rapidly moving. Animation is the only medium that can bring our fantasies to life. 3d animation is the future with the advance of technology such as AR and VR. This took our entertainment sector to a new Hight and connecting real and virtual with the help of 3d. Making 3d animation is complex and timing consuming process. Every Elements has to have an accurate value to make a realistic 3d animation.

Artists and Filmmakers uses Computer Generated Imagery (CGI) as a tool to better tell their stories in abstract ways. CGI is not just computer-generated imagery but also combination of thoughts, designs, experiments, and art of artist. In recent years the use of 'Computer Generated Imagery' (CGI) in advertisement industry has grown immensely. A big percentage of advertising industry is adopting CGI for better telling their stories. Now a Days Big Mobile phone companies such as Samsung, Apple, Xiaomi, Huawei uses high quality CGI advert to attract its consumer. Such as Galaxy S10 advert of 2019[1], Redmi Note7 of Xiaomi brand [2,3]., iPhone x [4,12].

Apple, Samsung, Xiaomi, Huawei Makes high quality standard 3d advert. Their most of the 3d advert are more simple, attractive, entertainment and communicative. Their short duration 3d adverts says thousand words. The numerous features of the phone are conveyed effectively to the viewer which boosts product selling chances. Brands 3d advert deliver a realistic virtual showroom experience on mobile. Now a day's people's like to watch the latest feature available Offered by their favorite brands and 3d advert offering them more attractive and dynamic visualization.

This project report displays the review of working process of making a standard mobile advertising with the help of different techniques and 3d software's. The report is the guide for the making a CGI mobile advert animation that portrays modelling to animation of the product and final output for customers in the market. The animation has to very eye catchy. So that it can attract viewer attention and hold it. Syncing the animation to music can help achieve this. It will also add a rhythm to the animation making it look much more interesting. I will have to aim for snappy and fluid motions during the animation to achieve a good fun quality of animation. Cinema 4d [14] will be my choice in animating the advert, as it good for motion and abstract art making.



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## 1.2 Project Goals:

The goal of this project is to create a CGI Advertisement which portrays mobile phone features in abstract, attractive, entertainment and commutative manner. Our country is still quite behind in producing good quality CGI for product advertisement. Often Bangladeshi mobile adverts fail to fulfil its purpose compare to others outside of country. Local mobile companies are also unaware of the uniqueness of 3d advert standard in recent mobile industry. There is a huge market for advertisements in Bangladesh. It is rapidly growing. Expected to grow by $457 million between 2017 and 2020. This report clarifies the step by step to create a standard mobile advert which can be compared with outside advert of our country, Also branding for out mobile phone companies.

Mobile CGI Adverts is generally fun to watch and creates a higher viewer engagement than traditional adverts. It helps us to be a lot more creative as we can present almost anything in animation, we don't have to stick to what is realistic or possible as you would with live. As 3d is developing in Bangladesh, in future it will be create a great impact in Bangladesh. With CGI, we can show our product from all angles, in different colors, and in all variations.
live-action advertisements are time-consuming process than Animation. We can immediately edit an animated work but the actual video editing when the work must be done after the initial shooting. Investing in animated advertising can give local mobile companies a much larger return while still providing a means to attract our country customers.

## 1.3 Target Audience:

Our target audience this project are young people of age from 18 to 35 people who loves to see attractive features and pleasing color with their taste for their phones. Communicating with audience is the primary target for this advisement. The goal is to establish interest and mind set to buy the tempting upcoming mobile. With this in mind we have decided to use gradient color for our phone advertisement and keep it in one gradient color because it catches eyes, gives different tone, vibe for taste of youth and gradient color are more expressive the traditional one solid color .We have used gradient color of purple and sky blue where purple is used to express royalty, power, ambition, independence, peace, pride, mystery, and magic. On the other hand, blue used for trust, loyalty, wisdom, confidence tranquility and calmness for the youth to middle age.



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## 1.4 Project Timeline (Gantt chart):

Gantt is can be said as backbone and very important for any project to keep up with the plan. Gantt represent the Project schedules, Activities, Clear visibility of Dates and Time Frames and helps to effectively manage the Team. This graph is like a bar diagram where the works will be done are marked with bars from the being date to complete date of the final point of project. This project will take time span over a sixteen weeks schedule. The timeline is very tight so it has to be managed correctly and this the guide which will keep us on track.

Table-1.4.1: Gantt chart of Product visualization using computer generated imagery of mobile Adverting.Green mark parts are done by me.

| | | | Week | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Numbers | Task | Total Duration (weeks) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 01 | Research | 1 | | | | | | | | | | | | | | | | |
| 02 | Brainstorming | 1 | | | | | | | | | | | | | | | | |
| 03 | Concept development | 6 | | | | | | | | | | | | | | | | |
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# CHAPTER – 2

# LITERATURE REVIEW

## 2.1 CGI Works In 3D Advertisement Industry:

3D advertisement is the recent industry standard for product visualization.3D in advertising industry is offering a wide range scope for 3d artist to display their creativity, which is essential for attracting consumer at present 3d based generation. Popular mobile brands such as as Samsung, apple, Xiaomi, Huawei, Oppo are successful at their sales through creating market value among its consumer with help of CGI based mobile Advertising and is one of their primary means for Advertising products for them. Iphone is focus on to take a giant leap forward in mobile photography giving extra edge to image quality with high resolution and zoom which was beautifully displayed in the promo for IPhone X [4,12]. Their camera angle, movement, color tone, transitions and blending shorts are inspiring and I will be focusing to get those kind of short in our advert.

Samsung is focused on their design and processing platform targeting business class people. Their main focus was extra-large display, elegant design, multitasking platform, also better camera quality, those features were attractively shown in their Galaxy S10 advert [1]. This type of work has inspired us to work on our short division of 3d Avert mobile. The color and concept brands uses for communicating and delivering for target are quite fantastic, holding rhythm to the animation is unique. The mobile 3d advert quality of our local brand far behind then of outside our country. Also, its hard to find any 3d advert for local brand such as Walton. Compare to outside brands our local band fails to create impression among user and our country is not developing in advert industry.

Recently, OPPO released a new series called Reno, hoping to encourage everyone to make life more imaginative through creativity.[5]. So, they hope to create a magical city, but the seemingly ordinary scene will be unexpectedly changed. The main feature of their product was the 10X optical zoom. So they tried a lot of exaggerated lens movements, hoping to let the audience intuitively feel the "zoom" experience.

Another china company which is creating great market value with their CGI 3d advert is Huawei[6].There is more clear and simple target the core feature their giving to consumer such as dust/water resistance , longer battery etc. are amazingly visualized. Huawei p9 design work was inspiring in 2016[7].Also honor 20 promo[8] where The fantasy environment and amazing imaginary animals are emphasized with stylized color and lighting condition to create a variety of exotic tonality. Honor logo identity is created with growing exotic plants & owers. As the viewer camera gradually penetrates into the logo, the plants and owers start to grow plentifully, and they are shown in the whole screen. The



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variety of Wonder natures is displayed with Honor 20. Those kinds of color and abstract things should easily attract customer.Xiaomi is also has established them as high quality brand in asia. Their mobile 3d advert visualization is extra ordinary. such as the advert of Redmi K20 Pro[9] , or Xiaomi Mi 2[10], Xiaomi Redmi 5 [11]. The concept of their mobile was nicely presented with abstract design. All the features were abstractly presented and a smooth and cool color visualization is done matching their mobiles color.

Those types of work inspiring for 3d advert in advertising industry. As our country is in search of quality, if we can follow and deliver that kind of visualization, our country mobile can also get high market for 3d Advertising. As Bangladesh is getting familiar with 3d works, so our country brands need to acknowledge the important of 3d advert for showing more futuristic feature to audience and attract their attention.

## 2.2 Storyboarding:

Storyboard is used to step by step visual representation of our story, narratives, and sequence of events. It can be also said as a blueprint for the 3d animation .it helps to visualize and sync with other part of the scene (Such as audio, transitions, etc). Storyboarding is an essential part of producing an animation, which help to check whether the narrative in the script makes any sense when it's translated into a series of visual shots. Storyboarding helps artist to visualize camera angles, composition, point of view, hookups and continuity, object and character motion, cuts, posing, and, pacing

## 2.3 Modelling:

In CGi 3D modeling is a technique that uses to create a 3Dimensional object with the help of 3d software. Artists make a 3d model by manipulating the state of the basic shape or deforming the mesh to desired model with the help of different 3d software's. Every 3d Model has vertices, edge and face or polygons though which user manipulate 3d object and computer calculate those so give user desire shape. There many type of modeling which can be used for 3d model among them notable are polygonal modelling where primitive shapes as polygons are manipulated , curve/line modeling where models can be created by the help of line drawing surface are created , and sculpture modeling where artist mold shapes like clay and easily gets desire model and so on.



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Here the poly modelling techniques are shown. From start a simple cube is modified with the exclude, bevel tools etc the vertex, faces,edge are modified

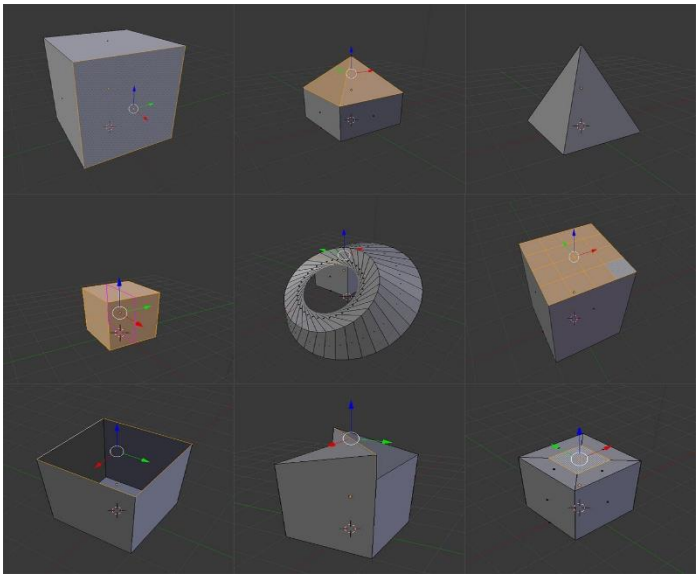

Figure 2.3.1: Polygonal Modeling

Another technique to make 3d models is the curve modelling. This is technique the user draws line and then those is extruded in to mesh for further modelling. Different type of shapes can be drawn with different curve or line tools

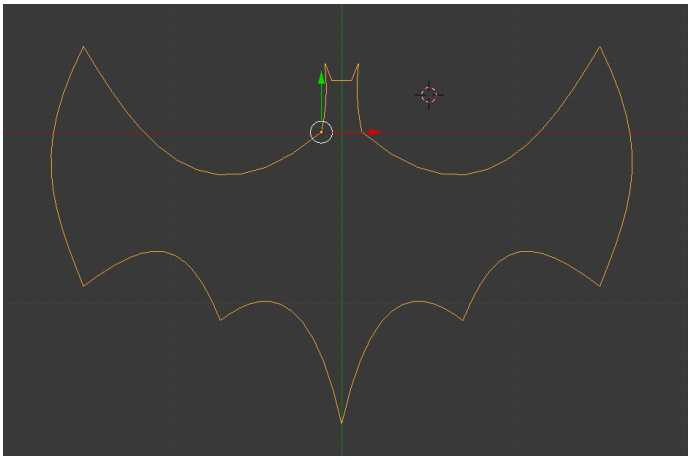

Figure 2.3.2: Curve modelling



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3d sculpture technique very creative form of making 3d model where the artist can create abstract model by molding geometry shaped with brushes and tools that push, pull, pinch and smooth make it easy to create detailed sculpts .

