iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** IX **Month of publication:** September 2023

DOI: https://doi.org/10.22214/ijraset.2023.55821

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue IX Sep 2023- Available at www.ijraset.com

Measuring Human Psychology Level through Game: CU63

Debmitra Ghosh[1], Pulak Tarafder[2], Roshmikana Pal[3]
[1, 2, 3, 4, 5, 6]*C.S.E, JIS University, Kolkata, India*

Abstract: ***The game Cu63-Cube appears to be a puzzle-based game that incorporates elements of decision- making and measures players' decision-making time. The game analyzes how quickly players complete each level and uses that data to determine the most valuable player for that particular level. It emphasizes real-time IQ-based gameplay and aims to detect players' basic IQ and decision-making abilities. In addition to assessing decision-making time, the game also tracks the movement of the player's hands. This feature allows for the recording of players' hand movements during gameplay, which can provide additional insights or data related to their performance. It seems that Cu63-Cube aims to combine puzzle-solving, decision-making, and hand movement tracking to create a game that assesses players' cognitive abilities and potentially provides a measure of their IQ. However, it is important to note that without further information or research on the game, its validity as an IQ assessment tool cannot be determined. It's worth mentioning that the validity and reliability of any IQ assessment or game-based assessment tool require rigorous testing and validation. It would be necessary to conduct research studies to evaluate the effectiveness, accuracy, and fairness of Cu63-Cube as an IQ assessment tool before making any claims about its ability to measure intelligence or make predictions about job performance.***

Keywords: Game, Python, Dot Connection

I. INTRODUCTION

Color Connection is a Unity game development project that offers players a captivating and immersive gaming experience. The objective of the game is to connect cubes of the same shape by drawing lines between them. The game incorporates puzzle-solving, logic, and strategy elements as players strategically connect the cubes while avoiding interactions between the connecting pipes. Players interact with the game using mouse or touch input to draw lines between the cubes, carefully planning their moves to ensure that the pipes connecting the cubes do not intersect or break. As the game progresses, obstacles and time constraints are introduced, increasing the difficulty and adding further challenges for the players. The game includes visually appealing graphics, featuring a vibrant and colorful array of cubes representing different shapes. The diverse levels are designed to gradually increase in difficulty, offering players a range of obstacles and challenges to overcome. Strategic thinking, problem-solving skills, and careful planning are essential for successfully completing each level. Overall, Color Connection (or Cu63-Cube) promises an entertaining gameplay experience suitable for players of all ages, combining puzzle-solving, logic, and strategy in a visually appealing environment. Petter et al. (2018) argue that employers should consider gaming-related experience and achievements when assessing applicants and even encourage them to share their gaming backgrounds on their resumes or during job interviews. They compare gaming experience to voluntary work, which signals social responsibility, and sports activities, which demonstrate goal orientation and team spirit. Gaming experience may indicate a range of skills and attributes that employers find professionally valuable. The passage also mentions a survey conducted by Robert Half, a US-based HR consulting firm, which found that 24 percent of surveyed CIOs cited video gaming or game development as hobbies or activities that increase graduates' appeal to technology employers. This indicates that employers in the technology industry specifically value video game- related experience. Furthermore, it highlights anecdotal evidence of individuals including their gaming experience on their resumes to showcase relevant skills. For example, Heather Newman, Director of Marketing and Communications at the University of Michigan, included her experience with World of Warcraft on her resume, emphasizing skills such as managing guilds and organizing large-scale raids that she believed applied to her job. The passage concludes by suggesting that companies from various industries have started to use video games as a means to identify and attract talent, indicating a growing interest in leveraging gaming experiences in HR management. Previous research has shown that puzzle and brain-training games, as well as other game genres like action and casual games, can contribute to the development and assessment of cognitive abilities. General intelligence has been demonstrated to be a strong predictor of future job performance according to HR research. Since video games can indicate intelligence, they can potentially support companies' assessment procedures. One advantage of using video games for assessment is that they allow for "stealth assessments," where candidates may be less aware that they are being monitored and evaluated.

