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With a master's in Industrial Design from IIT-Delhi, Naveen Rampal is an eminent educator and consultant. He has developed many innovative & eco products in his career. He is teaching at SPA Delhi and IIT Delhi as a Visiting Faculty and has over a decade of experience as a designer for major national and international organisations.

Redesign of ROYAL ENFIELD CLASSIC 350

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Abstract

Royal Enfield Classic 350 first manufactured in England is an iconic bike with approximately 100 years of brand legacy. There has always been a necessity of redesigning a product which is so impactful and timeless. Time changes that result in changes fashion, resulting in the demand for redesign of any possible product which is this much old. Moreover, there have been constant controversies about this timeless piece of the brand, about its weight, ergonomics etc. This project will cover all the possible solution of the problems and advancement in design according to the user needs and styling trends for future.

Introduction

Royal Enfield is a legendary motorcycle brand that has been in existence for over a century. The Royal Enfield 350 classic is one of its most iconic models, famous for its retro design and sturdy build. It is a bike that pays homage to the golden age of motorcycling while offering modern day features and performance. Its retro modern looks give one a nostalgic feel with the essential technological advancements.

After getting relaunched in 2008 the bike made a good place in the hearts of the motorcycling enthusiast and somehow everybody liked it in terms of design, its audibility, and its performance. The bike comes with a single cylinder 349.5 cc air

cooled single valve engine delivering a power of around 20 HP and the maximum torque of 27 Nm. At the time of launch Royal Enfield used to make the bike on the single cradle frame and over a period of time, they upgraded it to double downtube frame to meet the challenges associated with performance-oriented goals and technological needs. It is made upon the double downtube frame which is an upgrade from the previous versions of Royal Enfield.

In Indian Market Royal Enfield holds up 8.19 % of market share, which is a huge figure for any company which offers all bikes over 350 cc in a country where mostly people go for the cheaper and economical bikes. Royal Enfield does have 12 models in its portfolio as of now and is planning to add a new model to the product line to add more presence in catering all sections. Royal Enfield is now spread in over 6 countries. Royal Enfield classic 350 rivals like Jawa 300, Bajaj Dominar 400, Benallie Imperial 400 does not stand a chance due to the looks, its thumping loud sound, and feeling of the bike. Feel of the bike is referred to as the overall feedback one gets after riding the motorcycle. The riding triangle of Classic 350 is such that it gives a rider a feeling of self-confidence and majesty. Let us discuss about the types of motorcycles .There are many riders' groups that go the toughest motor able roads with the classic 350 and find it doing quite well. These Riders group are generally formed online and they plan to join each other for a ride, discuss about the motorbike issues, discuss aftermarket mods, discuss the art of motorcycling, the way cruising has started. Earlier people in the North America used to meet up at the point at dawn time and they used to travel the hilly roads at low speeds, and called it cruising. Later, the term takes a proper place and settled in the world of bikes as cruiser motorcycle, the ones which are meant for the long rides.

Objective

The objective of this project is to understand the current problems with the design and redesigning the next new generation Royal Enfield classic 350. The redesign will be done under the design philosophy of Royal Enfield. Through this report we will also be able to understand the design philosophy of brand and the limitations and challenges a designer has to keep in mind during the redesign of any product. The design will not be up to an extent to which the motorbike loses its essence.

Mission statement

Through this design we are focusing on the solution to the problems encountered by the users of this motorbike and the possible future design solution for the year 2030. The aim of this study is to make bike more attractive and appealing and developing the sense of what it means to people now.

Research questions:

Q.1 Why does Classic 350 have foot pegs too out of the bodyline?

Q.2 Why does the Royal Enfield classic 350 weight too much? Can this be reduced?

Q.3 Why does the fuel tank of Classic 350 does not have any knee recession in it?