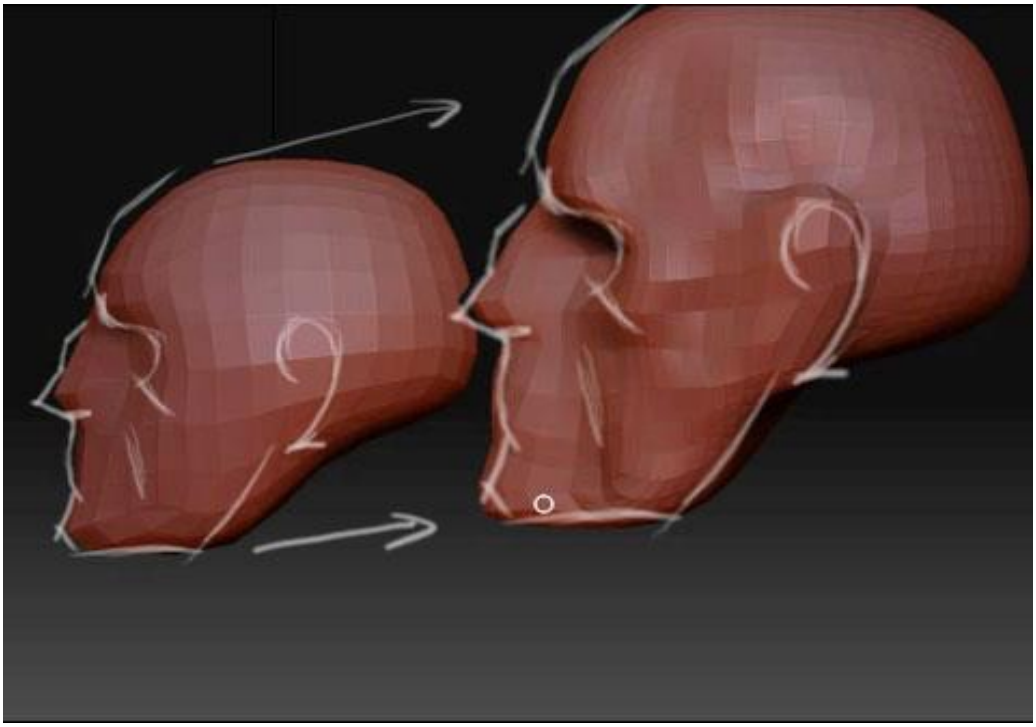

Figure 2.3.3: Sculpture modeling

## 2.4 Texturing:

Texturing is one of the main stages of three-dimensional model creation Texture is an image that is being projected on a surface of 3d dimensional object that gives the impression of a real object. Texture has coordinated which are pairs of numbers stored in the vertices of a mesh. Those coordinates which are three-dimensional in their nature, represents a position within the texture's volumetric space. Texture gives realistic details to the surface.

3D model may have multiple materials assign to it but only has one texture. Texture controls various channels of object surface such as RGB surface, Greyscale surface, alpha channel surface and others. There are also multiple properties maps combined to get



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illusion of realistic effect. Those maps are Bump map, Normal map, Displacement map, Reflection map, Specular map, Height map, occlusion map and others. Texture can be made by an artist by a 2d software such as photoshop and sometimes artist prefer to take photograph of real life object to get realistic details their desired object.

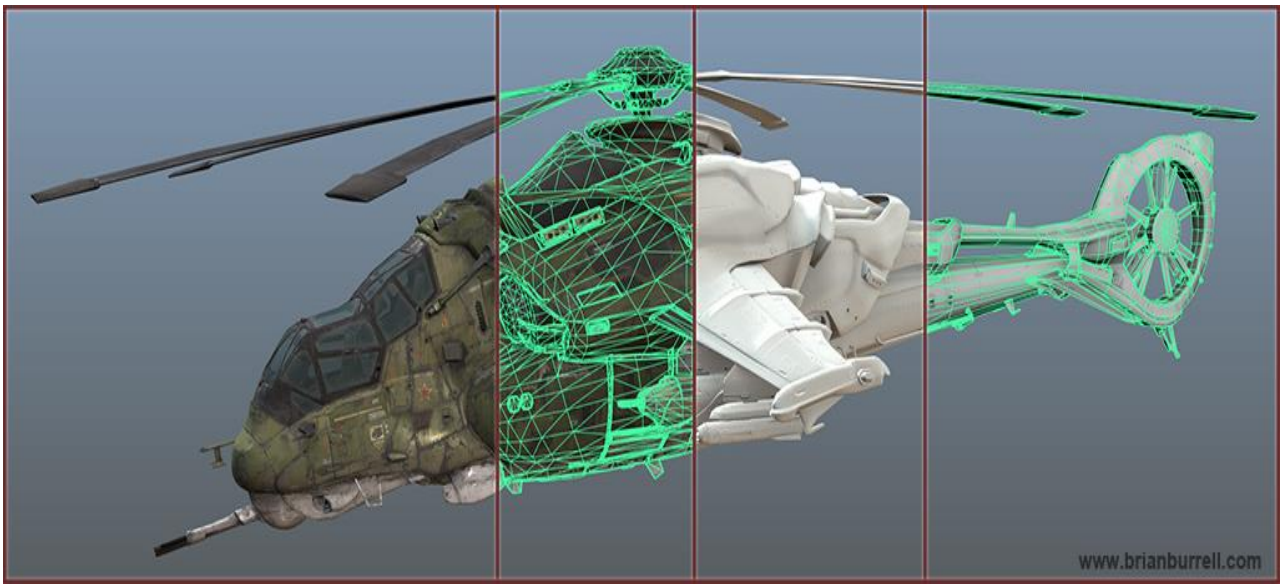


Figure 2.4.1: Texture model of a helicopter

## 2.5 Lighting:

In CG for creating hyper-realistic 3D scenes lighting is a critical part. one of the most important elements of any visual representation is lighting as it helps to the human eyes to perceive visually. For creating a perfect real world like scene in cg, we have to use real world examples and to study how these virtual renderings are achieved. A 3d artist has to have deep level of knowledge on how real-world light interacts and reacts in different situations. Light one of the most important aspect because it setup the mood of viewers and make a flat molded model realistic as the illumination from the light source simply bounces back from the objects that we see in the field of sight. In cgi light can Enhance or creating the mood of a scene, Create the illusion of depth, Create the illusion of volume, Reveal the substance and qualities of materials, integrate visual elements, set a visual style and Create



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visual interest. There are many type of lights available different 3d software according to need such as Ambient Light, Area Light, Diffuse Light, Specular Light, Positional Lights, Emissive Light, Directional Lights, Spot Lights etc. For getting studio type lighting and reflection on object we imaged based lighting with the help of HDRI map. HDRI is a panoramic photo, which has all angles of an area from a single point and contains a large amount of data which helps to the illumination of CG scene.

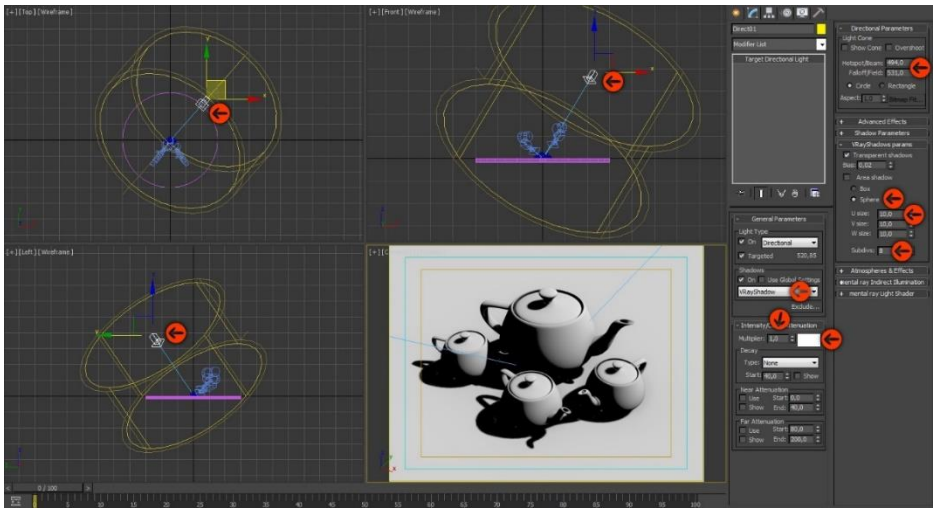

Figure 2.5.1: light setup for a scene

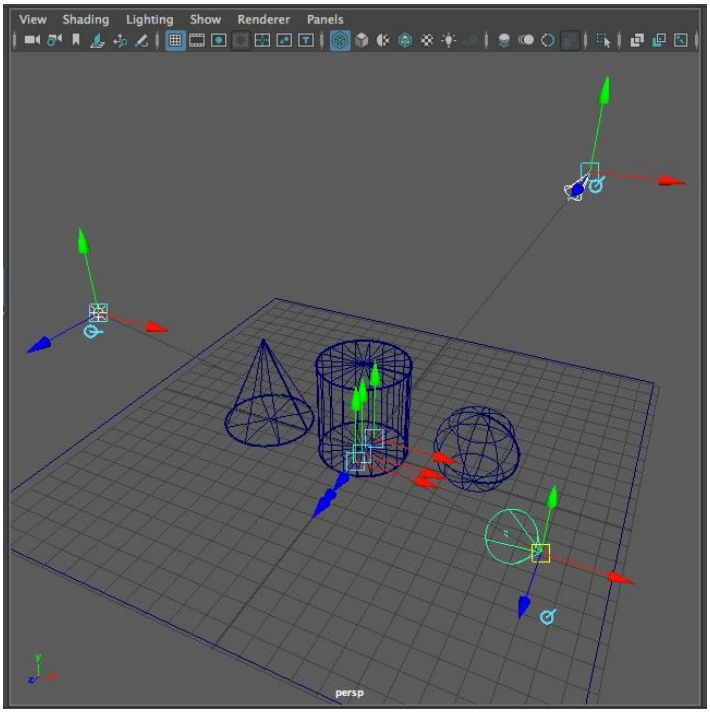


Figure 2.5.2: light setup for a scene



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## 2.6 Rendering:

Render engine is a module responsible for generated CGI. the job of a rendering engine is to convert the applications internal model into a series of pixel brightness's that can be displayed by a monitor. Rendering engine gives the final appearance to models with visual effects such as shading, shadows, reflections and motion blurs, texture mapping. Render engine calculated all the aspect such as geometry, texture details, light, so on in one frame and give output as picture format. It is time consuming process. There many famous render engines available, serving for different purpose of users. Among them few are Vray, Arnold, corona, Iray, Mental ray, Maxwell, Octane renderer, keyshort etc are highly used in industry for rendering of CGI.

Figure 2.6.1: Render Engines



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## 2.7 Simulation:

3D Simulation is basically complex calculation done by computer to find the interaction of a large number of object and particles with each other which affected by the natural physics type forces such as gravity and wind to show real life alike results. This a very time consuming but very interesting process that combines with 3d. With the 3d simulation software one can easily create realistic fire, smoke, explosions, and other gaseous phenomena. There are a lot of software available at the market to do the simulation works and plug-ins for using in 3d software such as Realflow, Houdini, Autodesk Max, Autodesk Maya.

Here the smoke simulation has been demonstrated,with the help of real life physics this simulations are done and real life alike smoke with fire is made in various softwares.

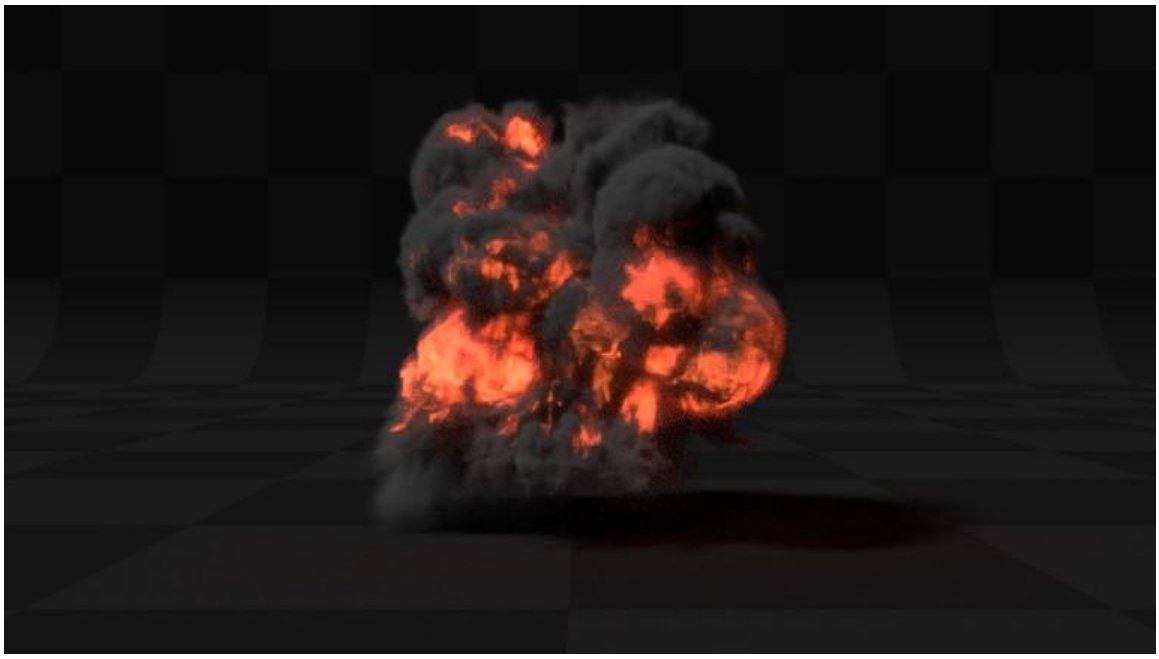

Figure 2.7.1: Smoke Simulation



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Particle simulation where thousands of particle are emitted from a mesh object and react with different forces and physics in a specific life span.usally particale simulation is to create the complex such as hair.

