

**QUIDICH INNOVATION LABS**  
**REDESIGNS AND DEVELOPMENTS OF VISUALS**  
**UI's AND UX's**

A PROJECT REPORT  
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE AWARD OF THE DEGREE  
OF  
MASTER OF DESIGN  
IN  
**VISUAL COMMUNICATION DESIGN**

Submitted by:

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**(2K22/MDVC/05)**

Under the Supervision of

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**CANDIDATE'S DECLARATION**

I, Naman Tiwari, Roll No – 2K22/MDVC/05, student of M.Des (visual communication design), hereby declare that the project Dissertation titled “Quidich – redesigns and developments of visuals, UI's and UX's” which is submitted by me to the Department of Design, Delhi Technological University, Delhi in partial fulfillment of the requirement for the award of the degree of Master of Design, is original and not copied from any source without proper citation. This work has not previously formed the basis for the award of any Degree, Diploma Associate ship, Fellowship, or other similar title or recognition.

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**CERTIFICATE**

I hereby certify that the Project Dissertation titled “Quidich – redesigns and developments of Visuals, UI’s and UX’s which is submitted by Naman Tiwari, Roll No: 2K22/MDVC/05, Department of Design, Delhi Technological University, Delhi in partial fulfillment of the requirement for the award of the degree of Master of Design, is a record of the project work carried out by the students under my supervision. To the best of my knowledge this work has not been submitted in part or full for any Degree or Diploma to this University or elsewhere.

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Thank you



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## ABSTRACT

Cricket holds an unparalleled significance in India, transcending the boundaries of sport to become a cultural phenomenon deeply ingrained in the nation's fabric. This paper explores the intricate relationship between cricket and broadcasting in India, tracing its evolution from radio waves to digital platforms. India's love affair with cricket dates back to the colonial era, but it was the advent of television in the 20th century that revolutionized the sport's accessibility and popularity. The iconic moments of cricketing glory became shared experiences, uniting a diverse nation under the banner of sport. The rise of stars like Sachin Tendulkar and MS Dhoni further fueled the craze, turning cricket into more than just a game—it became an obsession. The broadcasting landscape in India witnessed a seismic shift with the proliferation of satellite television and the emergence of dedicated sports channels. Cricket found a new home, with matches broadcasted live, analyzed, and dissected by expert commentators. The telecast of major tournaments like the Indian Premier League (IPL) and international fixtures became spectacles in their own right, drawing millions of viewers and advertisers alike.

The digital age brought about another revolution in cricket broadcasting, with streaming platforms offering on-the-go access to matches and behind-the-scenes content. Social media platforms became virtual stadiums, where fans engaged in real-time discussions, memes, and debates, shaping the narrative of the game. Graphics have played a transformative role in revolutionizing cricket broadcasting, significantly enhancing the viewing experience for fans worldwide. These advancements have not only made the game more accessible but also provided deeper insights and analysis. Here's how graphics have changed cricket broadcasting:

- **Scoreboards and Statistics:** Graphics have modernized scoreboards, providing real-time updates on scores, player statistics, and match information. This real-time data allows viewers to stay informed about the game's progress without relying solely on commentary.

- **Player Tracking and Analytics:** Advanced graphics technologies enable the tracking of player movements and performance metrics such as speed, trajectory, and impact. Viewers can now analyze player tactics and strategies in real-time, enhancing their understanding of the game.
- **Replay and Analysis:** High-definition graphics have transformed replay analysis, allowing broadcasters to highlight key moments, such as wickets, boundaries, and close calls, from multiple angles. Slow-motion replays coupled with graphical overlays provide viewers with a detailed examination of crucial events, enriching their viewing experience.
- **Virtual Augmented Reality (VAR):** VAR overlays digital elements onto live footage, enhancing visual storytelling during cricket broadcasts. Virtual pitch maps, ball trajectories, and player insights add depth to commentary and analysis, offering viewers a comprehensive understanding of the game's dynamics.
- **Interactive Graphics and Social Media Integration:** Broadcasting graphics have become increasingly interactive, enabling viewers to engage with polls, quizzes, and social media feeds during live matches. Social media integration allows fans to share their thoughts, reactions, and experiences in real-time, fostering a sense of community among viewers.
- **Enhanced Viewer Experience:** Graphics have transformed cricket broadcasting into a more immersive and engaging experience. Features such as augmented reality graphics, 3D visualizations, and customizable viewing options cater to diverse viewer preferences, ensuring an enjoyable and personalized experience for fans.

Looking ahead, the future of cricket broadcasting in India seems poised for further innovation and expansion. Overall, graphics have revolutionized cricket broadcasting by providing viewers with enhanced insights, analysis, and interactivity. These advancements have not only elevated the viewing experience but also expanded the reach and appeal of cricket to audiences worldwide.

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# **CHAPTER 1 INTRODUCTION**

## **1.1 QUIDICH INNOVATION LABS**

At Quidich Innovation Labs, they specialize in identifying gaps within the broadcast and film industries and introducing innovative technologies to enhance production storytelling. Their passion for sports drives us to constantly innovate and excel, fostering long-term relationships with our clients.

### **Team**

The team at Quidich Innovation Labs is meticulously selected, with each member serving as a brand ambassador. They prioritize excellence through an in-house training program, ensuring our operators are top-notch professionals..

### **Technology & Innovation**

The company stay ahead of the curve by continually developing new technologies, such as broadcast-grade AR on drones and AI-powered player tracking systems, to elevate fan engagement in sports.

### **End to end service**

With over 3000 days of completed work, the company provides end-to-end services seamlessly. From navigating drone regulations globally to managing logistics and technology integrations, the company guarantees stress-free service.

### **Latest Equipment**

Our equipment at Quidich Innovation Labs is always up-to-date with the latest advancements, ensuring the highest quality productions. Safety is paramount, backed by rigorous training and standard operating procedures to maintain smooth and secure operations.

## **VALUES**

**Safety:** Quidich upholds safety as paramount, ensuring it through rigorous training and adherence to standard operating procedures, safeguarding both team members and clients.

**Passion:** The team's driving force for excellence lies in their passion, fueling client satisfaction and personal growth, instilling a culture of dedication and commitment.

**Collaboration:** Quidich thrives on collaboration, leveraging partnerships to deliver superior results, fostering growth within the ecosystem, and maximizing client value.

**Integrity:** Quidich conducts itself with unwavering integrity, adhering to the highest standards in meeting timelines, ensuring compliance, and maintaining confidentiality, earning trust and respect.

**Adventure:** Encouraging bold decision-making and embracing the spirit of adventure, Quidich learns from mistakes, pushing boundaries in its pursuit of innovation, delivering exceptional results for clients.

## **SERVICES**

### **BuggyQam**

A revolutionary camera system that allows smooth movement along low angles. The BuggyQam has a 5-axis-stabilized camera that prevents any jitter, even at maximum zoom.

- *Variable Speed Controls*

With a dual-operator setup, the system is controlled with extreme precision to deliver both, slow shots for TV shows to fast moves, racing alongside the athletes.

- *Best In Class Rf*

COFDM wireless HD video downlinks that are designed to work in any RF environment.

- *Specifications*

Weight - 25kg, Max operating speed - 5m/s, Payload - 15kg, 5-axis-stabilized camera, Vibration dampening and multi-layer suspension for all terrain capability.

### **CopterQam**

With the highest standards of safety, best-in-class payload capabilities and hours of operator experience, we can fly any camera on our aerial platforms.

- *Any Camera - Anywhere*

Fly the camera of your choice (Red, Arri, Sony Broadcast, Blackmagic) and see the world like never before, replacing traditional helicopter shots.



- *Safety*

With over 5000 hours of operations, our standard operating procedures have allowed us a zero failure rate, giving customers a stress free experience.

- *Specifications*

Regulatory compliant drones. Weight range - 1kg to 25kgs, Speed - upto 90kmph, Flight time - upto 30 mins, HQ HD downlink for Broadcast.

## **Quidich Tracker (QT)**

The Quidich Tracker (QT) stands as their proprietary player tracking and visualization solution, employing optical tracking and computer vision. It showcases a continuously live field plot, presenting real-time player positions, movements, and distances with precision and immediacy.

- *Real-Time Optical Tracking*

By bringing machines and machine learning to live sport, QT can optically track players and player movements in real-time.

- *Custom-Built Ai Camera*

The smart camera feed through a custom-built AI camera generates an average of more than 5 million data points per match.

- *Digital 3d Replica Of The Stadium*

Using Vizrt, a real-time graphics engine a 3D digital replica of the stadium to represent real-world scale is created with dots representing players on the field.