©IJRASET: All Rights are Reserved

This can reduce test anxiety, prevent candidates from faking their responses, and increase candidate engagement. The immersive nature of video games can enable candidates to behave naturally, allowing their true behaviors to emerge during gameplay. This can enhance the accuracy of the assessment by minimizing the influence of social desirability and candidates' tendency to second-guess their actions during traditional employment assessments. In summary, the paper suggests that video games, through their ability to indicate intelligence and facilitate stealth assessments, can potentially enhance the accuracy and engagement of candidate assessments in the hiring process. Specific video games have been used to assess different aspects of cognitive abilities. For example, Nintendo's puzzle and brain-training games like Train and Professor Layton have been used to assess general intelligence. Casual online games such as DigiSwitch and Sushi Go Round have been utilized to assess working memory, perceptual speed, and fluid intelligence. Puzzle platformers like Portal 2 have been used to assess problem-solving ability, spatial skills, and persistence. Multiplayer online battle arenas like League of Legends have been used to assess fluid intelligence. Digital board games such as Taboo have been used to assess abstract reasoning, spatial reasoning, and verbal reasoning. Sandbox games like Minecraft have been used to assess fluid intelligence and spatial ability. Noteworthy studies include Quiroga et al. (2015), who used various video games, including those from Nintendo's Big Brain Academy, to measure individual differences in general intelligence. Quiroga et al. (2019) obtained similar results using several genres of games other than brain- training games. Based on a comprehensive overview of game-related research studies, Quiroga and Colom (2020) presented strong arguments for using video games to measure intelligence, suggesting their potential for assessment purposes.

Overall, the passage highlights the empirical evidence from various studies indicating that video games can be used to measure intelligence and cognitive abilities. The use of specific games for assessment purposes offers promising opportunities to evaluate cognitive skills and potentially enhance the assessment of candidates in various contexts.Overall, the passage suggests that video game experience and achievements can potentially provide valuable skills and attributes that employers are beginning to recognize and consider in the hiring process.

II. METHODOLOGY

The development of the Cu63-Cube game project follows a structured methodology to ensure an efficient and organized process. The methodology involves several key stages, including planning, design, development, testing, and deployment.

A. Planning

The planning stage sets the foundation for the entire project. It involves defining the project scope, goals, and objectives. During this phase, the team conducts market research to identify the target audience and assesses the feasibility of the game concept. The planning stage also includes the creation of a project timeline, resource allocation, and defining key milestones.

B. Design

The design stage focuses on the visual and conceptual aspects of the game. It begins with creating a game design document that outlines the game mechanics, rules, and overall structure. The team designs the user interface (UI), including menus, buttons, and other interactive elements. Additionally, the game's visual assets, such as cubes and shapes, are designed, ensuring they are visually appealing and distinguishable.

C. Development

The development stage is where the actual coding and implementation of the game take place. The team utilizes the Unity game engine and programming languages such as C# to bring the game to life. The cubes, shapes, and their behaviors are programmed, allowing players to interact with them. The game mechanics, such as drawing lines and detecting matches, are implemented using appropriate algorithms. The development stage also includes the integration of sound effects and background music to enhance the overall gaming experience.

D. Testing

The testing phase is crucial for identifying and fixing any bugs or issues in the game. The team conducts both manual and automated testing to ensure the game functions as intended. Different scenarios are tested to validate the game mechanics, such as drawing lines between cubes, detecting shape matches, and handling different levels of difficulty. Feedback from testers is collected and analyzed, leading to iterative improvements and refinements in the game's mechanics, visuals, and overall gameplay experience.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