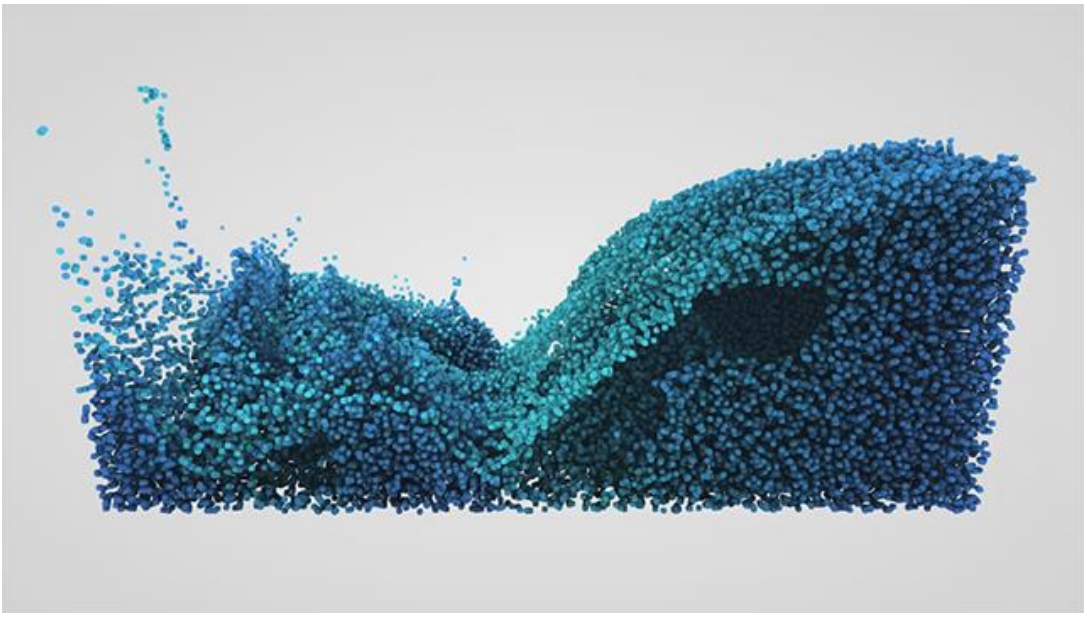

Figure 2.7.2: particle Simulation

Fluid physics are being used to simulate the water simulation properties.

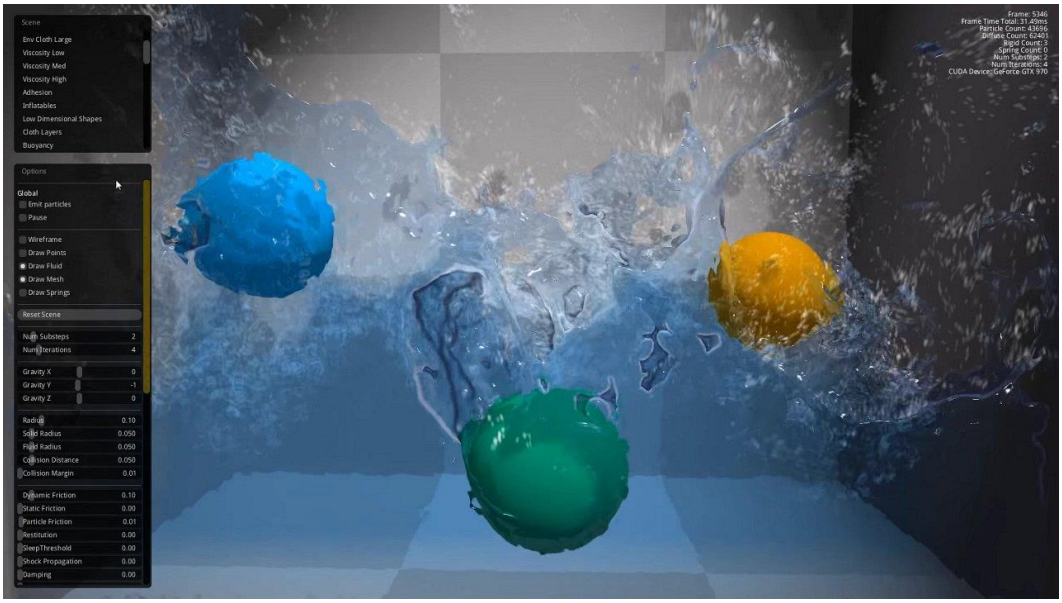


Figure 2.7.3: fluid Simulation



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# CHAPTER – 3

# CREATIVE PROCESS

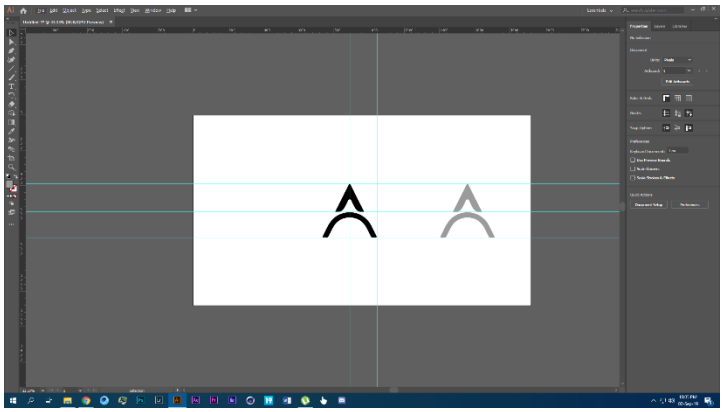
## 3.1 Generating idea:

The creative process is a step of preparation of a new idea through illumination, implementation, and evaluation. For an artist generating creative, unique idea and simple idea is what separate them from others. This stage was backbone for any project. We had to generate an idea that will attract our target audience. Timing has to be perfect as advert are small in size and time. we had to sit with all the group members and brainstorm to generate a perfect idea, goals, way of execution, what we are going to include what we not going to include, what will make our project different from others.

## 3.2 Branding:

The success of Advertisement depends on its ability to attract its target audience. Advertisement is to make target audience to familiar and a bond with the upcoming product, to make them believe this coming product is the one they are looking for. For this reason, having a brand identity was crucial for our advertising project. So, we decided to make our own brand and named it “Ava”.

So, we make our own logo for the “Ava”. The inspiration is was simple and aesthetic. As we named our brand ava we were focused on the letter A and V and blending it (figure).



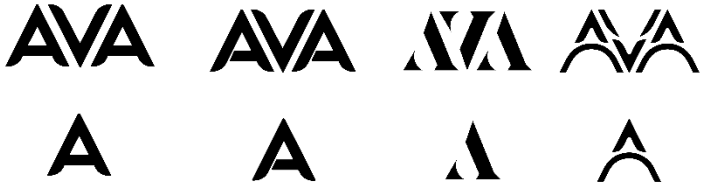


Figure 3.2.1: “Ava” logo building process



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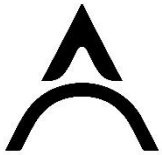

Figure 3.2.2: “Ava” logo

We have decided to use this as logo and it goes with our goals for this project and best display for our brand advertising We also wanted to make a small UI design for our mobile brand, and came up the this idea.

Figure 3.2.3: UI for Ava mobile



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## 3.3 Design inspiration:

Mobile phone has become evert day partner. And when it come to electronic device everybody wants some elegant design. Design is first way to attract consumer toward any product. Sometimes design connect user with the Mobile phone. There are many mobiles in market such as Hawaii, one plus, Samsung whose design, shapes of camera, sides, color inspired us to create our own model.

Figure 3.3.1: Hawaii phone

One plus and Hawaii are one of the finest designed set available in the market and their new upcoming feature has inspired to use them in you own mobile phone advertisement

Figure 3.3.2: One plus phone



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Figure 3.3.3: Four type color

Here I have used four different color for your mobile phone which were the Indigo cyan, Amber bronze, Cobalt blue, carmine cerise. Those are the gradient color which were specially target for the young aged peoples

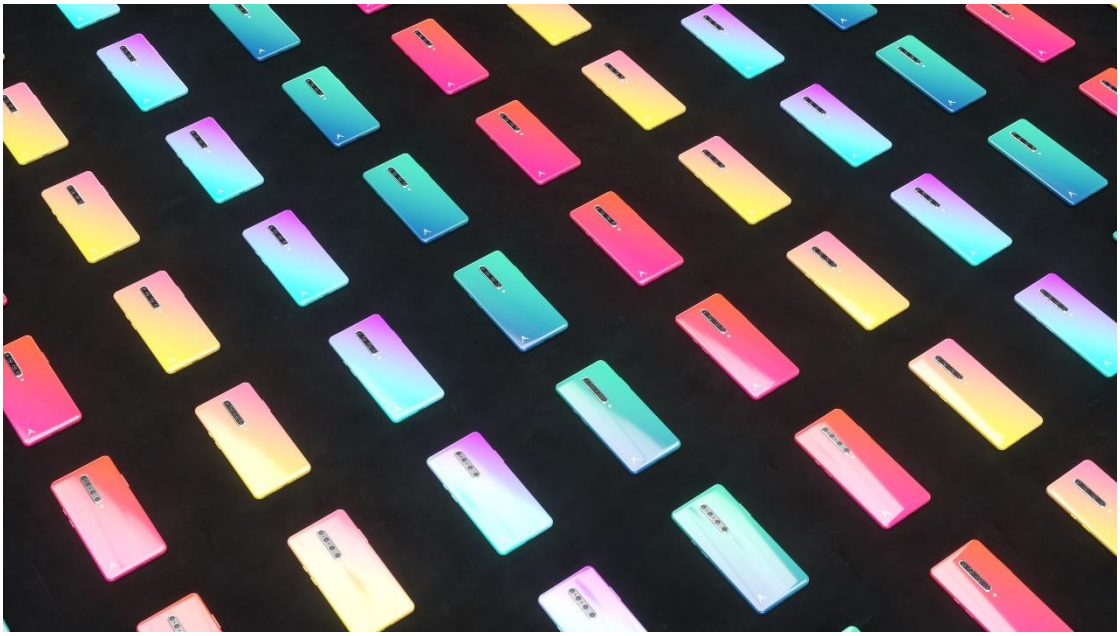

Figure 3.3.4: Four type color in serials



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# CHAPTER – 4

# STORYBOARDING

## 4.1 Storyboarding:

Storyboarding is basically illustration of each shot of the story or animation. Those illustration keep to keep tract with the visualization of the artist with the making of the Animation. Sometime All visualize element can't be made or not dynamic, so artist can easily change the story boarding according to need. Our storyboard was simple and we focused on the feature of the phone. There many adverts which inspired for shot division of story boarding example Galaxy S10 advert [1], ], Redmi Note7 of Xiaomi brand [2,3], iPhone x [4,12] . . The color and concept brands used for communicating and delivering for target audience are quite fantastic, holding rhythm to the animation is unique.

Our first shot is A tunnel of mobile shaped, and the camera is taking us inside the tunnel to the phone.

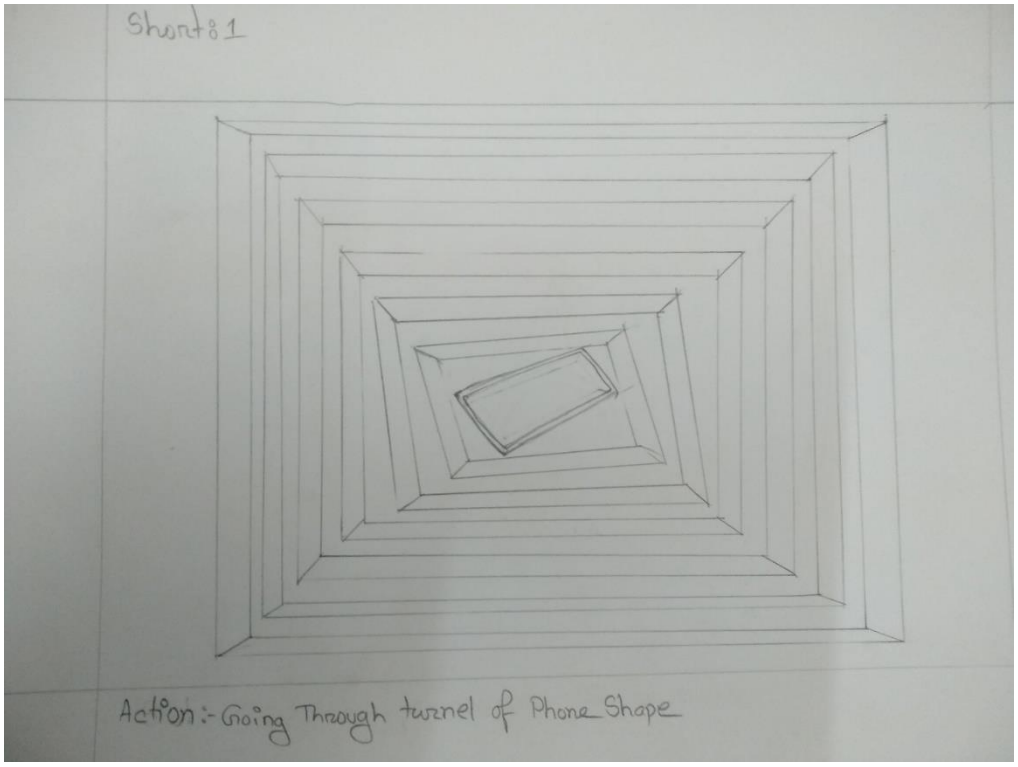


Figure 4.1.1: tunnel of phone shape



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Going inside the tunnel audience will see our phone and its brand logo animating inside the phone ,