## **StiQy**

Live stream graphic overlays of player performance records and statistics affixed to players

Live Field Tracking

StiQy can optically track a single player or multiple players and their movements in a single frame in real-time.

- *Multi-Sport Application*

The technology can work with camera feeds across any live sport extending its application beyond cricket to any other sport.

- *In-game Display*

Graphic overlays of key performance statistics hover over players in the frame at crucial moments in the live game.

## **Spatio - Augmented Reality**

Quidich has pioneered the introduction of live broadcast-grade AR graphics on drones, marking a significant milestone in the industry. Their commitment to innovation is evident through continuous development of advanced technology layers aimed at enriching the viewer experience.

### *Enhancing Viewer Engagement:*

The utilization of drones transcends traditional camera usage, emerging as a potent storytelling tool for broadcasters, amplifying engagement and narrative possibilities.

### *Live Data Integration:*

Spatio seamlessly integrates with match scoring data, ensuring real-time updates and dynamic graphic selection options for enhanced viewer immersion.

### *Constant Evolution:*

With technology developed in-house and teams actively engaged on the field, Quidich swiftly identifies operational challenges and implements rapid upgrades, ensuring continuous improvement and innovation.

## **HyperView**

An advanced visual representation of live fielding positions in a virtual 3D stadium environment

- *Digital 3D Twin of the Stadium*

A 3D digital twin of any stadium across the world can be created representing real-world scale of fielding positions.

- *Real-time Player Tracking*

The technology tracks spatial relationships between players on the field in real-time to provide a comprehensive overview of fielding positions with statistical data across a broad range of parameters.

- *Unparalleled Perspective*

Supporting seamless camera moves, the technology provides viewers the ability to visualise fielding strategies from perspectives that were not possible earlier.

## 1.2 StiQy

- *Live Match Data Updates:*

StiQy provides real-time updates on crucial match statistics such as scores, run rates, wickets taken, and overs bowled during IPL matches.

Viewers can stay informed about the match progress without missing key moments or developments.

- *Comprehensive Player Statistics:*

StiQy offers detailed player statistics including batting averages, strike rates, bowling economy rates, wickets taken, and fielding performances.

Fans can track their favorite players' performances throughout the season and assess their contributions to their respective teams.

- *Key Performance Indicators (KPIs) and Predictive Insights:*

StiQy highlights important KPIs such as player milestones (centuries, five-wicket hauls), run rates, required run rates, and player impact scores.

Predictive insights based on historical data and machine learning models provide viewers with forecasts on match outcomes, player performances, and critical moments.

- *Interactive Visualizations and Data Analysis:*

StiQy utilizes interactive visualizations such as heatmaps, player trajectories, shot charts, and fielding maps to present data in a dynamic and engaging manner.

Viewers can analyze player actions, match trends, strategic decisions, and game dynamics more comprehensively.

- *Player Comparisons and Historical Data Access:*

StiQy enables viewers to compare player statistics, performances, and contributions side by side, facilitating a deeper understanding of player strengths and weaknesses.

Historical data access allows viewers to explore past performances, records broken, statistical trends across IPL seasons, and teams' historical matchups.

- *Live Commentary and Expert Analysis:*

StiQy integrates live commentary with expert analysis and insights based on data-driven observations.

Viewers gain deeper insights into game strategies, player dynamics, key moments, tactical nuances, and the overall narrative of the match.

- *Enhanced Viewing Experience through Technology:*

StiQy leverages advanced technologies such as machine learning, computer vision, and data analytics to provide an immersive viewing experience.

Interactive elements, real-time data updates, and predictive analytics enhance viewer engagement and understanding of cricket matches.

- *Strategic Insights and Team Performance Analysis:*

StiQy offers strategic insights into team performances, formations, batting orders, bowling rotations, and fielding strategies based on data analytics.

Coaches, analysts, and fans can optimize team compositions and strategies for improved performance and tactical advantage.

- *Player Profiles and Career Insights:*

StiQy provides comprehensive player profiles with career statistics, achievements, strengths, weaknesses, and overall contributions to IPL teams.

Viewers can gain a holistic view of players' careers, understand their playing styles, and follow their progress throughout the tournament.

- *Educational Value and Fan Engagement:*

StiQy's detailed analytics, visualizations, and expert commentary contribute to the educational value of IPL matches, helping viewers learn about cricket strategies, player dynamics, and match dynamics. Enhanced fan engagement through data-driven insights, interactive features, and accurate predictions creates a more immersive and enjoyable experience for cricket enthusiasts.



Fig. 1.1 Present StiQy Graphic used in IPL

### 1.3 PROJECT BRIEF

The brief for this project consisted of a brief overview of the project, expected deliverables, previous UIs and UXs, in house software and links to few resources.

#### **“Redesign StiQy’s visuals to be broadcasted and develop UI’s AND UX’s for its controller”**

Based on the resources and project download given it was known that, StiQy is a graphic, displayed on screens over players’ head, which basically conveys multiple stories like strike rate, runs, player name, field positions, player comparisons, last 5 matches, next ball predictions and other information. While the controller of StiQy is a software that is used by the operator present on field. Though StiQy had been designed in a way to automatically detect faces, but often the operator is required to work manually to transform things according to the game’s situations. Before StiQy had come in all the data was not allotted with a particular time of display, either all the stories were used to be displayed at the starting of the match or by the end. But with StiQy all the required information could be displayed during the match at perfect moments. It was game changer for the viewers who were not present in the field as they could get better understanding of the match, the field setup, the strategies and real time data.

The project studies the design fundamentals of the graphic, inspiration, iterations following up to redesigning it for better readability, visuals and UI.

## 1.4 PROJECT METHODOLOGY

The whole Design process and design thinking followed throughout is divided into four phases as mentioned below:

- Discover Phase
- Define Phase
- Ideate Phase
- Develop and Test

### 1.4.1 Discover Phase

To gain comprehensive insights into the product and its functionality, an extensive literature review was conducted as part of secondary research. This process laid the groundwork for the subsequent phases of the project.

- Time was dedicated to thoroughly studying the product and its operational mechanisms. This involved a comprehensive examination of its features, functionalities, and underlying technologies. Understood the intricacies and the processes involved in its operation.
- Through hands-on exploration and engagement with relevant documentation, Familiarized myself with the product's user interface, workflows, and potential use cases. This study provided valuable insights into the product's strengths, limitations, and areas for improvement, empowering me to contribute effectively to its development and enhancement.
- Shadowing operators on the field to gain firsthand insight into the practical aspects of the product's operation. Observing their workflows, challenges, and interactions with the product provided valuable insights into areas for improvement or optimization.
- Inspiration from a range of similar products available in the market. Through thorough research and analysis, various offerings within the same domain (sports such as golf and tennis), examining their features, user experiences, and approaches to addressing common challenges were explored. By studying these products, I gained valuable insights into emerging trends, best practices, and areas of opportunity.
- Devoted effort to meticulously identifying and addressing potential issues within the product. This involved a systematic and thorough examination of every aspect of the product, from its core functionalities to its user interface and overall user experience.

### 1.4.2 Define Phase

Insights gathered from both the Heuristic Evaluation and Self-discovery sessions of the product revealed significant UX shortcomings. During this phase of the UX design process, all data and information were consolidated to pinpoint actionable pain points that had the greatest influence on the user's journey and overall product experience.

- The discovery of cluttered input data revealed a critical challenge that was impeding the efficiency of our operators. This clutter not only slowed down their workflow but also introduced the potential for errors and inaccuracies in their work
- The absence of a structured architecture for obtaining input data posed a significant obstacle to the functionality and scalability of our tool. Upon closer examination, it became evident that without a defined framework in place, the process of gathering input data lacked organization and coherence. This lack of structure not only hindered the efficiency of data collection but also made it challenging to maintain consistency and reliability across different data sources
- The outdated user interface of our tool presented a significant challenge, as it failed to meet the evolving needs and expectations of our users. Upon thorough evaluation, it became apparent that the interface lacked modern design elements, intuitive navigation, and visual appeal. This outdated appearance not only detracted from the user experience but also hindered usability and efficiency.
- "StiQy" could use some aesthetic and functional upgrades to improve its presentation and user experience. Modernizing the graphics and ensuring that data entered by operators is properly integrated into the design could greatly enhance its appeal and functionality

### 1.4.3 Ideate Phase

In this phase, Multiple low fidelity concept sketches using design principles were created on paper keeping in mind the identified pain points. Instant feedback and instant iterations was used which improved the designs with every iteration.