Data Collection Methods:

1. Secondary Research (the data will be mined from the internet and other published sources)

2. Primary Research (the data will be collected from the Royal Enfield classic 350 owners itself).

Sampling: 100 Royal Enfield classic 350 owners

History of classic 350

The Royal Enfield Classic 350 holds a significant place in the history of motorcycles, combining timeless design with a rich heritage. Its story dates back to the early 1950s when Royal Enfield introduced the Bullet in India. The Bullet became an instant icon and established Royal Enfield as a leading motorcycle manufacturer in the country. In 2009, Royal Enfield launched the Classic 350, a modern interpretation of their classic motorcycles from the 1950s. The Classic 350 paid homage to the retro styling and mechanical simplicity of its predecessors while incorporating modern technology and reliability. The Classic 350 retained the iconic design elements that made Royal Enfield motorcycles famous, such as the teardrop-shaped fuel tank, vintage-style side panels, and chrome-plated components. Its thumping sound and the distinctive throb of the single-cylinder engine became synonymous with the Royal Enfield brand. Over the years, the Classic 350 garnered a massive following among motorcycle enthusiasts, both in India and around the world. Its appeal lay in its ability to evoke nostalgia while delivering a comfortable and engaging riding experience. The Classic 350 became a favorite among riders seeking a blend of classic aesthetics and dependable performance. Royal Enfield continually updated the Classic 350 to meet evolving market demands and regulatory requirements. It underwent several mechanical and cosmetic revisions while staying true to its roots. The Classic 350 became a canvas for customization, with numerous aftermarket options available to personalize the motorcycle to individual tastes. Today, the Royal Enfield Classic 350 stands as a symbol of the brand's enduring legacy and the timeless charm of classic motorcycles. It embodies

the spirit of adventure, freedom, and camaraderie that motorcycling enthusiasts hold dear. With its rich history and loyal fan base, the Classic 350 remains an icon in the motorcycle world, continuing to captivate riders with its timeless design and authentic riding experience.

The Riding triangle

The riding triangle, also known as the ergonomics triangle or rider triangle, refers to the relationship between three key components on a motorcycle: the handlebars, the seat, and the foot pegs. These three elements determine the rider's riding position and comfort while riding a motorcycle. The riding triangle plays a crucial role in determining the overall riding experience, control, and stability of the motorcycle.

Handlebars: The handlebars are an essential component of a motorcycle that the rider uses to steer the bike. They are typically mounted on the front fork and can come in various shapes and styles, such as clip-on, drag bars, ape hangers, or cruiser-style bars. The handlebars should be positioned in a way that allows the rider to reach them comfortably without straining their arms or shoulders. The angle and height of the handlebars affect the rider's posture and control over the motorcycle.

Seat: The seat of a motorcycle provides support and comfort to the rider. It should be designed to accommodate the rider's body size and shape. A well-designed seat helps distribute the rider's weight evenly, reducing fatigue during long rides. The seat height and shape can also affect the rider's reach to the handlebars and foot pegs. Some motorcycles have adjustable seats that allow riders to customize the riding position to their preference.

Foot Pegs: The foot pegs are the footrests on a motorcycle where the rider places their feet while riding. They are usually mounted on brackets attached to the frame of the motorcycle. The position and height of the foot pegs influence the rider's leg position and comfort. Properly positioned foot pegs allow the rider to maintain balance, control the motorcycle, and shift body weight during turns and maneuvers. The relationship between the handlebars, seat, and foot pegs determines the riding triangle. Different types of motorcycles have varying riding triangle configurations to suit different riding styles and purposes.

Cruiser Bikes: Cruiser motorcycles have a more relaxed riding posture. The handlebars are generally positioned higher than the seat, allowing the rider to sit in an upright or slightly leaned-back position. The foot pegs are positioned forward, promoting a laid-back riding style with the legs stretched out. This configuration provides a comfortable and relaxed riding experience, ideal for long-distance cruising.

It's important to note that individual riders may have different preferences for their riding triangle, depending on factors such as body size, riding style, and personal comfort. Adjustments to the handlebars, seat, and foot pegs can be made through aftermarket modifications or by selecting a motorcycle model that better suits the desired riding position.