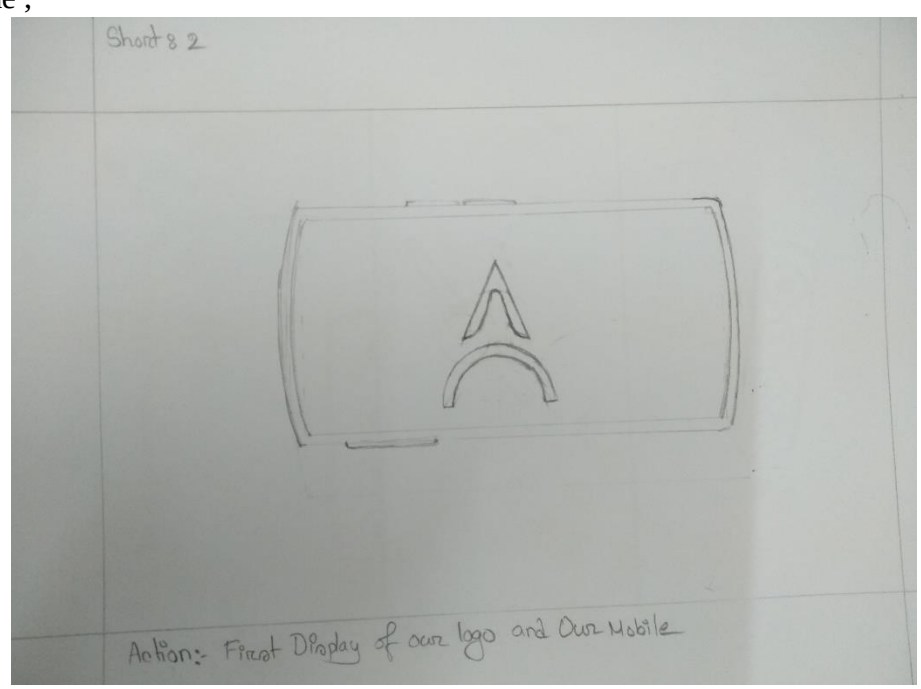


Figure 4.1.2: logo and mobile reveal

In this scene we will be showing our mobile phone, from various angels ( side view , front view ,back view)

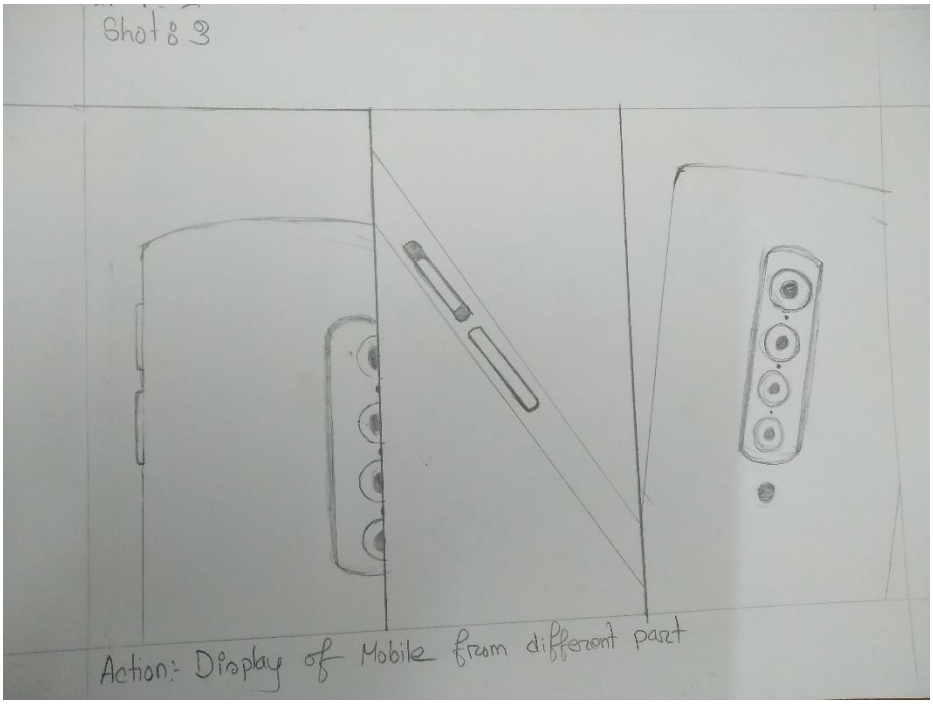


Figure 4.1.3: camera angle shots



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This scene is all about showing the processor kirin POWER with dynamic flow over the surface of motherboard surface.

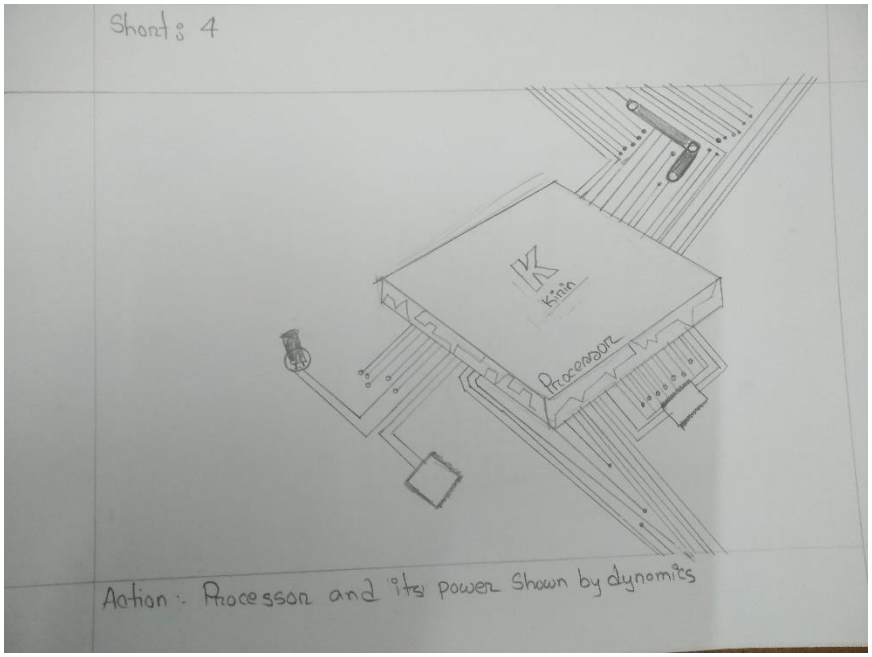


Figure 4.1.4: Multitasking processor

In this scene the battery life of the phone will be displayed by phone greater than a city, which is beautifully demonstrated by this concept

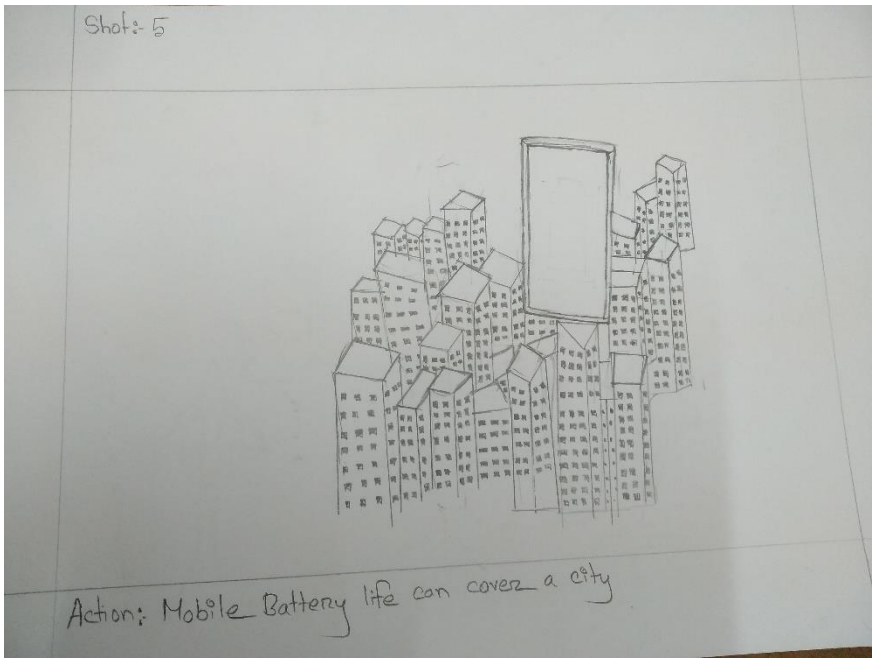


Figure4.1.5: battery life like building



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this shot is about the charging of mobile phone and its very fast like jet plane. Which will be displayed by charger flyer at the speed of jet.

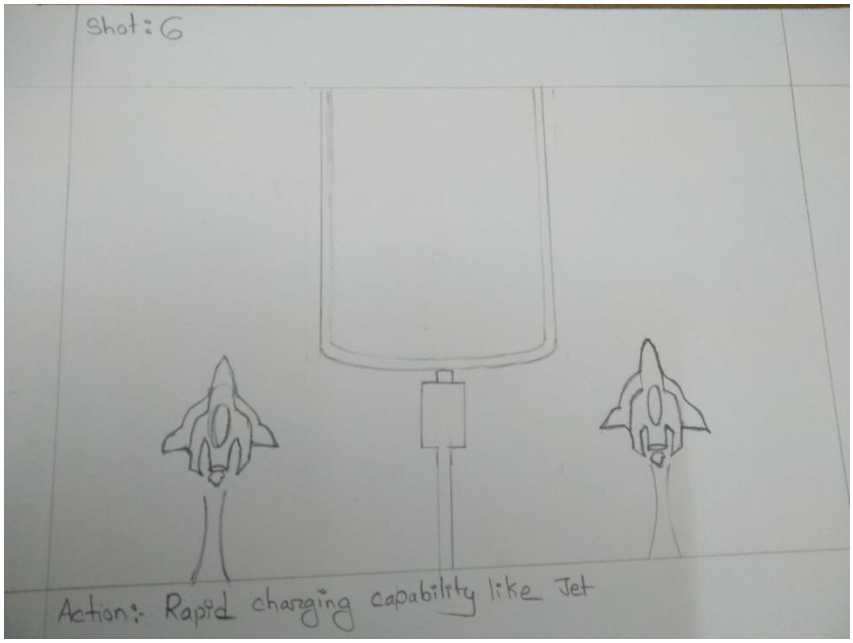


Figure 4.1.6: fast charging

In this scene a we will reveal the pop up camera where the ball bunching over the pop up camera and suddenly the camera reveals it's self with smoke dynamics.

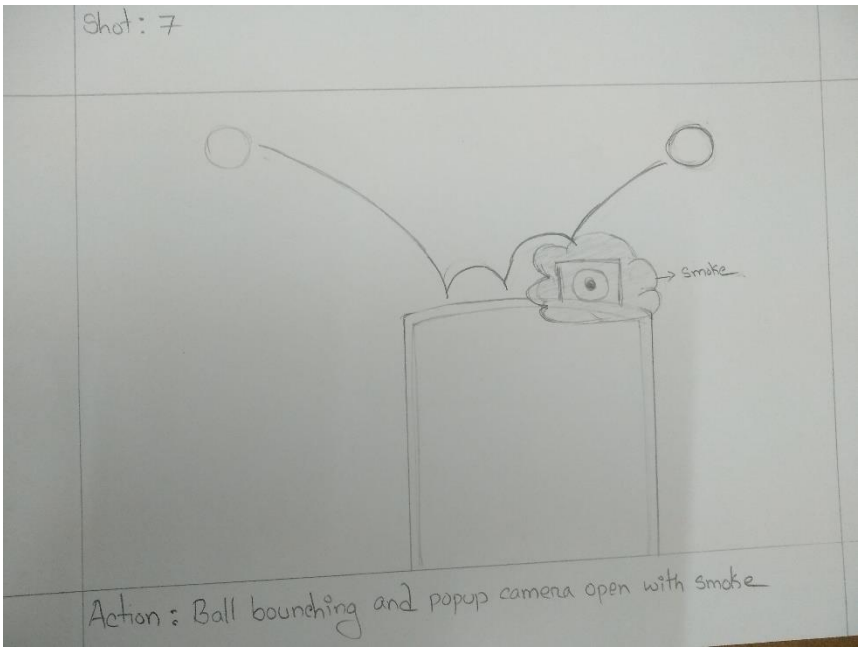


Figure 4.1.7: Pop camera reveals



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This is the most exciting part where all the lens will be displayed part by part to show backside camera depth.