- The concept sketches comprised hand-drawn paper prototypes.
- Multiple iterations were conducted based on feedback from the product team to explore additional ideas.
- Prototypes were created and subjected to testing to identify the most viable solution for further evaluation.

#### 1.4.4 Develop and Test Phase

A high-fidelity prototype of visuals were created based on the design philosophy and methodology required for StiQy designs, UXs based on the feedback from Operators were created for the StiQy controller for Concept Testing.

- A series of questions for the concept testing, focusing on the pain points and solution areas were created.
- The results and feedback from the concept testing were further used for iterations. The iterative process continued till the most viable solution for implementation and development was achieved.

The project timeline was decided and all the process phases were decided accordingly within 2 months, from Feb 2023 to April 2023. The details of the steps in each phase are mentioned in the following chapter.

## CHAPTER 2 DESIGN PROCESS

### 2.1 DISCOVER

The Discovery phase indeed serves as a crucial starting point for any digital product development journey. By delving into understanding users, defining problems, and envisioning solutions, a solid groundwork for the project was laid. This phase was all about gathering insights, and clarifying objectives towards a common goal. It essentially sets the direction for the entire development process, ensuring that efforts are focused and provided information and resources are utilized effectively to deliver a good design.

The goal was to have a strong understanding of:

- The previously used visuals.
- The need for change in the visuals of StiQy and its controller.
- The problem with the User experience of the controller.
- Inspiration from other games such as football, golf etc.
- Opportunity areas for improvement in the current designs.

The discovery, the means of literature reviews, desk research and primary research, along with discussions with the SME and project mentors. Secondary research was done by thoroughly studying the past visuals used for StiQy, existing design documents of controller's UXs, QUIDICH website, and other internet sources such as feedbacks of cricket visuals, articles and other websites.



### 2.1.1 Understanding the needs of the Game Broadcast

Visual enhancements for cricket broadcasts are crucial in delivering stories of excitement and intricacies of the game. In cricket, where every delivery, shot, and wicket can change the course of a match, high-quality visuals play a significant role in engaging viewers that are not present on the field and enhancing their understanding of the game.

#### 1. Multiple Camera Angles:

Cricket matches unfold across a large field, with action happening simultaneously at different ends. StiQy's visuals need to be designed for different stories taking place on the field every other moment.

#### 2. Graphic Overlays and Statistics:

Incorporating on-screen graphics and statistics is essential for providing viewers with relevant information and enhancing their understanding of the game. StiQy could display player statistics, match data, and live scores in real-time data.

#### 3. Player Tracking Technology:

Utilizing player tracking technology, StiQy provides insights into player movements, speed, and positioning on the field, as well as data visualizations to analyze batting and bowling trends throughout the match.

#### 4. Interactive Features:

Engaging viewers through interactive features can enhance the viewing experience and keep them invested in the broadcast, allowing fans to feel participated and more connected to the game.

By addressing these needs and leveraging innovative technologies, StiQy can elevate the broadcast experience for cricket fans worldwide, providing them with captivating visuals that enhance their enjoyment and understanding of the game.

### 2.1.2 Analysing the feedbacks of previous designs of StiQy

To improve and refine its visual offerings for cricket broadcasts, StiQy received feedback from various stakeholders, including broadcasters, viewers, cricket experts, and production teams. Here are some potential feedback points that StiQy received about its past visuals:

- Clarity and resolution
- Graphic overlays and statistics
- Interactive Features
- Player Trackings

- Overall aesthetics and representations

To effectively incorporate feedback, StiQy needed to establish a structured feedback collection process, gathering input from broadcasters, viewers, and production teams. Continuous testing and iteration are essential, allowing StiQy to refine its visuals iteratively based on ongoing feedback loops. StiQy can hence ensure that its visual offerings evolve to meet the needs and expectations of cricket fans worldwide.

### 2.1.3 Understanding the needs of the operators

Shadowing operators on the field involves actively engaging with operators as they carry out their tasks, allowing for an in-depth understanding of how a product is utilized in real-world scenarios. Initially, I approached operators to gain their consent and explain the purpose of my observation, ensuring transparency and cooperation throughout the process.

Once permission was granted, I shadowed operators during their daily routines, closely observing their workflows, techniques, and interactions with the product. This hands-on approach allowed me to immerse myself in the operational environment, experiencing firsthand the challenges and complexities faced by operators.

Throughout the observation period, I maintained a keen focus on identifying pain points and areas for improvement. I paid particular attention to moments of friction or inefficiency, noting any recurring issues or user difficulties encountered during the product's use.

In addition to observing operators directly, I actively engaged in conversations with them, seeking their perspectives and insights. This collaborative approach fostered open communication and enabled me to gain valuable feedback on their experiences with the product.

Upon shadowing the operators, several significant insights were gathered, shedding light on the intricacies and challenges of their work environment:

- **Fast-paced Environment:** Operators operate within an environment characterized by its rapid pace, where tasks must be executed swiftly and efficiently to keep pace with the demands of the operation. This fast-paced nature often leads to time constraints and pressure to perform tasks quickly, leaving little room for error or delay.

- **High Error Potential:** The speed at which operators must work increases the likelihood of errors occurring. Whether due to the pressure of the environment or the complexity of the tasks at hand, the potential for mistakes is notably high. These errors can range from data entry mistakes to misinterpretation of information, highlighting the critical need for accuracy and attention to detail in their work.
- **Need for Input Verification:** Recognizing the risk associated with errors, operators find it imperative to double-check inputs to ensure data accuracy. This step serves as a safeguard against potential errors that could have significant implications for the operation's success. The act of rechecking inputs adds an extra layer of verification to their workflow, helping to mitigate the risk of errors slipping through unnoticed.
- **Navigation Challenges:** Operators encounter challenges when navigating through different sections of the controller interface. This difficulty suggests potential usability issues within the interface design or complexities that hinder smooth navigation. Navigational challenges can impede workflow efficiency and contribute to frustration among operators, highlighting the importance of addressing interface design to streamline operations and enhance user experience.
- **Pre-match Data Updates:** Before each match or operation, operators are tasked with updating data within the controller. This pre-match preparation adds an additional layer of complexity to their workflow, requiring careful attention to detail and time management to ensure that all necessary updates are completed accurately and promptly. The need for pre-match data updates underscores the importance of timely information management and highlights the role of operators in ensuring that the system is up-to-date and ready for use.

Overall, shadowing operators on the field provided a comprehensive understanding of the practical aspects of the product's operation. By closely observing workflows, challenges, and interactions with the product, I gained valuable insights that informed iterative refinements and enhancements, ultimately contributing to the product's continued improvement and effectiveness in real-world use cases.

#### 2.1.4 Understanding the present Controller

A controller is a pivotal software tool enabling operators to manage products seamlessly, bypassing traditional software interfaces. It empowers operators to effect changes, such as selecting design templates, teams, player names, and stats, facilitating real-time storytelling without direct software interaction. This intuitive interface streamlines the creative process, enhancing efficiency and flexibility.

Crucially, the controller acts as a liaison between the operator and underlying software,

ensuring smooth communication and coordination. Ultimately, the finalized design is seamlessly transmitted for broadcast, reflecting the operator's vision and creativity in a dynamic, real-time narrative.

The 'Config' window displays the following settings:

- Decklink Type:** ☐ Decklink 4K Extreme 12G ☒ Decklink 8K Pro
- Port Number:** ☐ Port 1 ☒ Port 2 ☐ Port 3 ☐ Port 4
- Stadium/City Name:** Ahmedabad
- VIZ Frontend IP:** 192.168.10.5
- VIZ UDP Port:** 5002
- VIZ TCP Port:** 6101
- Downstream UDP IP/Port :** 192.168.1.25
- Unreal IP:** 192.168.8.8
- Unreal UDP Port:** 1502
- Unreal Controller freeze data port:** 7000
- Unreal Controller live data port:** 7050
- Unreal Controller boundary/pitch data port:** 7025
- Scoring File Network Machine Folder:** /
- Score File mode:(wt/ae/doad)** wt
- WT scoring file name:** scorefile.txt
- Detection Weights:** Select Weight
- Innings:** 1
- Team A:** IND
- Team B:** ENG
- Pixel to Distance Value:** 0.0982
- Tournament/Trophy:** WTC\_2023
- Crop Mode:** ☐ Activated ☒ Deactivated *Always Deactivated*
- Player dots shrink mode:** ☐ Activated ☒ Deactivated
- Lens Distortion:** ☐ Activated ☒ Deactivated
- Camera Source:** ☐ Input from Decklink(Camera/Shogun Feed) ☒ Local Video *Camera model*
- Angulator:** Field Plot Mapper *Pre Calibration parameters*
- Mark stumps and origin:** Pitch Updater
- Mark Outer boundary:** Boundary Extractor
- FieldDimensions:** Generate Field Dimensions
- Print UDP Command:** ☐ Yes ☒ No *Iden mode*
- Clear Multiple Entry Flag in History data:** ☒ Yes ☐ No