Classic 350 design elements

The Royal Enfield classic 350 is a timeless piece of the brand which reflects the Royal Enfield bike's philosophy very well. The bike has some distinguishable features and creates its own identity and philosophy such as (Figure 1):

Two small DRLs at 10-2 position just above the headlamps



• Triangular shaped instrument cluster



Triangular side panels



• The teardrop fuel tank



Oval shaped battery covers panels

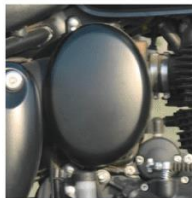


Figure 1: Classic 350 design elements

Primary Research

100 respondents were asked the following questions: What made you purchase this bike? How would you rate the looks of the bike as of now on a scale of 1-10? How would you rate the comfort level of the bike on a scale of 1-10? Don't you think that R.E Classic 350 fuel tank is too wide thus creating a chance of imbalance in case of sudden braking? Does weight of the R.E Classic 350 bothers you? Do you think weight of the R.E Classic 350 should be reduced? Do you think R.E Classic 350 footrest is way too outward in comparison to its rivals like Honda Highness, Bajaj Dominor 400, and Benallie Imperiale 400. Does foot rest of the R.E Classic 350 bothers you while towing it manually when it gets a break down, due to any issue? Do you think R.E classic 350 should come in more muscular and aggressive look?

Insights: Sound, stability, look/aesthetics made users purchase the bike. 75% rated the look and comfort above 7 on a scale of 1-10 (1=low, 10=high). About the fuel tank design 60% had never thought about it, 30% had given a thought to redesign of tank. 60% said that weight doesn't bother them while 24% said weight bothers them. 62% said that weight should not be reduced while 30% said that it could be reduced. 40% agreed that R.E Classic 350 footrest is way too outward in comparison to its rivals like Honda Highness, Bajaj Dominor 400, and Benallie Imperiale 400 while 30% had not thought about it and 30% disagreed. 45% agreed that the foot rest of the R.E Classic 350 bothers you while towing it manually when it gets a break down, due to any issue. 18% disagreed. 50% said that R.E classic 350 should come in more muscular and aggressive look, 30% disagreed and 21 were not sure about it. Few interviews have been depicted in Figure 2.

Personality assessment from primary study Existing User : - After conducting the interviews and speaking to the owners of the Classic 350, two types of users have been identified prominently as depicted in Figure 3.

1. Shahbaz Salam (HDD Machine Owner)



“bought this bike when I started my business. I use this bike because of my profession. I am a HDD machine owner, I need to instruct labor and manage them as well. The bike has an image of leadership associated with itself. I personally like this bike because of its looks. It looks complete. I see many other motorcycles as incomplete in volume and fragile, maybe due to extensive metal being used in it”.

2. Ar. Faraz Farooz (Prof. Aligarh Muslim University)



“I bought this bike when in 2012 and along with my friend I have to almost every motor able road in India. The bike is not comfortable to me maybe because of my height and weight, or maybe because the distance I cover in one go is around 150 kms. Well the bike was never meant to be a practical mode of transport, but eventually people do. The overall design of the motorbike seemed to be balanced, and the overall feel of the bike is very good. I personally ride it because I saw my grandfather riding this bike”.

3. Inam Khan Yousufzai

(Student B.com, Aligarh Muslim University)



“My mother promised to buy me a bike and when I got selected in the university she does. I have always seen Royal Enfield classic as an iconic bike and it is the one which seems to me very influential. I always dreamt of having a powerful family bike and now I own one. Whenever I drive it I get a majestic vibe, as if I am the chosen one. The bike is very appealing and is a little bit heavy as a result of which I avoid taking sharp turns and leaning over the road corners”.