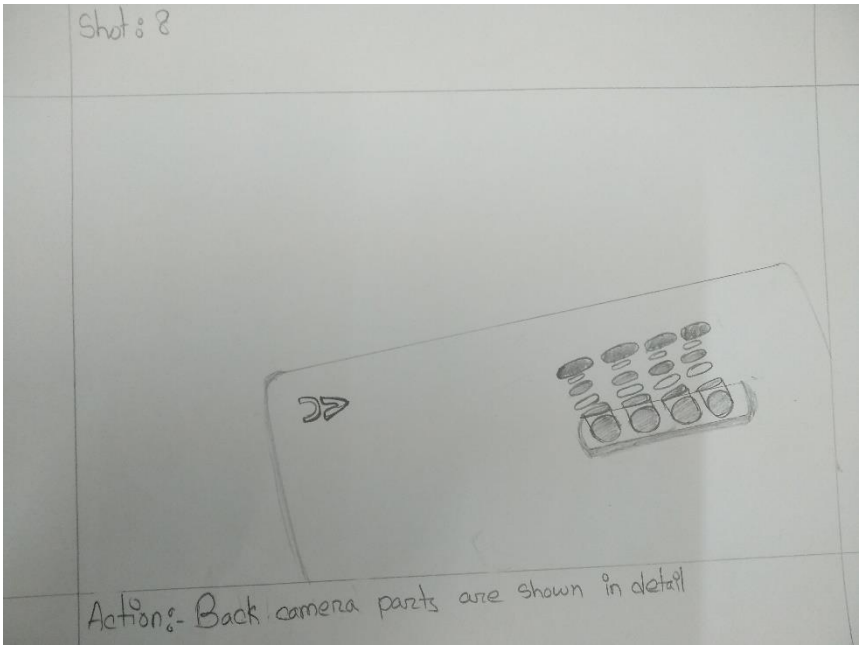


Figure 4.1.8: Backside camera lens details

This scene is all about continuing momentum for attraction with four different color set shown with bit.

Figure 4.1.9: Four type of mobile color shown



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There will be a lot parallel mobiles lying flat on floor and All those mobile phones in a row Will flip to show make more attractive scene.

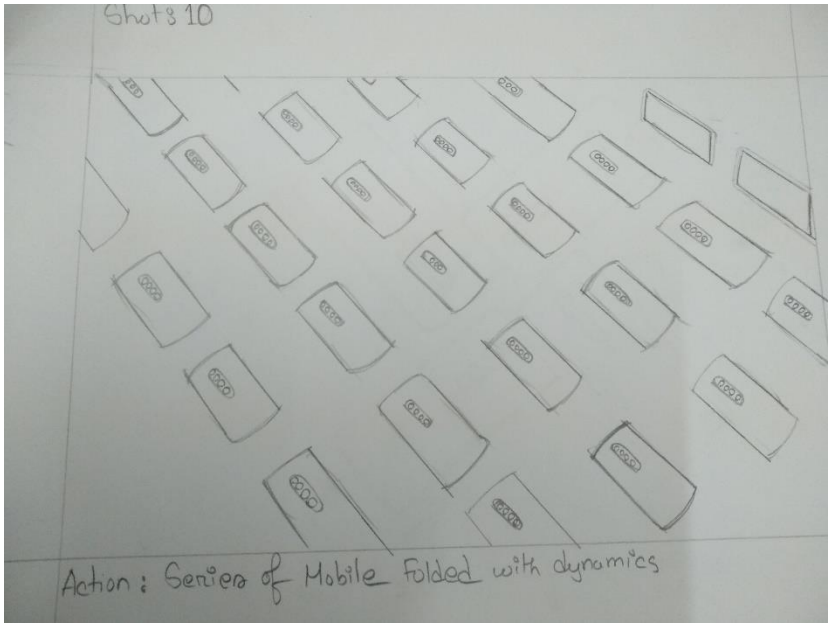


Figure 4.1.10: Mobiles Flipping

The advert will be closed by displaying four different kind of mobile rotating and will be available soon and displayed with our moto line

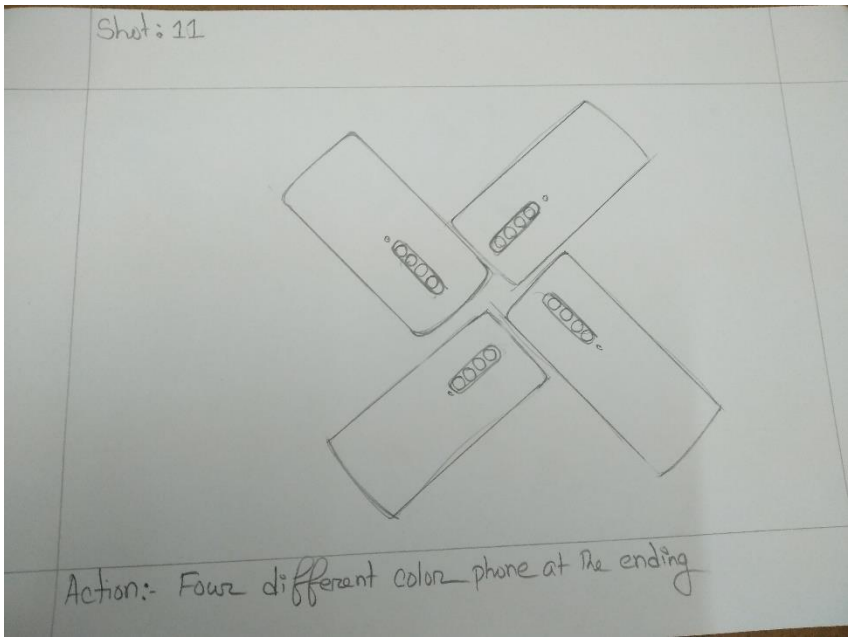


Figure 4.1.11: mobile rotating with tag line



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# CHAPTER – 5

# ANIMATION

## 5.1 Introduction:

We used key frame animation technique to animate our product of various scene. Key frames have been smooth with the help of curve editor. Then we animated scene from different Angeles in attractive ways

## 5.2 Animation procedure:

In After Effect the charge logo created with the help of wave effect and making the revealing

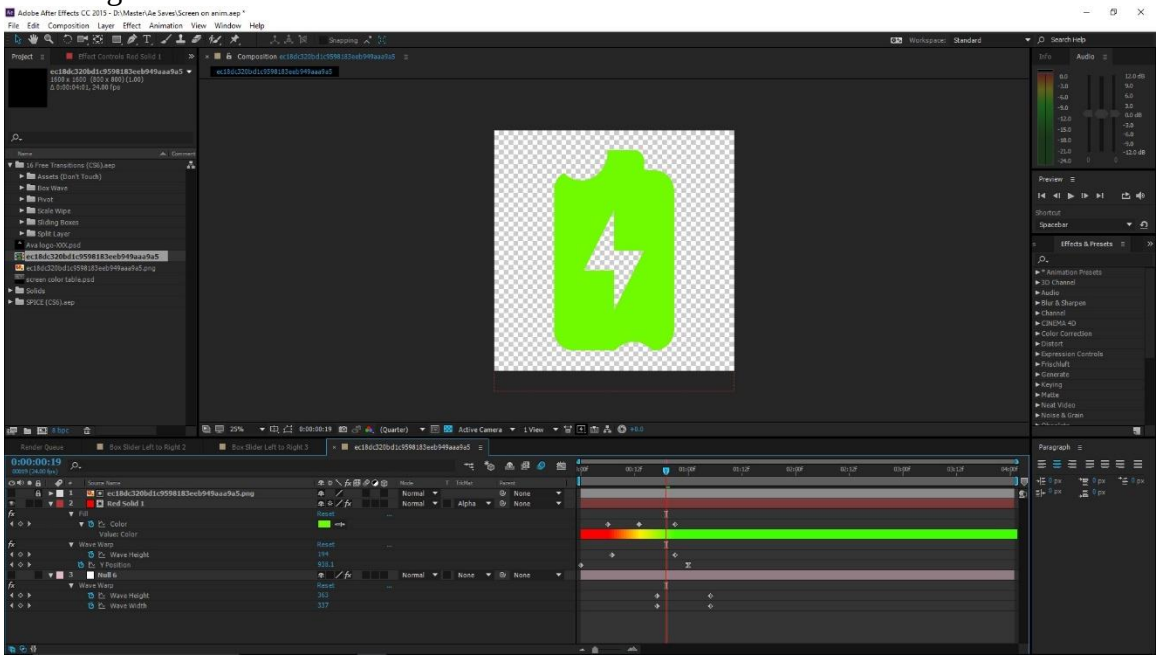

Figure 5.2.1: charge animating in After Effect



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Applying and animating the ultra-charging option in scene

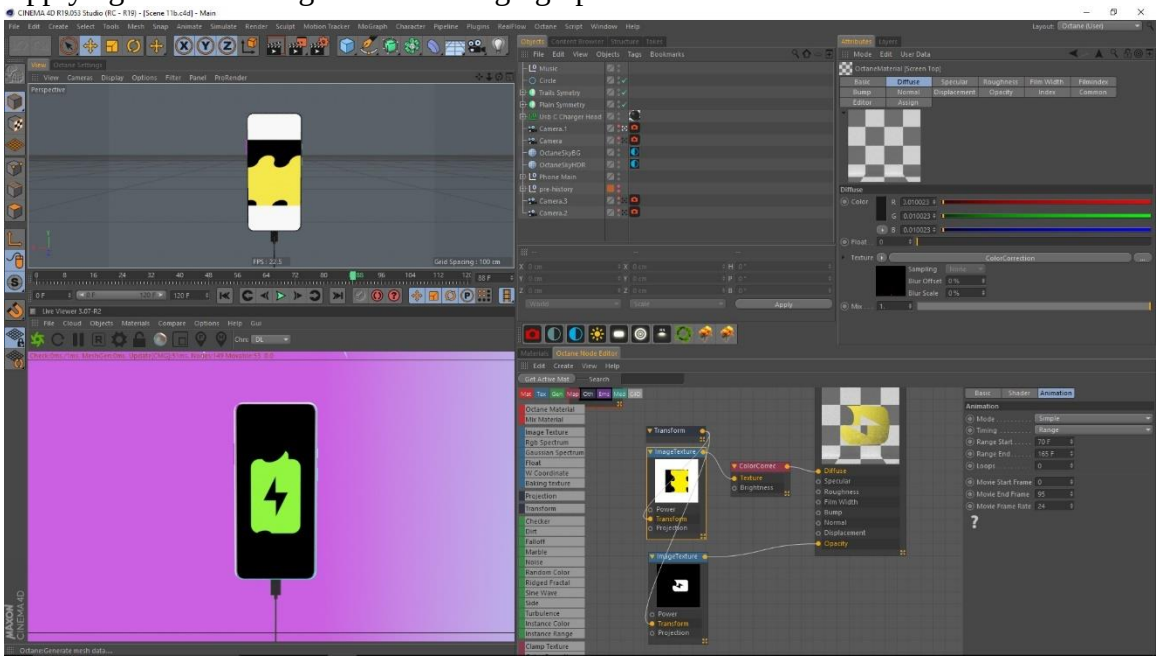

Figure 5.2.2: Charge animating applied

In After Effect the brand logo created with the help of solid and scaling and position changing

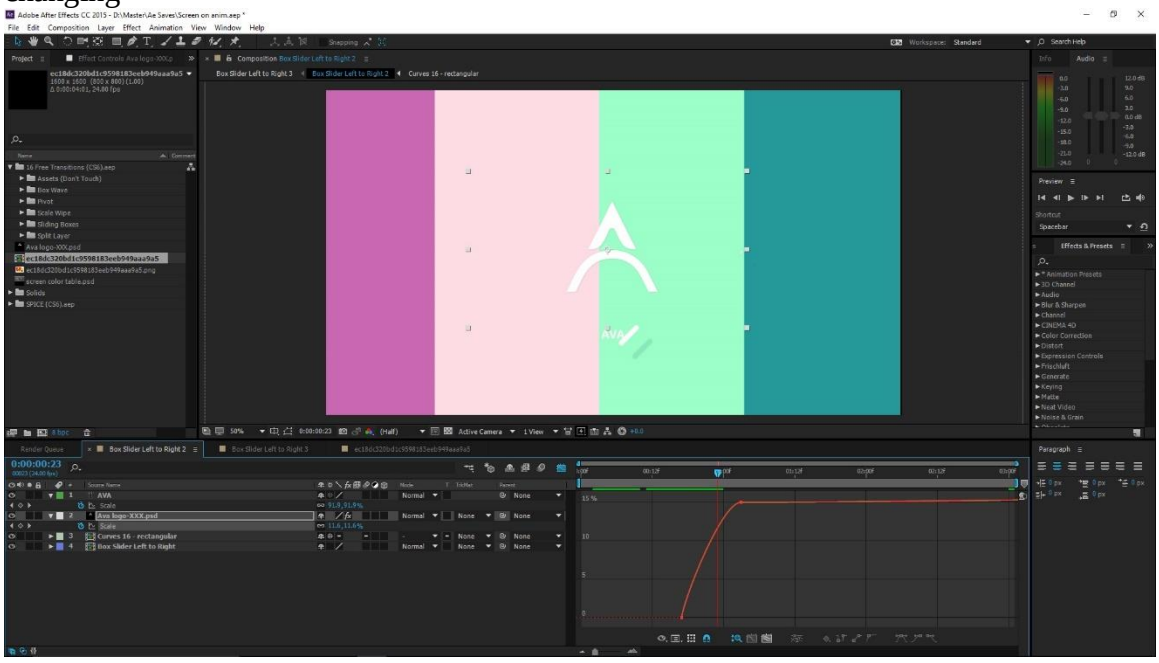

Figure 5.2.3: logo animating in After effect



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He the animated logo in the after effect is being applied in side the scene to match the direction and outcome of the shot