Fig. 2.1 Present controller and the Input Data

Upon understanding the controller several insights were gained:

- **Understanding Data Inputs:** Comprehensive comprehension of all data inputs within the controller was achieved. This involved grasping the purpose, function, and interrelations of each input to ensure a thorough understanding of the system's operations.
- **Diversifying Data Inputs:** Data inputs were categorized and diversified into multiple sections using color coding techniques. This visual organization facilitated easier identification and access to relevant information, enhancing efficiency and reducing the likelihood of errors during operation.
- **Communication with Other Software:** The mechanism through which the controller communicates with other software systems was elucidated. This involved examining protocols, interfaces, and data transfer methods to understand the seamless integration and exchange of information between different software components.
- **Operator Navigation:** A deep understanding of how operators navigate through the controller interface was attained. This involved analyzing user pathways, menu structures, and navigation features to identify areas of efficiency and potential improvement. Understanding the operator's journey within the controller allowed for insights into usability issues and opportunities for optimization.

By systematically addressing each aspect, a comprehensive understanding of the present controller system was achieved. This understanding encompassed not only the individual data inputs and their functionalities but also the overarching structure of the system, including communication with external software and the operator's interaction with the interface. Such insight serves as a foundation for informed decision-making and optimization efforts aimed at enhancing system performance, usability, and overall effectiveness in real-world operational settings.

## 2.2 DEFINE

The objective of this phase is to analyze and consolidate the observations and findings gathered during the discovery phase. The aim is to formulate an actionable problem statement, which will serve as the basis for generating solutions during the Ideate phase. The Define Phase is a converging stage where all collected data and information are scrutinized to define the pain points and potential opportunities.

### **Let's delve into each identified UX limitation and potential solution in detail:**

The discovery of cluttered input data has revealed a significant challenge within StiQy's product. The clutter not only slows down operators' workflow but also introduces the potential for errors and inaccuracies in their work. This clutter makes it difficult for operators to locate and input the necessary information efficiently, leading to frustration and decreased productivity. To address this challenge, StiQy could implement a cleaner and more organized interface for data entry. Streamlining the input forms, removing unnecessary fields, and providing clear instructions or prompts can guide operators through the process more effectively. Additionally, implementing input validation mechanisms can help reduce errors by alerting operators to incorrect or incomplete data entries in real-time.

Furthermore, the absence of a structured architecture for obtaining input data poses a significant obstacle to the functionality and scalability of StiQy's tool. Without a defined framework in place, the process of gathering input data lacks organization and coherence, making it challenging to maintain consistency and reliability across different data sources. StiQy could develop a structured data input framework that outlines clear guidelines and standards for collecting and organizing input data. Standardized data entry forms, data validation rules, and protocols for data integration and synchronization can ensure that input data is collected consistently and reliably, facilitating smoother workflows and reducing the risk of errors.

Moreover, the outdated user interface of StiQy's tool presents a substantial challenge. It fails to meet the evolving needs and expectations of users, resulting in a subpar user experience. With its lack of modern design elements, intuitive navigation, and visual appeal, the interface detracts from usability and efficiency. StiQy should prioritize a comprehensive redesign of the user interface to align with modern UX principles and design trends. Updating the visual aesthetics with cleaner and more contemporary styles, improving navigation through intuitive menu structures and navigation paths, and enhancing overall usability through user-centered design principles can significantly enhance the user experience. Integrating interactive elements, such as tooltips or hover effects, can further engage users and make the interface more dynamic and user-friendly.

By addressing these UX limitations with thoughtful design solutions, StiQy can significantly improve its product's presentation and user experience. Investing in aesthetic and functional upgrades will not only enhance the appeal of the product but also increase its usability, efficiency, and overall satisfaction for users.

In this project, the next few sections of the define phase will focus on:

- Analyzing the findings from feedbacks
- Identifying design improvement areas
- Defining the requirements of controller's design
- Creating a problem Statement

### **2.2.1 Analyzing the findings from the feedbacks:**

In our endeavor to enhance visual offerings for cricket broadcasts, we sought feedback from various sources, including broadcasters, viewers, cricket experts, and production teams. Key feedback points emerged, highlighting areas of improvement in our past visuals.

Clarity and resolution were identified as crucial aspects requiring attention, emphasizing the importance of delivering clear, crisp visuals for viewers to follow the on-field action effortlessly. We also recognized the need to enhance the effectiveness of graphic overlays and statistics, urging us to present data in an engaging and informative manner through refined graphic design and data visualization techniques.

Additionally, we noted the interest in interactive features to enhance viewer engagement during broadcasts, signaling a need for innovative approaches such as polls, quizzes, and live chats. Integration of player tracking technology was also deemed valuable, providing insights into player movements and performance for a deeper understanding of the game.

Furthermore, feedback on overall aesthetics and representations emphasized the importance of visually appealing and immersive broadcasts. We acknowledged the need for a structured feedback collection process to gather input from broadcasters, viewers, and production teams. Continuous testing and iteration were seen as essential for refining visuals based on ongoing feedback loops, ensuring that our offerings evolved to meet the evolving needs and expectations of cricket fans worldwide.

### **2.2.2. Identifying Design Improvement Areas**

Through careful analysis of the feedback received from various stakeholders, we identified areas for design improvement in our cricket broadcast visuals. By collating and synthesizing feedback from broadcasters, viewers, cricket experts, and production teams, we gained valuable insights into the strengths and weaknesses of our past visuals. These insights guided us in pinpointing specific aspects of our visuals that require refinement or enhancement.





Thorough study of user experience, problems, observations, and feedback about different areas of the controller.

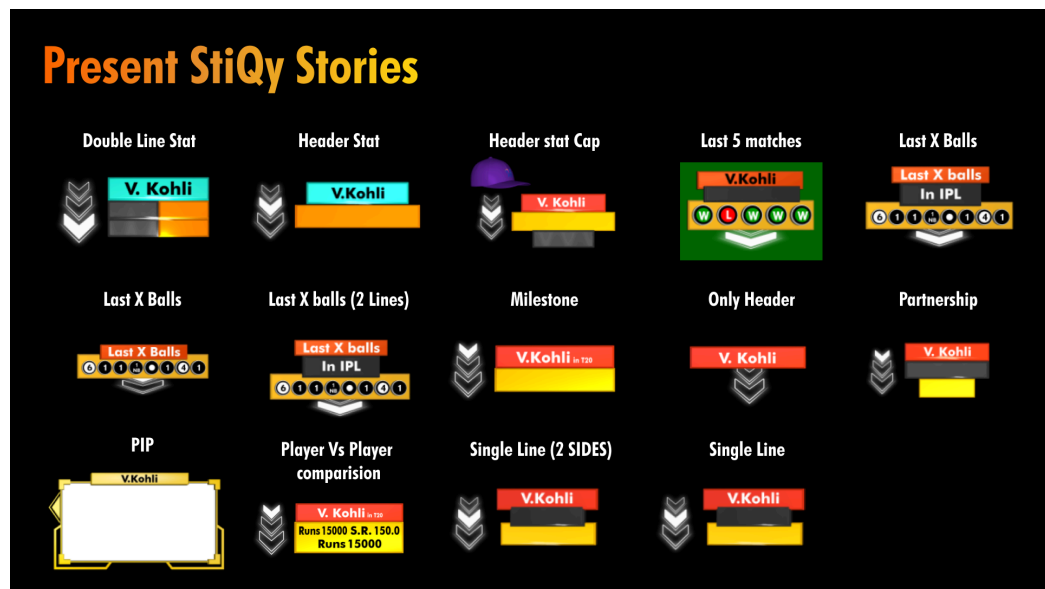


Fig. 2.4 Present StiQy stories used in IPL

Some of the High-level findings were:

1. The StiQy controller faces navigation challenges, posing difficulty for operators to navigate smoothly.
2. Data input fields within the controller appear cluttered, hindering ease of use and efficiency.
3. Lack of a specific data architecture within the controller complicates data management and organization.
4. The visual layout of StiQy presents challenges in accommodating data entered by operators within the controller, affecting clarity and usability.
5. IPL graphics received negative attention on social media platforms, indicating potential shortcomings in design or execution.