Figure 2: User Interviews

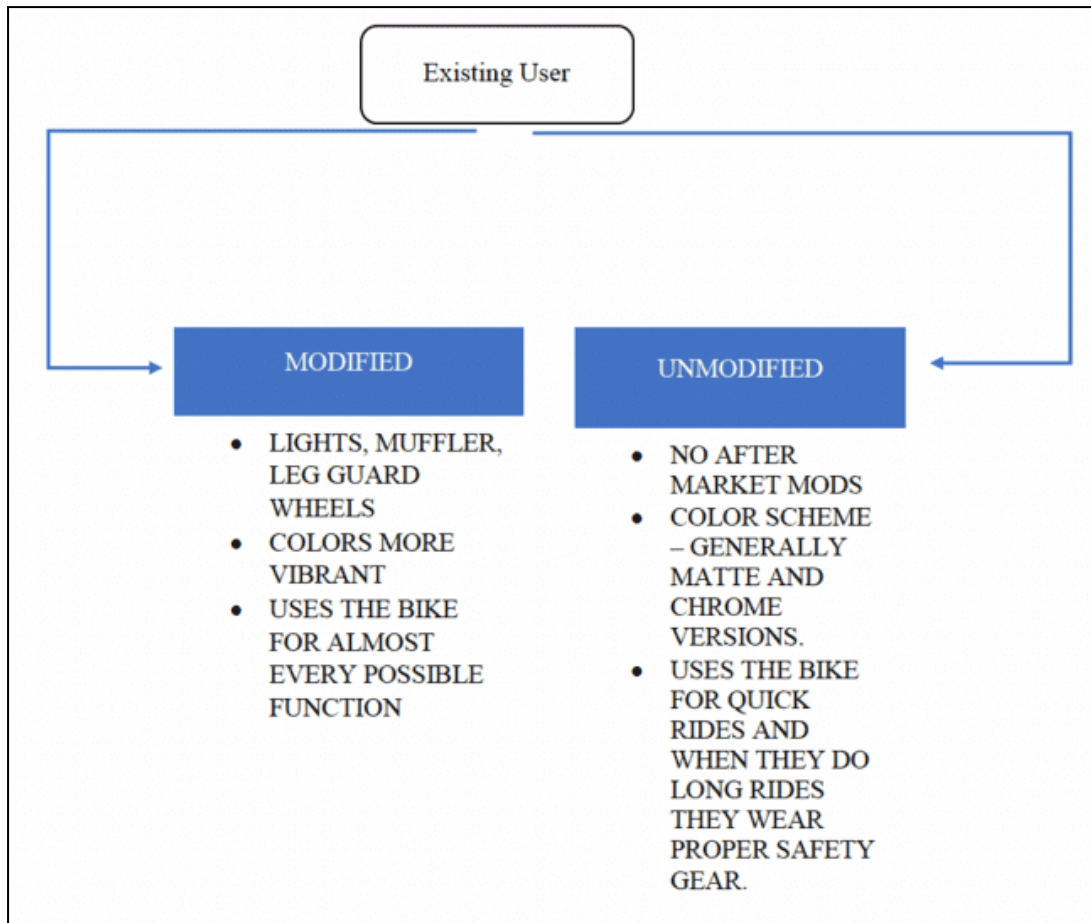


Figure 3: User personalities

Styling

Often used as an interchangeable term with "design", styling is in fact just one component of the design process. Typically, styling is developed through sketches, renderings and illustrations then realised in 3D form using automotive styling clay, specialized industrial modeling foams such as Sibatool, Renshape or Epiwood, or in increasingly limited cases plaster or body filler. As the most subjective part of the design process, the various members of the development team must depend heavily on the judgment, skill and experience of the appointed designer to create an appropriate look. Balancing the design form in all planes is very important, or else the designer loses the product in terms of its credibility. Earlier clay was the only option for automotive designers to

visualize the outcome but now a day there have come many option like 3d sculpting, 3d modelling, CAS modelling with which one can prejudge the design and enhance for the better production and pre visualization. **Current design trends: 1. Effortless 2. Time efficient 3. Economic 4. Aesthetics.** Since we know bike was never made as a practical mode of transport, but now since people are using it we must consider the factors behind the same.

User persona and Concept sketches have been depicted below (Figures 4-5).

User persona
Name - Jialo san
Age-34 yrs
Weight- 85 kgs
Height – 5’10”
Qualification- M.Tech
Occupation- Software Engineer,
Accenture Noida. (Back-End development)

I am a tourer since I was in my bachelor's. Motorcycling to me is fun which is impeccable in almost every aspect. I always use protective gear while riding on long routes. I have drove over lakh of kilometers on the classic 350 and want to explore the rest of the India with this bike. I like the stability, the thump in its sound and the retro modern looks of the bike. I drive almost 30kms on a daily basis and find this motorcycle quite convincing for me. I get all the attention and respect a biker should get.