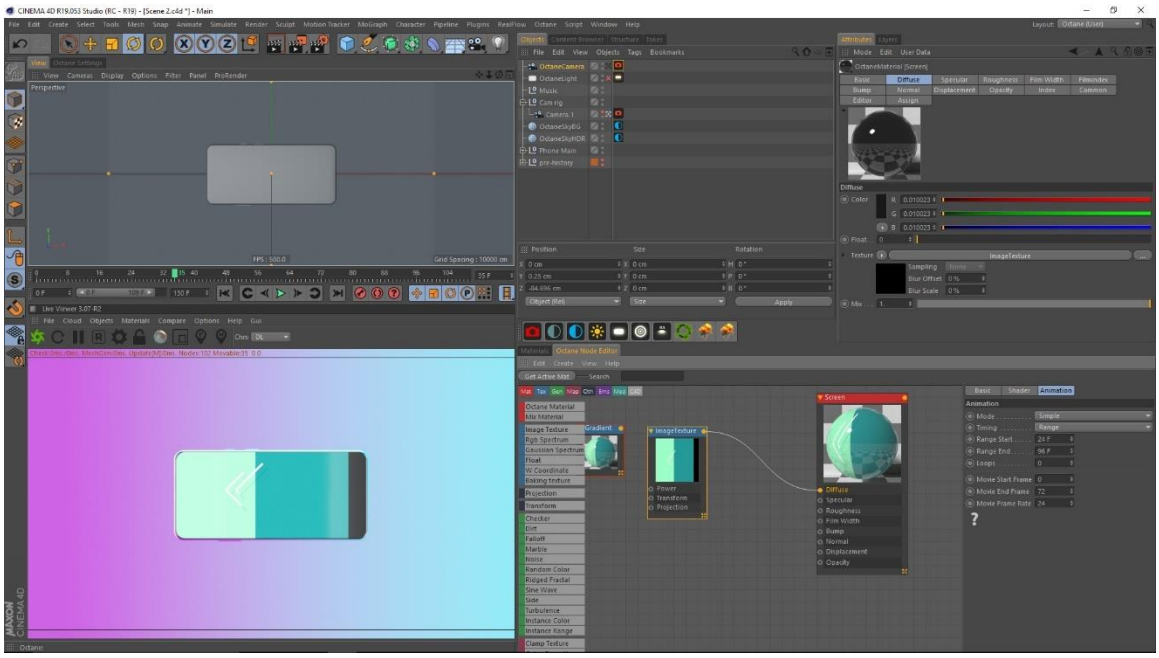

Figure 5.2.4: logo animating applied



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# CHAPTER – 6

# POST PROCESSING WORK

## 6.1 Introduction:

This project post production works were done using after effects to edit the various scenes together combining the video with sound, and color gradating using curves, vibration, hue/saturation and to output final render.

## 6.2 Post processing work procedure:

Post processing is very important aspect in the animation. The whole mood depends on it. All the elements are being combined and made ready for final.Exporting all the files of the render, audio and other files.

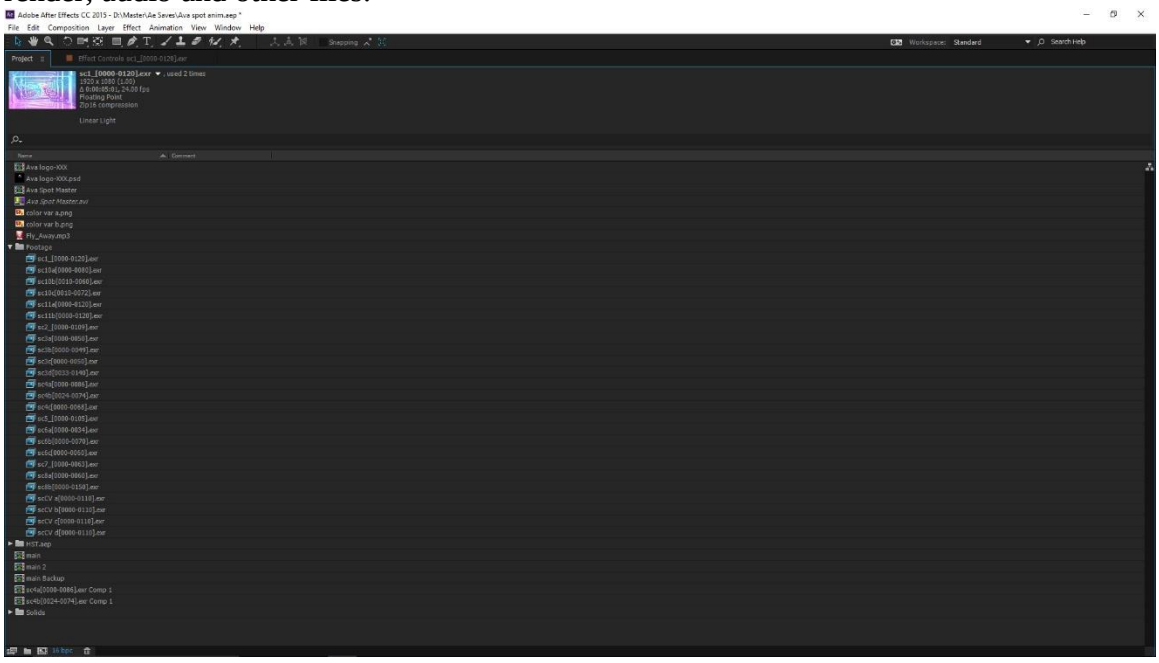

Figure 6.2.1: Setting up project



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All the files are being cut and arrange according to the need of motion. There may be a lot of layers to work in the timeline.

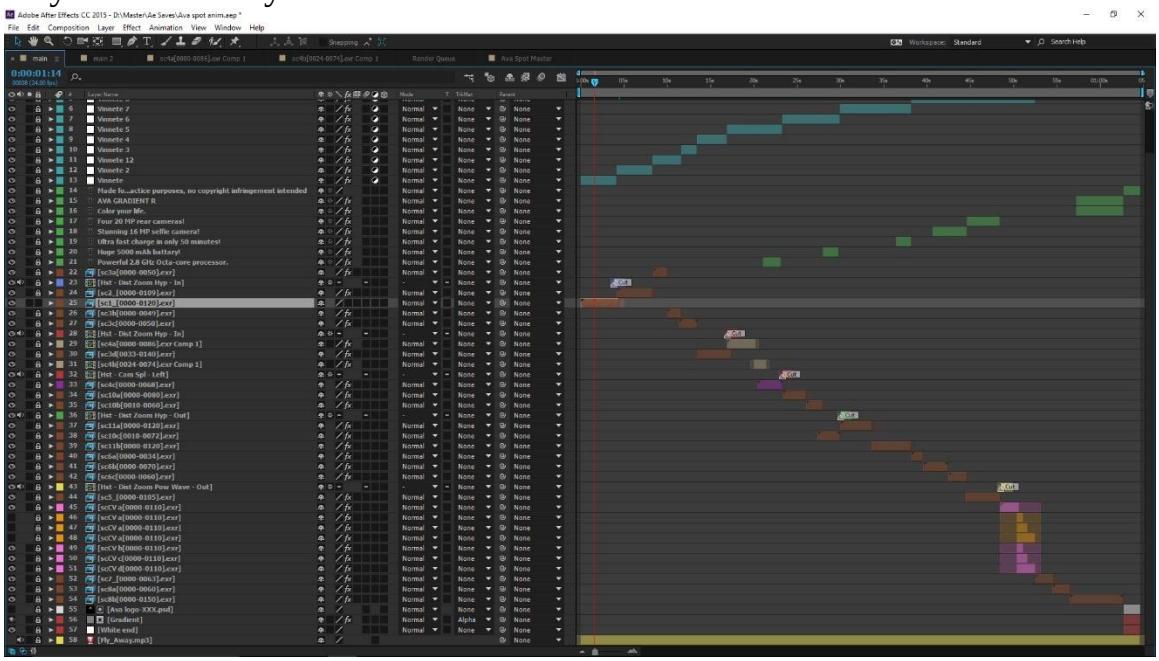

Figure 6.2.2: All the layer arranged

Raw footage is being imported and then they were color corrected by the use of different effects.

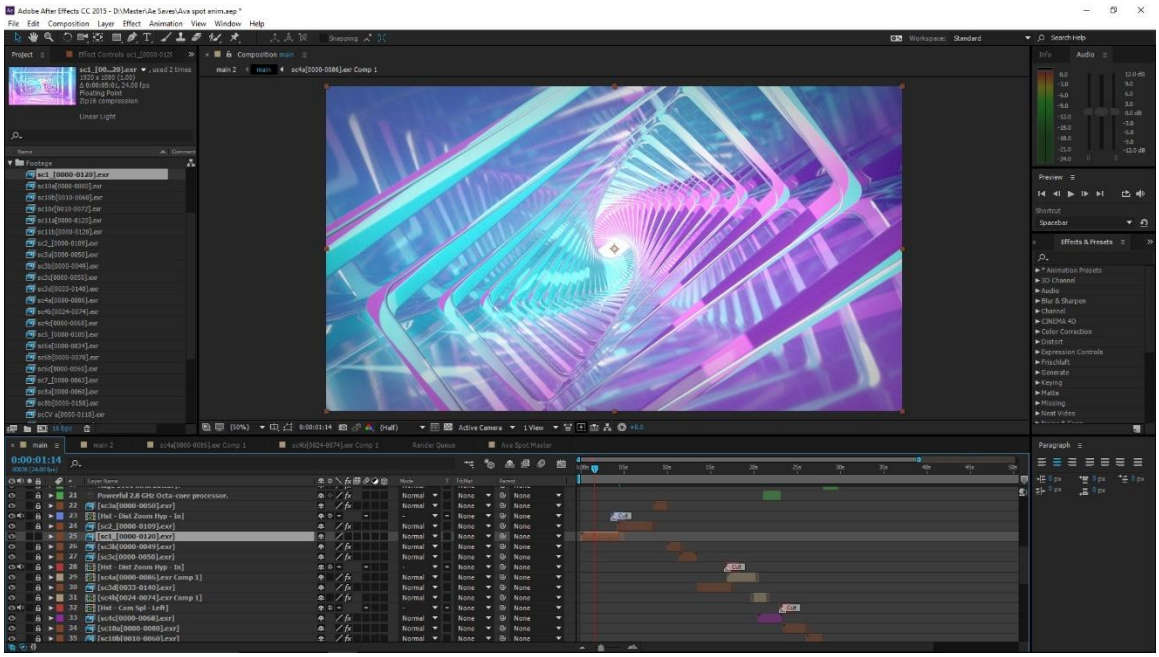

Figure 6.2.3: raw footage



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Using the effects such as levels, con curves, vibration , Rsmb.

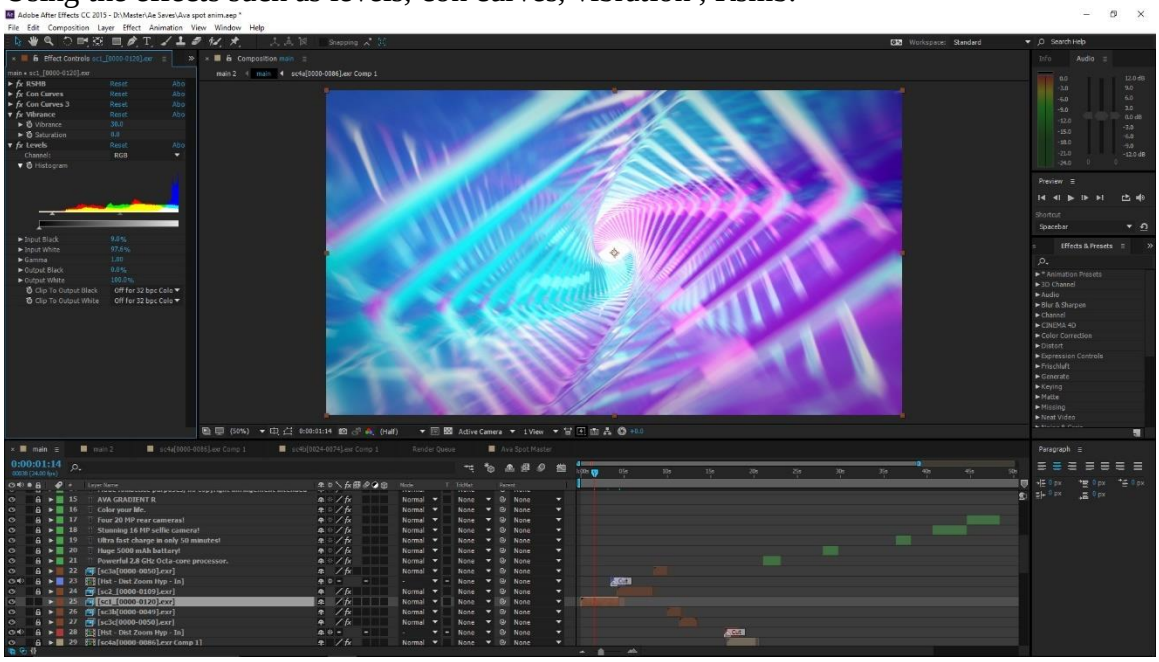

Figure 6.2.4: Effects on raw footage

Raw footage is being imported and then they were color corrected by the use of different effects.