### 2.2.3. Defining the needs of controller's redesign

The findings and analysis highlighted a lot of pain points for the operator.. Usability issues lead to a delay in deliverable time during broadcast. Hence it is extremely important to reduce usability issues and pain points that the user might experience. This would not only increase satisfaction, but also make the process more efficient and effective. The pain points identified from the analysis are enlisted below:

1. The data of the controller is cluttered
2. The data of the controller does not hold a defined architecture
3. Navigation experience of the operator faced hindrance
4. Outdated user interface
5. High possibility of error

The analysis also highlighted some gain points which are enlisted below:

1. All the required inputs of data were available on a single screen
2. Calibration data inputs were properly structured
3. The operator can easily make changes to the data at any given point during the broadcast
4. The operator was handy for a first-time user.

### 2.2.4. Creating problem statement

The identified pain points were a long list of usability issues and UX limitations which deprived the operator of a smooth and easy experience of setting up the StiQy during broadcast.

1. Visual Design of the controller
2. Interaction Level
3. Navigation
4. Time and effort
5. Error possibilities
6. Information Hierarchy

#### 2.2.4.1 User story & Problem Statement

User Story:

***“As an Operator of StiQy, I need to work in a very fast paced environment. I need a well navigated and structured controller to create Visually appealing stories for StiQy”***

Problem Statement:

***“The Operators are finding it difficult to navigate through the controller as well as the data populated in the graphics for broadcasting is having spacing issues which is making it look really bad for the spectators ”***

So, how could we make the product StiQy easy to operate for operators as well as visually appealing for spectators

## **2.3 IDEATE**

During the Ideate Phase, the emphasis is on brainstorming and devising solutions to address the issues pinpointed in the Define Phase. This process commenced with brainstorming sessions and the creation of concept sketches for each identified opportunity area. Throughout, close adherence to UX principles was maintained to ensure alignment with usability standards. Additionally, consistent referencing to Quidich's Design System was integral to maintain uniformity and adhere to standards across all company products.

### **2.3.1. Sketches**

The ideate phase began with a paper and pen, and screenshots of the opportunity areas, i.e., high level pain points. Design Recommendations for designing StiQy visuals was also studied before jumping into solution design.

Following are some of the recommendations for Designing Usable Wizards:

- StiQy visuals
- Data inputs divided in multiple sections
- Each section was given a different screen to populate the data fields
- A navigation bar on the left side for operator to navigate through each section
- Proper defined space for calibration
- Toggle switches for some data fields were given

Different areas of opportunity were looked at, and probable solutions were sketched, looking at placements of buttons, search bars, Drop downs etc. Visuals for different stories of StiQy were also sketched. The paper prototypes created for Controller and StiQy graphics are shown below Fig. 2.5 and Fig 2.6.

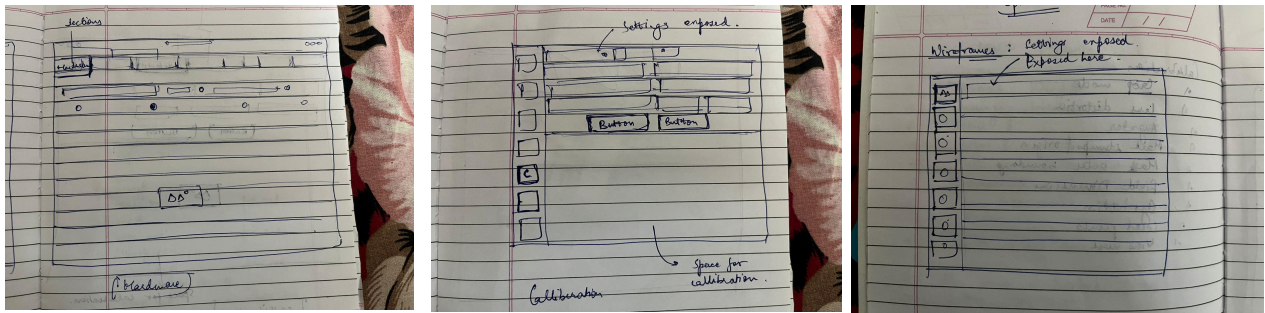


Fig. 2.5 Paper Prototypes

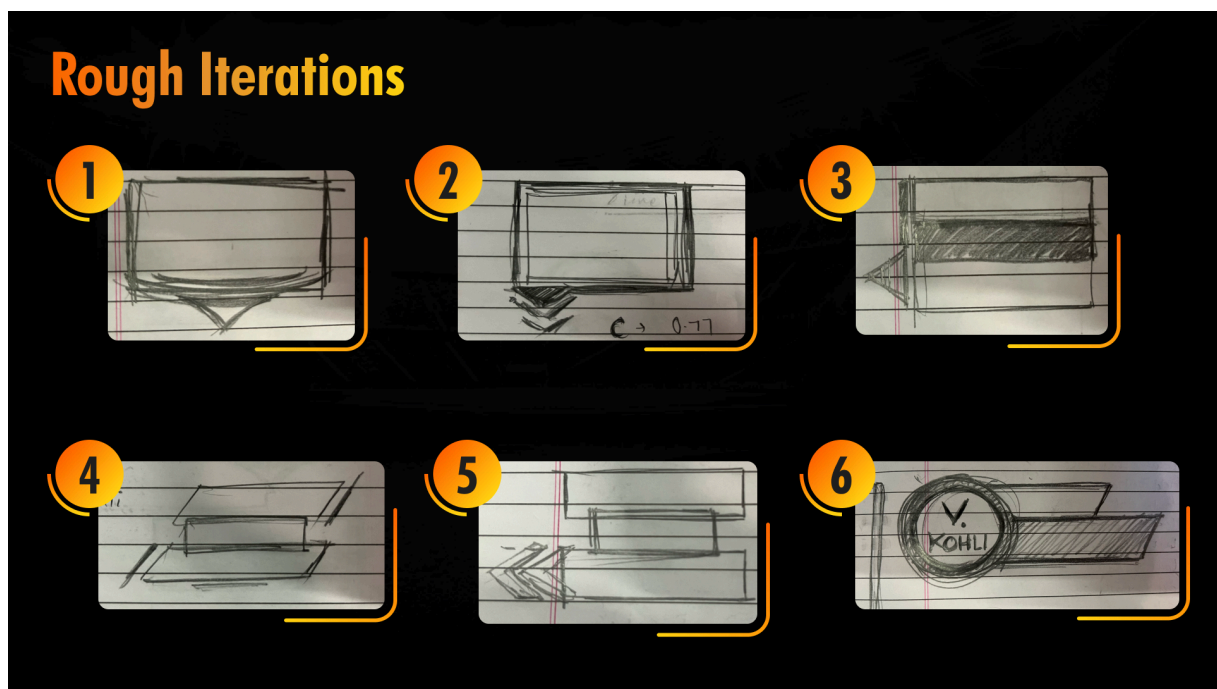





Fig. 2.6 Paper Prototypes for StiQy graphics


### 2.3.2. Wireframes


Wireframe turns abstract ideas into something tangible. After feedback was taken on the sketches, further iterations were done. These were converted into high fidelity prototypes or wireframes, to get a better understanding of the information placement, features placement and the interface.


  
Hardware














HARDWARE

Decklink Type:

☐ Decklink 4K Extreme 12G

☐ Decklink 8k Pro

Port Number:

☐ Port No. 1

☒ Port No. 2

☐ Port No. 3

☐ Port No. 4

Camera Source

☐ Input From Decklink (Camera/Shogun Feed)

☒ Normal Video

Camera Source

☐ Yes


☐


Fig. 2.7 Mid-fidelity explorations Hardware section


### IP Ports


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Viz Frontend IP	<input type="text"/>
Viz UDP Port	<input type="text"/>
Viz TCP Port	<input type="text"/>
<hr/>	
Unreal IP	<input type="text"/>
Unreal UDP port	<input type="text"/>
Unreal Controller UDP port	<input type="text"/>
Unreal Ctrl Freeze data port	<input type="text"/>
Unreal Ctrl Live data port	<input type="text"/>
Unreal Ctrl Boundary/pitch data port	<input type="text"/>
FF Middleman IP address port	<input type="text"/>
Namer Middleman IP address port	<input type="text"/>
Namer Middleman IP address port	<input type="text"/>
Buggy IP Address Port	<input type="text"/>
Middleman Video stream port	<input type="text"/>
Viz TCP IP Adress	<input type="text"/>
BT to QT IP Address	<input type="text"/>
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Fruit QT UDP Address	<input type="text"/>
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Fig. 2.8 Mid-fidelity explorations for IP Ports



