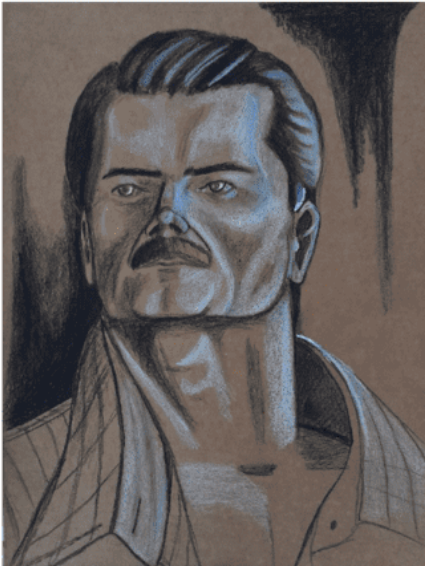


Figure 3: User persona

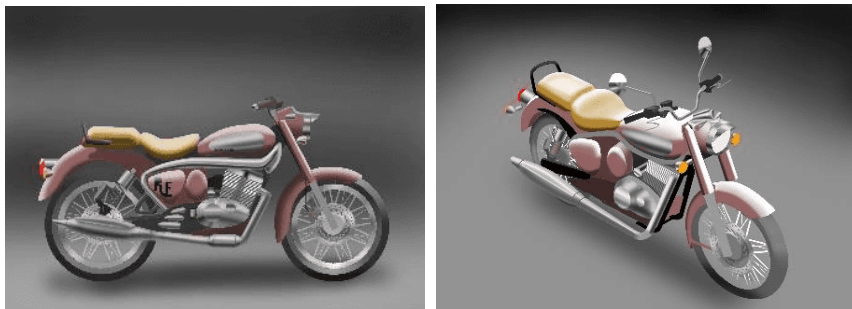
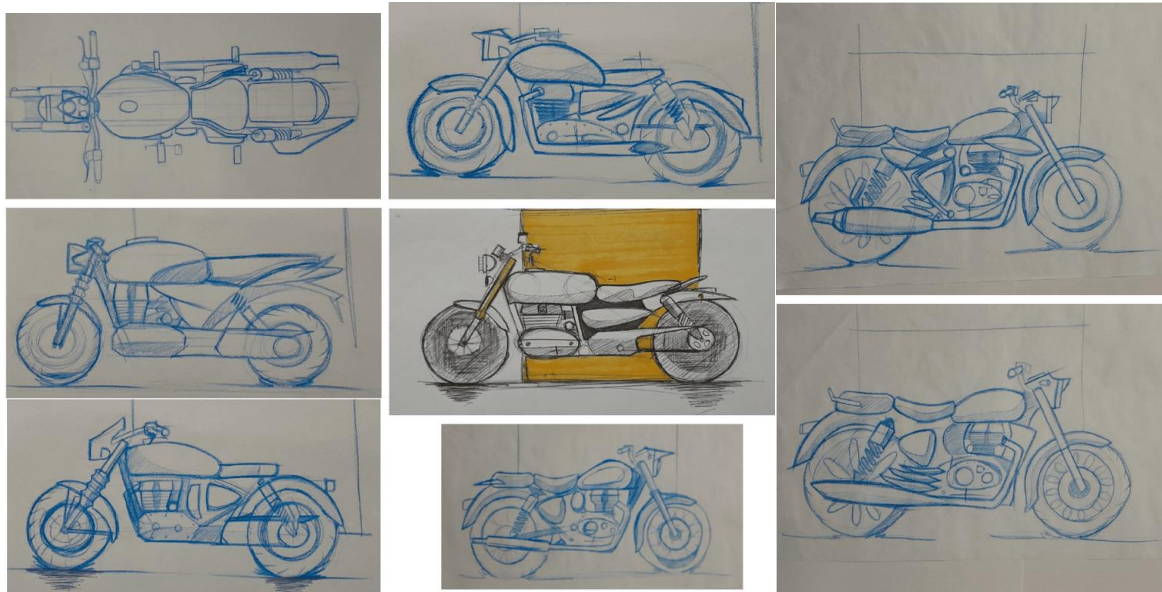


Figure 5: Concept sketches and renders

Conclusion

Time is changing so the fashion of every product, resulting in the new design trends. Royal Enfield classic is the bike with such an aesthetic treatment that people try to relate themselves in the bike's form and attributes. Some people have nostalgia related to this bike, some find its looks convincing to the roles they play in society with 2022 reborn transition classic is evolving through the time in terms of its design and features. The problems identified in the initial phase of the research are proven to be some of the prominent features of the bike. Hence the ideation is done by keeping all the parameters almost same as before except for the aesthetic treatment.

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