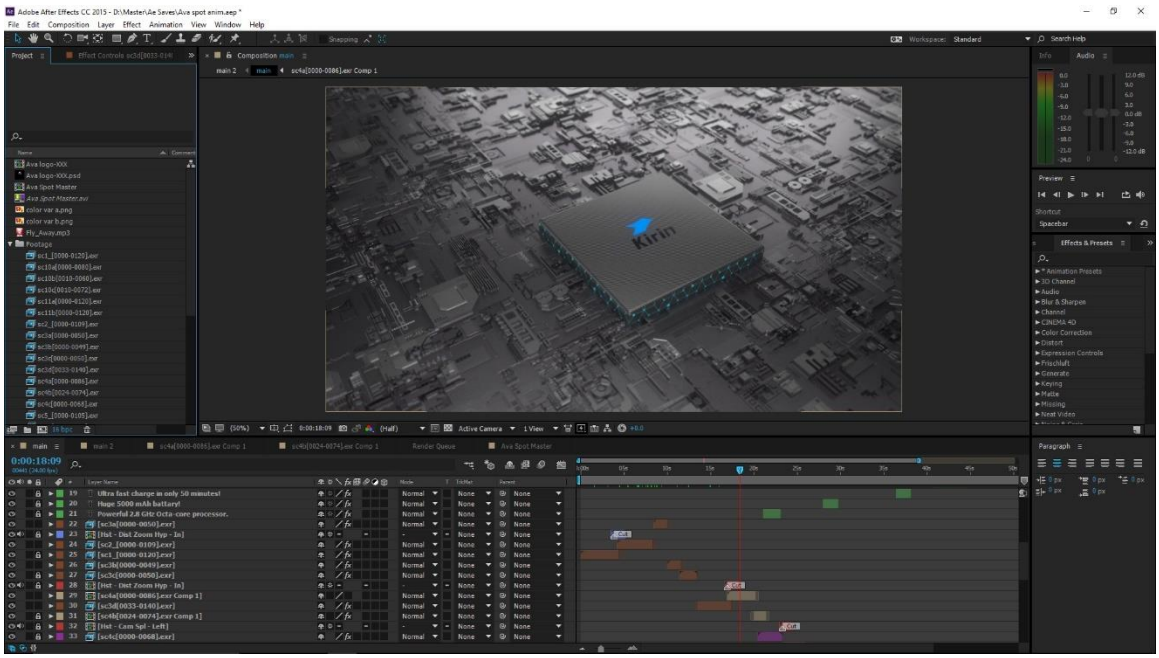

Figure 6.2.5: Raw footage



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Using the effects such as levels, con curves, vibration , Rsmb, hue/saturation.

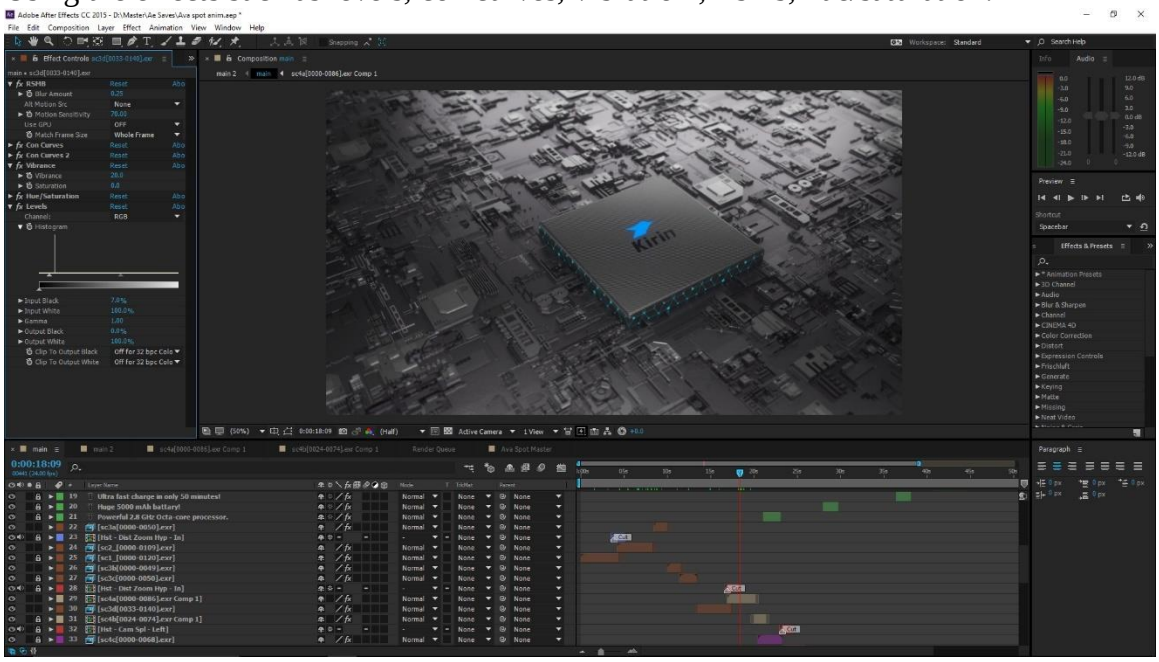

Figure 6.2.6: Effects on raw footage

Raw footage is being imported and then they were color corrected by the use of different effects.

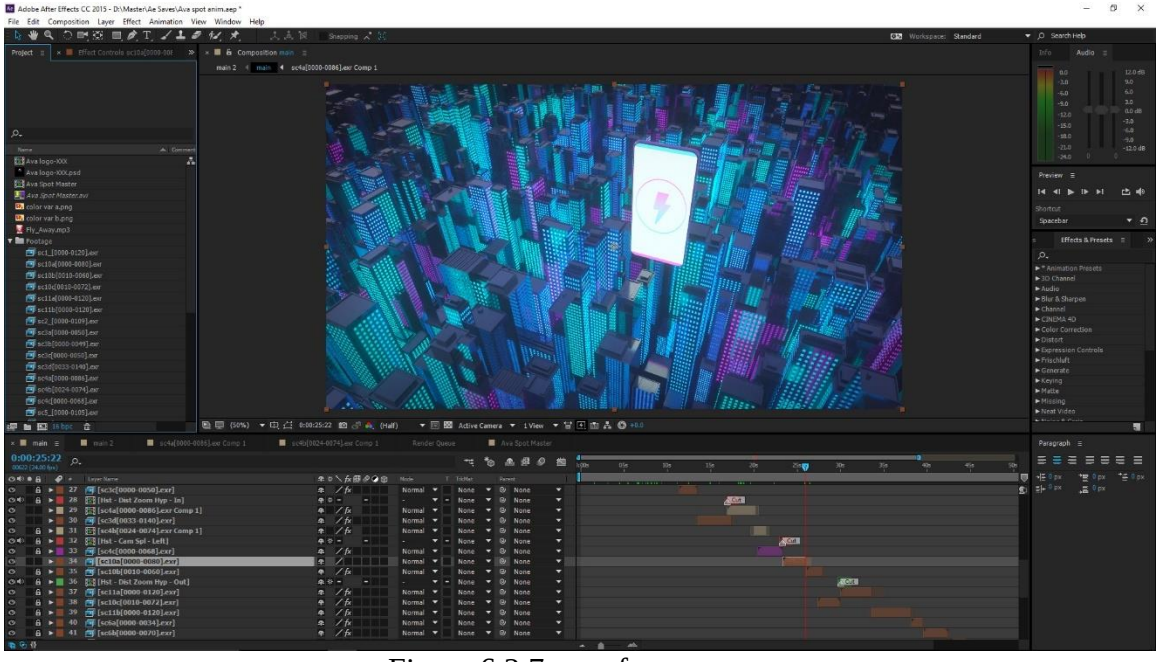

Figure 6.2.7: raw footage



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Using the effects such as levels, con curves, vibration , Rsm.

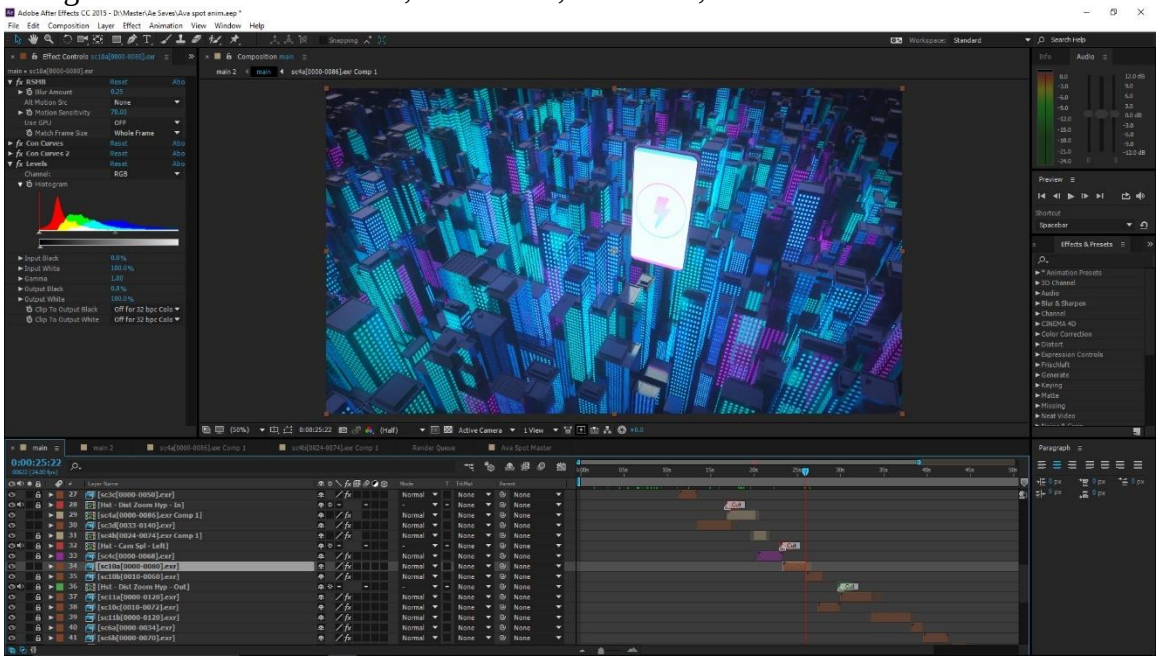

Figure 6.2.8: Effects on raw footage

Motion bro plug in used for creating transitions. which is very dynamic and famous for creating transition in the after effect. And has option to change the blending of scenes as per user need.

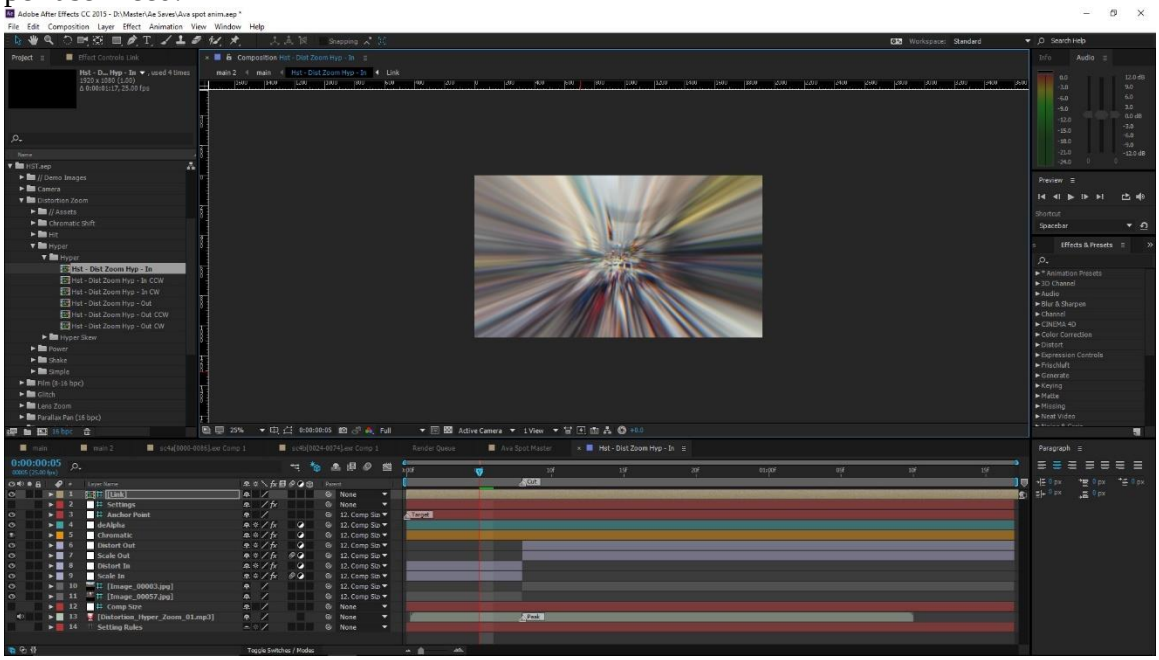

Figure 6.2.9: Motion bro transition



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All the elements are being given a specific effect in the adjusting layers.