## Scoring Paths & QStats


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Scoring File Mode	<input type="text" value="v"/>	
WT Scoring File Name	<input type="text"/>	Select Path
Doad Score file	<input type="text"/>	Select Path
Score File Path	<input type="text"/>	Select Path
History Data Path	<input type="text"/>	Select Path
Remote Qstat PC Path	<input type="text"/>	Select Path


Fig. 2.9 Mid-fidelity explorations Scoring Paths and Qstats





Match Ess.

































































































































































Match Essentials

Detection Weights

Select Weight

Innings

Team A

Team B

DB Name

Pixel To Distance Value

Tournament / Trophy

Cricket Board

Player dots shrink mode

Activated

Deactivated

Bowler Colour

Meter sign

Decimal meters

Avg Frames

Fn Speed

Near Bowl

Far Bowl

Fig. 2.10 Mid-fidelity explorations Match Essentials

The screenshot shows the 'Miscellaneous' section of a software interface. On the left is a vertical sidebar with icons for various tools: a gear (selected), a speech bubble, a square, a pencil, a magnifying glass, a plus sign, a settings icon, and a code icon. The main area is titled 'Miscellaneous' and contains several settings:

- Clear multiple entries:** Radio buttons for 'Yes' (selected) and 'No'.
- Crop X1:** A text input field.
- Crop X2:** A text input field.
- Crop Y1:** A text input field.
- Crop Y2:** A text input field.
- Stump :** A section header.
- Near End:** A text input field.
- Far End:** A text input field.
- Crease :** A section header.
- Near End:** A text input field.
- Far End:** A text input field.
- StumpSRC:** A section header.
- Near End:** A text input field.
- Far End:** A text input field.
- Center Pitch Stumps:** A section header.
- Near End:** A text input field.
- Far End:** A text input field.

Fig. 2.11 Mid-fidelity explorations Miscellaneous section

The screenshot shows the 'Development' section of a software interface. On the left is a vertical sidebar with icons for various tools: a gear, a speech bubble, a square, a pencil, a magnifying glass, a plus sign, a settings icon, and a code icon (selected). The main area is titled 'Development' and contains several settings:

- Print UDP Command:** Radio buttons for 'Yes' (selected) and 'No'.
- Print Unreal Controller command:** Radio buttons for 'Yes' (selected) and 'No'.
- Video Source:** A dropdown menu with a downward arrow.

Fig. 2.12 Mid-fidelity explorations for Development section



## 2.4 DEVELOP

In this stage the designs created during the ideation phase were developed as a high-fidelity prototype incorporating the feedback and post further iterations. Iteration 1 of the controller with design enhancements can be seen in Fig. 2.13. Design enhancements in StiQy graphics can be seen in Fig 2.15

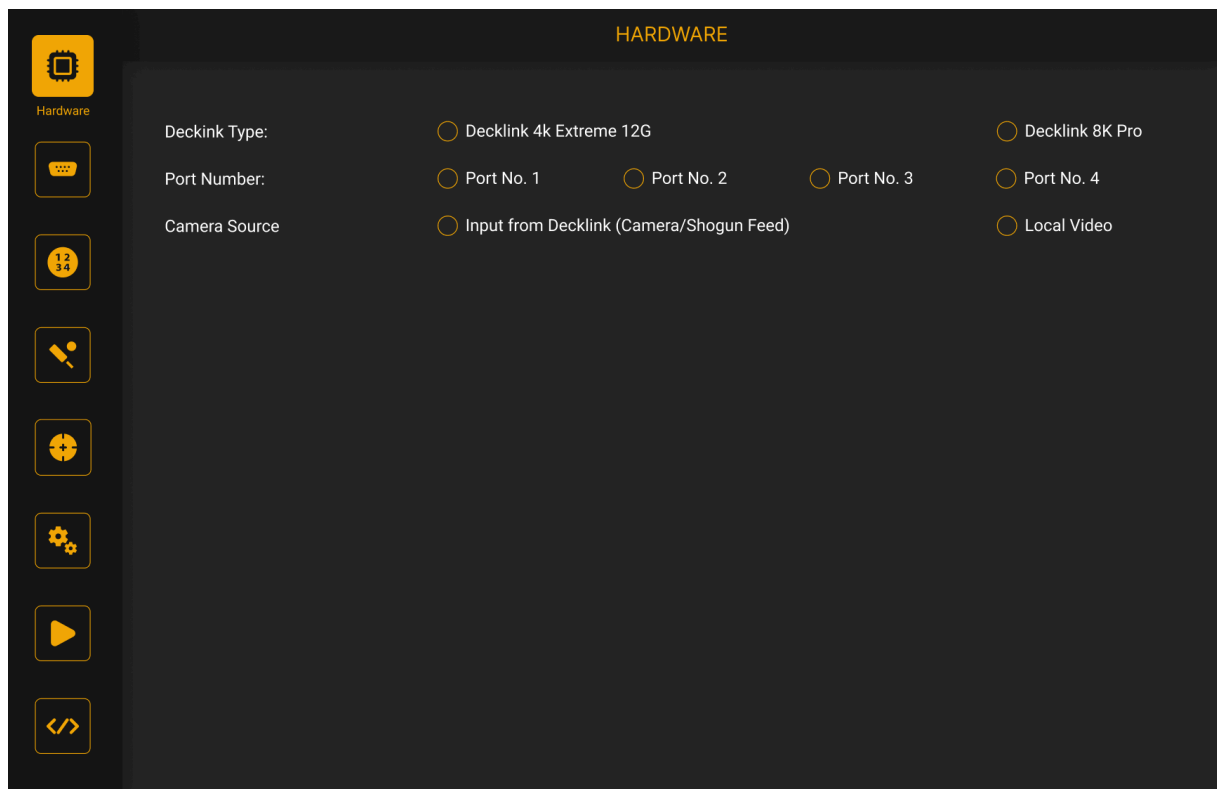


Fig. 2.13 Section 1 with Design Enhancements

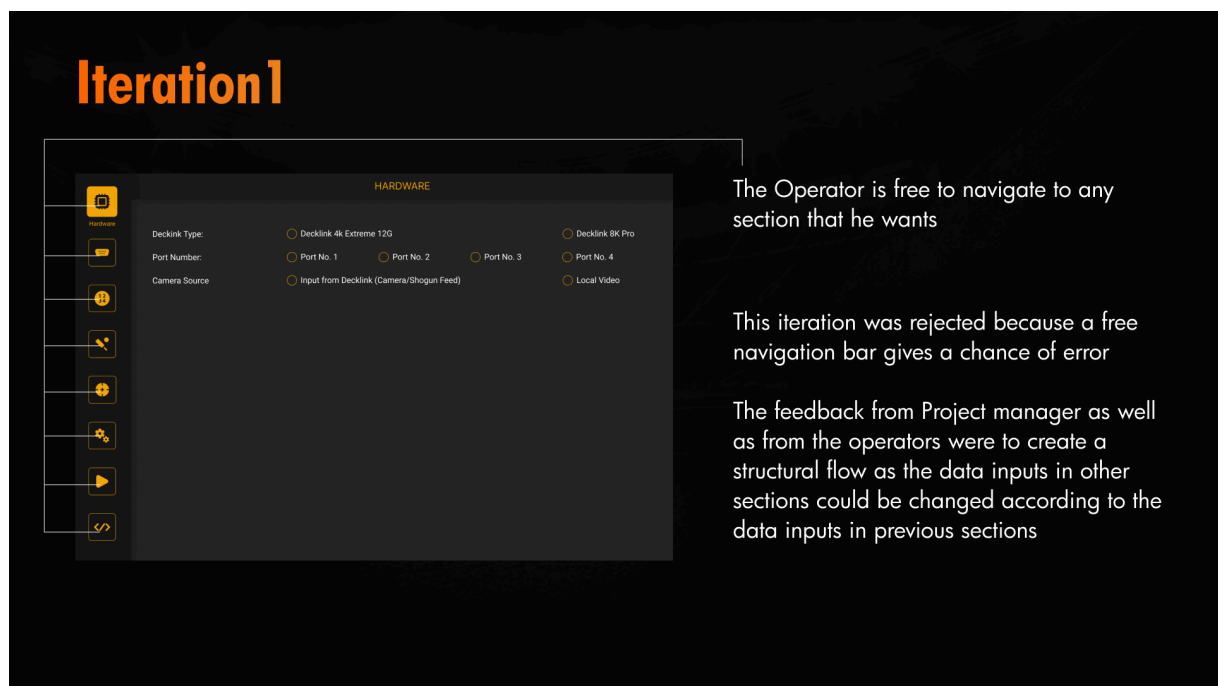


Fig. 2.14 Iteration 1 with feedbacks and explanations

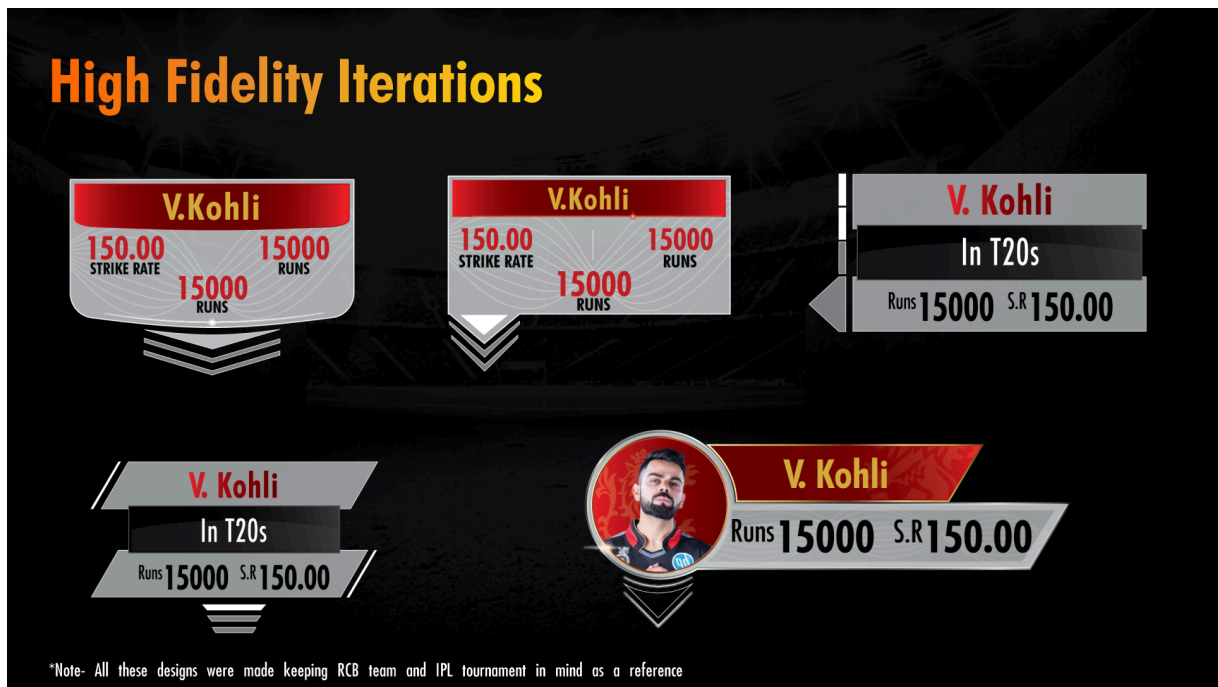


Fig. 2.15 High Fidelity Iterations of StiQy graphics

### Enhancements and Recommendations:

1. Enhancement in StiQy
  - **Visibility and Readability of Players' Faces:** A critical concern in this iteration is the clarity and legibility of players' faces within the design. It's essential to enhance visibility to ensure that facial features are clearly distinguishable, optimizing viewer engagement and comprehension.  
Fig 2.17 shows how the proposed design has a full frontal face of the player enhancing the visibility of the player
  - **Consideration for Phone Screen Usage:** Given the prevalent use of phone screens in India, designs must be tailored to suit these smaller displays effectively. Prioritizing legibility and user-friendly interfaces on mobile platforms is crucial for ensuring accessibility and a seamless viewing experience for the audience.
  - **Adherence to Tournament Design Philosophy:** Designs should closely adhere to the established design philosophy of the tournament. Consistency in design elements reinforces the tournament's branding and identity, contributing to a cohesive and immersive viewer experience across all platforms.  
Fig 2.16 shows how the proposed design can be used for different tournaments.

- Consistency Across Story Iterations:** The design should maintain consistency and flexibility to accommodate various story iterations. This ensures that the visual elements remain cohesive and adaptable, seamlessly integrating with different narratives while maintaining effectiveness and visual appeal. Fig 2.18 shows how the proposed design have a consistency across all story iterations.
- Reiteration of Visibility Concern:** Reiterating the concern about the visibility and readability of players' faces underscores its critical nature. Addressing this issue comprehensively is vital to delivering a visually captivating and engaging experience to viewers, particularly on mobile devices commonly used in India.



Fig. 2.16 StiQy Graphic versatility



Fig. 2.17 Teamwise iterations of StiQy graphics

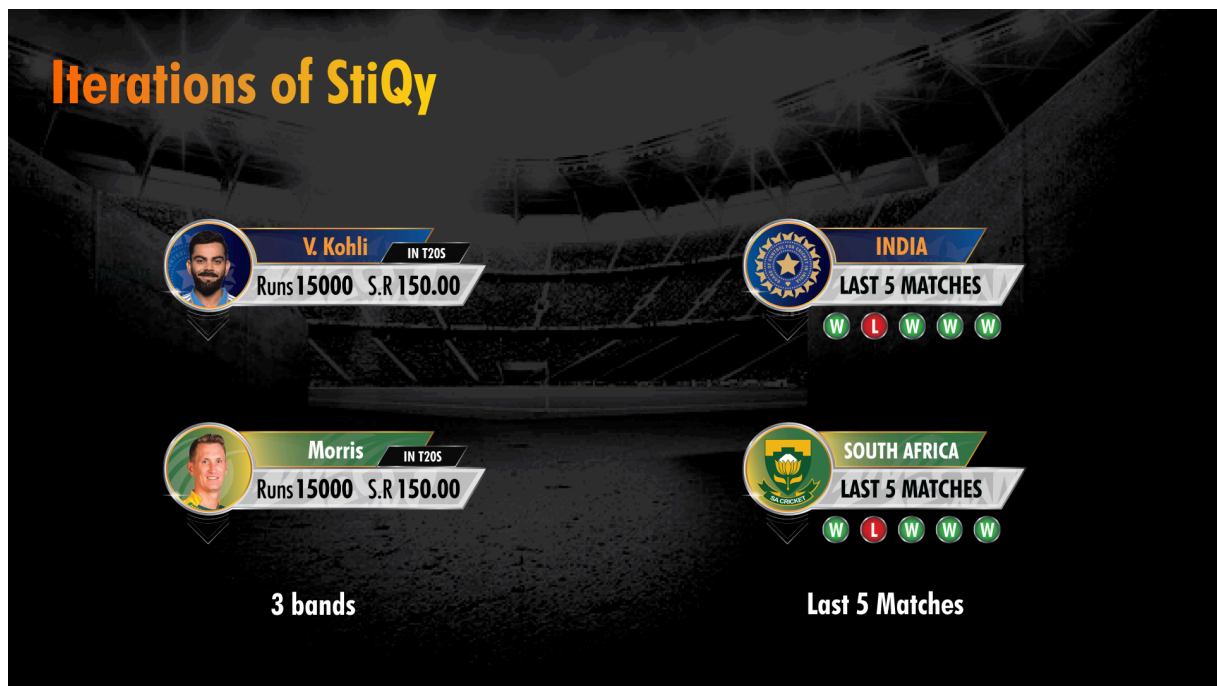


Fig. 2.18 Different Iterations StiQy for different stories

## 2. Enhancing the architectural flow of the Controller

- **Structured Workflow Implementation:** In Iteration 1, operators are granted unrestricted access to navigate to any section for making changes. However, this unrestricted access poses a risk of errors due to the lack of a systematic approach. To mitigate this, a structured workflow should be implemented.

- **Section-based Navigation:** The proposed structured workflow involves dividing the controller into distinct sections, such as "Hardware" and "IP Ports." Operators are required to follow a predetermined sequence when making changes. For instance, they must start with Section 1, proceed to Section 2, and so forth.
- **Sequential Modification Process:** Following the structured workflow, operators make modifications in each section sequentially. This ensures a methodical approach, reducing the likelihood of errors and oversights.
- **Limited Backtracking:** If an operator needs to revisit a previous section, such as returning to "IP Ports" after making changes in another section, they must follow the entire flow again. This serves as a precautionary measure to ensure thorough validation of inputs before progressing further.
- **Revalidation Protocol:** Upon revisiting a section, operators are required to revalidate all inputs within that section before proceeding. This step reinforces accuracy and minimizes the risk of discrepancies or inconsistencies in the configuration.