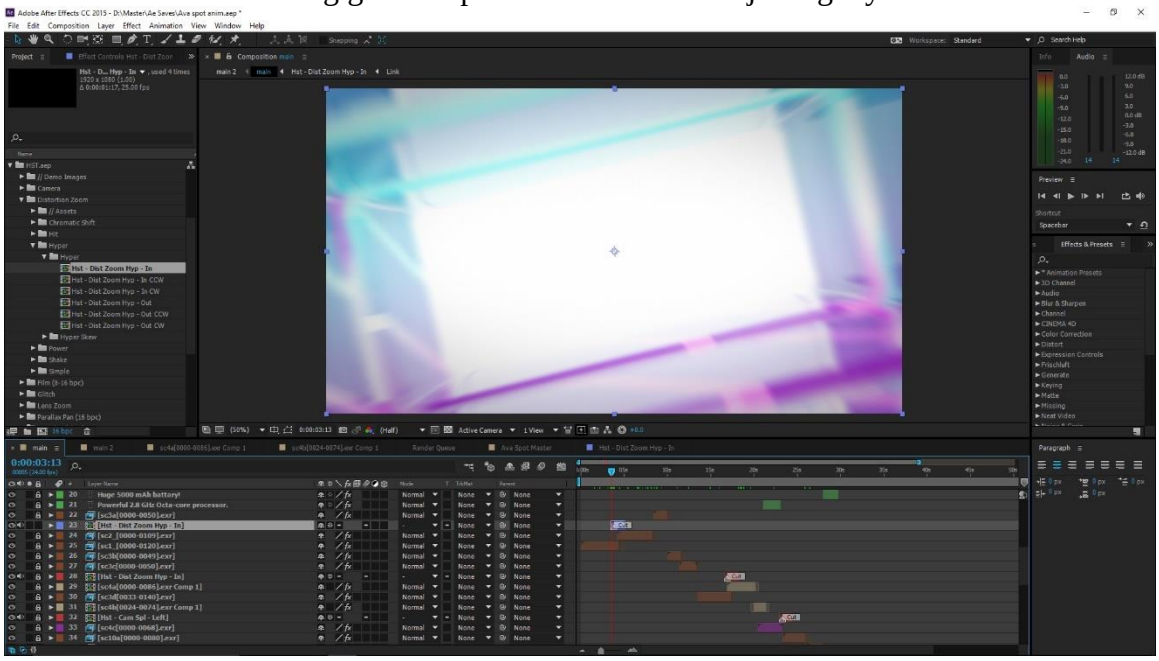

Figure 6.2.10: Adjusting layers

Adding sound and sync with footage with sound to match the beats and basses. This is very important factor as the whole mood depends on the sound base and bit and audience are most like to get attract because of this.

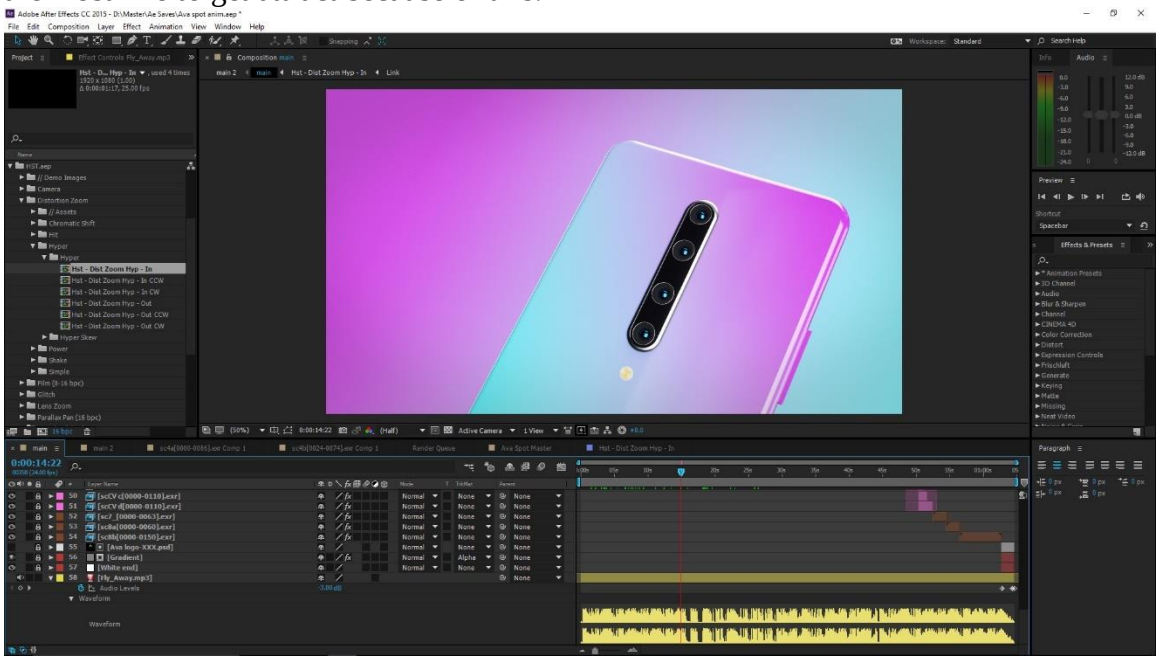

Figure 6.2.11: Sound syncing



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Rendering final output as the H.264. which is very common mp4 format which can be used in any players or uploading in the websites.

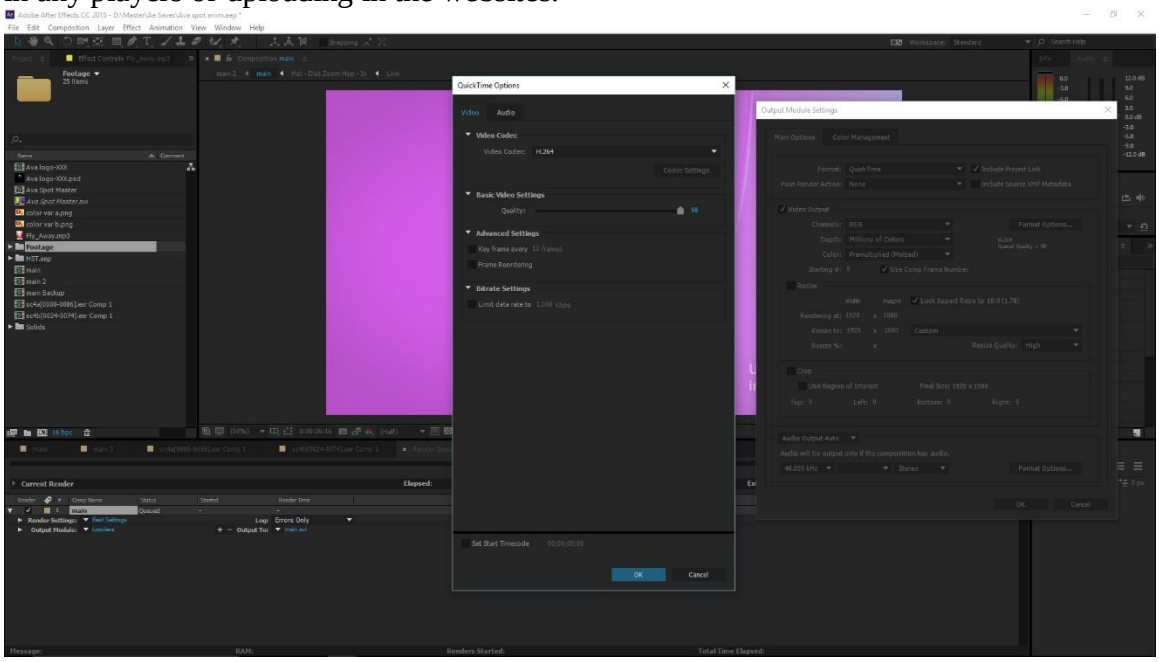


Figure 6.2.12: Rendering final output



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# CHAPTER – 12

# CONCLUSION

The ever-changing mobile landscape gives brands lots of room to be creative in how they market to consumers in the space. Now, rather than seeking engagement through banner ads or videos on mobile, advertising technology company has leveraged 3D adverts to help brands target and engage with their audience. 3d advert deliver a realistic virtual showroom experience on mobile, which is more compelling and immersive than traditional 2D ads.

This project will be challenging for me. Making a quality standard advert maintain color, concept building and catching the eye of viewers at the whole advert will be difficult. In our country 3d advert is not that much flourished because of budget issue. Local brands are not interest in investing 3d advert as it is costly but there are unaware of the fact that it is the most standard and abstract form to create consumers, also will give them much more return. With CGI, you can highlight your product's best features. With CGI, we can show our product from all angles, in different colors, and in all variations.

The concept of 3D mobile ads is certainly innovative in our country, but creating a quality 3D ad is no easy task. The high quality has to be delivered by showing mobiles attractive features frame by frame is quite a hard work. With 3D ads, shoppers are able to experience your products and explore them in more detail than through any static image.

Our target is provide a quality full CGI 3d Mobile advert which will be standard like those of Samsung, apple and others. As the technology is Bangladesh changing we should welcome 3d in advertising sector rather than only traditional live action.



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# REFERENCE


1. Samsung(Feb 20,2019),Galaxy S10: Official Introduction, retrieved on July 20 ,2019 From "https://www.youtube.com/watch?v=ZCfgkIyD9g0"
2. Argus World (Mar 16, 2019), Redmi Note7 Official Trailer Commercial, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=k67CYdqrqYU"
3. Xiaomi Egypt ( Mar 25, 2019),Redmi Note 7 Product video, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=GZx3OhKzbao"
4. Apple (Sep 12, 2018), Introducing iPhone XS and iPhone XR, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=9m_K2Yg7wGQ"
5. SOMEI 孙世晟 (April 14th, 2019), OPPO Reno, retrieved on July 20,2019 From "https://www.behance.net/gallery/78916539/OPPOReno?tracking_source=search-all%257Coppo%28oppo%29"
6. Gadget Icon (Oct 16, 2018), HUAWEI Mate 20 Pro Official video, retrieved on July 20,2019 From "https://www.youtube.com/watch?v=fYkKY8KRIc8"
7. Master Pictures Inc. (April 25, 2016), HUAWEI P9 Brand Film, retrieved on July 21,2019 From "https://vimeo.com/164085857"
8. Master (June 19th, 2019), HONOR 20 PROMO : WONDER, retrieved on July 20,2019 From "https://www.behance.net/gallery/81789227/HONOR-20-PROMO-WONDER?tracking_source=search-all%7Coppo."
9. Sparrows News (May 28, 2019), Redmi K20 Pro Official Promo, retrieved on July 20,2019 From https://www.youtube.com/watch?v=h0eKwTn-8ko.
10. Yambo studio (December 11th, 2017), Xiaomi Mix Mi 2, retrieved on July 20,2019 From "https://www.behance.net/gallery/59594365/Xiaomi-Mix-Mi-2?tracking_source=search%7CXiaomi%20mi"
11. Gulbahar Technical (Dec 7, 2017), Xiaomi Redmi 5 , retrieved on July 20,2019 From "https://www.youtube.com/watch?v=AAC_pqOTd0w"
12. Motion graphics collected (May 7, 2019), Some Experiments with animation and camera settings.., retrieved on July 20,2019 From "https://www.instagram.com/p/BxJpJRAItrk/"
13. Wikipedia,Path tracing, retrieved on July 20,2019 From "https://en.wikipedia.org/wiki/Path_tracing"
14. Maxon, Cinema 4d (r19), Retrieved July 21, 2019 From"https://www.maxon.net/en-us/"
15. Timbaland (Jun 16, 2009),Timbaland, OneRepublic – Apologize, retrieved on September 20,2019 From https://www.youtube.com/watch?v=ZSM3w1v-A_Y




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