Implementing this structured workflow not only enhances operational efficiency but also promotes accuracy and reduces the probability of errors. By enforcing a systematic approach to navigation and modification, operators can confidently navigate the controller interface while maintaining control over the configuration process.

Fig 2.21 shows the implementation of feedback in the controller via giving a button at the bottom to move further and the navigation bar is just to move back to recheck.

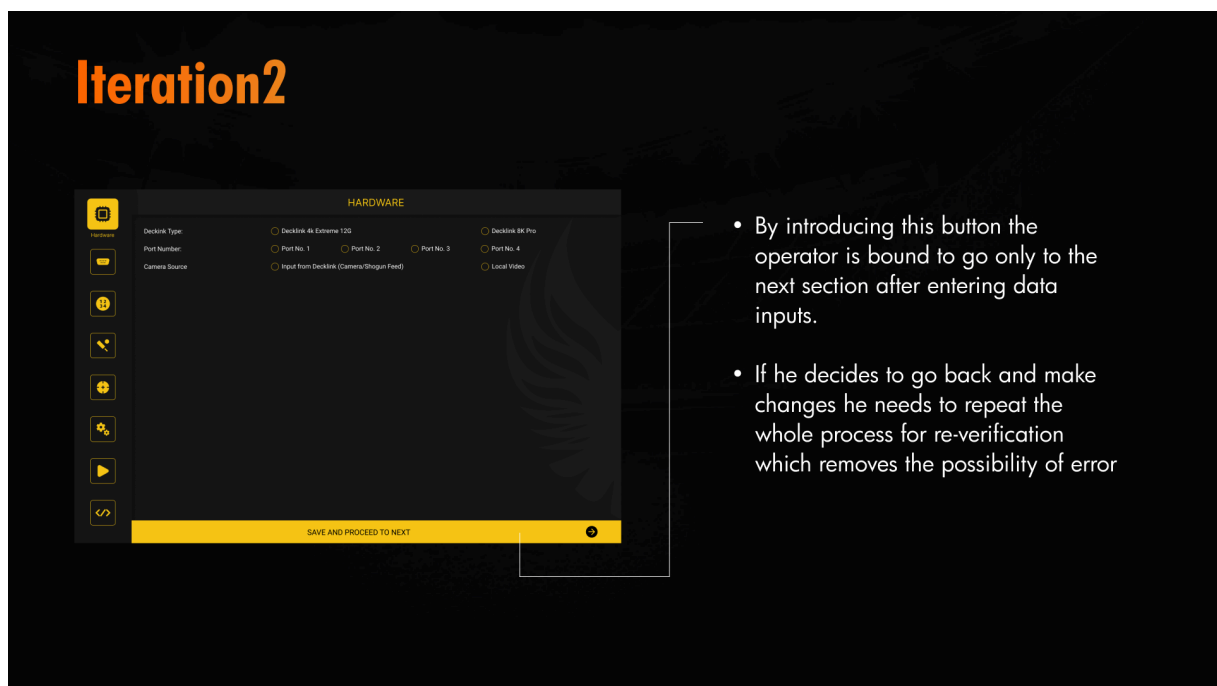


Fig. 2.21 Feedback implemented in the controller



Fig. 2.22 High fidelity screens of the controller

## 2.5 TEST

The designs created for StiQy throughout the duration of this thesis are in the process of being tested with the stakeholders belonging to the Product teams. The designs created for controller have been tested and approved by the team and are on the stage of final development.

- **Prototype Testing:** Operators were provided with a prototype of the controller and instructed to navigate through its functionalities. This hands-on testing approach allowed for real-time feedback on usability, navigation ease, and any encountered challenges or ambiguities.
- **StiQy Testing Environment:** To conduct comprehensive testing, the entire environment was replicated within the Unreal Engine. This included integrating player tracking mechanisms and evaluating the visibility of players within the simulated environment.
- **Visibility and Player Tracking Evaluation:** During StiQy testing, particular emphasis was placed on assessing visibility and player tracking accuracy. This involved rigorous examination of various scenarios and viewing angles to ensure that players' faces were clearly visible and identifiable within the virtual environment.

## CHAPTER 3 CONCLUSION

### 3.1 IMPLEMENTATION ROADMAP

We begin by clearly defining the objectives and goals of the project. This involves outlining specific outcomes we aim to achieve, such as improving clarity, enhancing engagement, and increasing viewer satisfaction. By establishing clear objectives upfront, we provide a guiding framework for the design process and ensure alignment with overall project goals.

Next, we embark on gathering stakeholder feedback from a variety of sources, including broadcasters, viewers, cricket experts, and production teams. We employ various methods such as surveys, interviews, and focus groups to collect feedback on the current state of cricket broadcast visuals. This comprehensive feedback collection process allows us to gain valuable insights into the strengths and weaknesses of our visuals from diverse perspectives.

With stakeholder feedback in hand, we prioritize design improvements based on the insights gathered and the objectives of the project. We identify key areas for improvement, such as clarity, resolution, graphics, interactivity, and overall aesthetics. By focusing on the most critical aspects of the visuals, we ensure that our efforts are directed towards addressing the most pressing needs and concerns identified by stakeholders.

The next phase involves research and ideation, where we delve into best practices in visual design for sports broadcasts, including cricket. We explore innovative ideas and concepts for improving visual elements such as graphic overlays, statistics presentation, and interactive features. Drawing inspiration from industry trends and user preferences, we generate creative solutions that align with project objectives and stakeholder feedback.

With a solid understanding of design principles and user needs, we move on to concept development. Here, we translate ideas and concepts into concrete design proposals, considering factors such as user experience, aesthetics, and functionality. We create wireframes or prototypes to visualize the proposed changes and gather feedback from stakeholders, ensuring that our designs resonate with end-users and meet their expectations.

The design process enters an iterative phase, where we refine and iterate on design concepts based on stakeholder feedback. We make adjustments and refinements to the designs, incorporating suggestions and insights gathered from stakeholders. This iterative approach allows us to fine-tune the visuals and address any concerns or issues raised during the feedback process.

Once the designs are finalized, we proceed to implementation and testing. We implement the updated visuals into the cricket broadcast environment, ensuring seamless integration with existing systems and workflows. We conduct thorough testing to validate the effectiveness of

the new designs, evaluating factors such as usability, engagement, and overall impact on the viewer experience.

Following successful implementation, we launch the updated visuals during cricket broadcasts, closely monitoring viewer reactions and feedback. We gather data on viewer engagement, satisfaction, and any issues or challenges encountered during implementation. This post-launch monitoring phase allows us to assess the effectiveness of the new designs in real-world scenarios and identify any areas for further improvement.



## 3.2 CONCLUSION

In conclusion, this project has been a comprehensive effort to elevate the visual experience of cricket broadcasts through a systematic design approach and integration of stakeholder feedback. By establishing clear objectives and goals, we laid the groundwork for our design endeavors, with a focus on enhancing clarity, engagement, and overall viewer satisfaction. Through extensive feedback collection from broadcasters, viewers, cricket experts, and production teams, we gained valuable insights into the strengths and weaknesses of existing cricket broadcast visuals.

The prioritization of design improvements based on stakeholder feedback allowed us to pinpoint key areas for enhancement, including clarity, resolution, graphics, interactivity, and aesthetics. Thorough research and ideation informed the development of innovative design solutions, drawing inspiration from industry best practices and user preferences. Concept development involved translating ideas into tangible design proposals, with wireframes and prototypes aiding in visualization and stakeholder engagement.

An iterative design process enabled refinement and iteration on design concepts, ensuring alignment with stakeholder expectations and project objectives. Implementation and testing phases focused on seamlessly integrating updated visuals into cricket broadcast environments while rigorously evaluating effectiveness and usability. Post-implementation monitoring allowed for the assessment of viewer engagement, satisfaction, and identification of immediate areas for improvement.

Ultimately, this project represents a commitment to delivering an enhanced viewer experience through responsive design practices and stakeholder-driven iteration. By prioritizing user feedback and leveraging innovative design solutions, we have aimed to elevate the quality and impact of cricket broadcast visuals, providing audiences with a more immersive and enjoyable viewing experience. Through ongoing refinement and adaptation, we aspire to continue delivering visually compelling broadcasts that resonate with cricket fans worldwide.

Looking back, the intent and aim of this project was-

*“To enhance the current experience of the controller by resolving usability issues and providing features that add value to the operator. To redesign the visuals of StiQy by fixing readability issues and creating a standard design for every tournament”*

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