E. Deployment

Once the game has undergone rigorous testing and refinement, it is ready for deployment. The team prepares the necessary files and builds the game for various platforms, such as PC, mobile devices, or consoles. Distribution platforms, such as app stores or game portals, are targeted for publishing the game. Appropriate marketing strategies are employed to generate awareness and attract players to the game. Throughout the project, effective communication and collaboration among team members are essential. Regular meetings and progress updates ensure that everyone is aligned with project goals and timelines. Version control systems are utilized to manage codebase and assets, allowing for efficient collaboration, and tracking of changes. It is important to note that the methodology presented here is a generalized approach, and the specific details may vary depending on the team's preferences, project requirements, and available resources. Agile methodologies, such as Scrum or Kanban, can also be incorporated to enable iterative development and enhance adaptability to changing project needs. By following a structured methodology, the Shape Connect game project aims to deliver a high-quality and engaging gaming experience that captivates players and fulfills the project objectives.

III. PROPOSED METHOD

Unity and C# are fundamental components of the development process for the Shape Connect game project. Unity serves as the game engine, providing a powerful and versatile platform for designing, building, and deploying the game. C# is the programming language used in conjunction with Unity, enabling developers to create the game's functionalities and behaviors. Unity offers a wide range of features and tools that streamline the game development process. It provides a visual editor that allows developers to design and manipulate game assets, including cubes, shapes, and the overall game environment. This visual editor makes it easier to position objects, apply textures, and set up physics properties. C# serves as the scripting language for implementing the game's logic and behaviors within the Unity engine. Developers write C# scripts to define the interactions between the player, cubes, shapes, and other game elements. C# offers a strong object-oriented programming paradigm, making it efficient and flexible for designing complex game mechanics. In the context of cu63-cube , C# scripts are utilized to handle various functionalities, such as:

A. Cube and Shape Interactions

C# scripts define the behavior of cubes and shapes within the game. For example, when a player selects a cube, the script detects the input and initiates the process of drawing a line. It also manages the rules for connecting cubes of the same shape and ensures that the connections are valid, adhering to the game's mechanics.

B. Level Progression and Difficulty

C# scripts manage the progression of levels in the game. They handle the logic for unlocking new levels as players successfully complete previous ones. Additionally, the scripts control the difficulty curve by adjusting factors such as the number of cubes, available shapes, and obstacles in each level.

C. User Interface

C# scripts are responsible for managing the user interface (UI) elements, including menus, buttons, and score displays. They handle events triggered by UI interactions, such as starting a new game, navigating menus, and displaying level completion messages.

D. Scoring and Game Mechanics

C# scripts implement the scoring system in Shape Connect. They calculate and update the player's score based on factors such as the number of moves taken, time elapsed, and bonus points for advanced strategies. The scripts also govern other game mechanics, such as detecting when a level is completed or failed, and triggering appropriate actions accordingly.
C# scripts control the audio and visual effects within the game. They handle the playback of sound effects and background music, creating an immersive audio experience. The scripts also manage animations, particle effects.

E. Audio and Visual Effects

C# scripts control the audio and visual effects within the game. They handle the playback of sound effects and background music, creating an immersive audio experience. The scripts also manage animations, particle effects, and other visual elements that enhance the game's overall presentation and engagement.

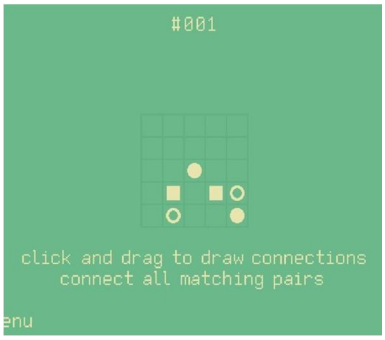
Unity and C# provide a powerful synergy that enables developers to create complex and interactive gameplay experiences. With Unity's robust engine and C# versatility, the Shape Connect project can leverage these tools to bring the game's vision to life. By utilizing the extensive features and capabilities of Unity and C#,developers can efficiently develop, test, and deploy the game, ensuring a seamless and enjoyable experience for players.

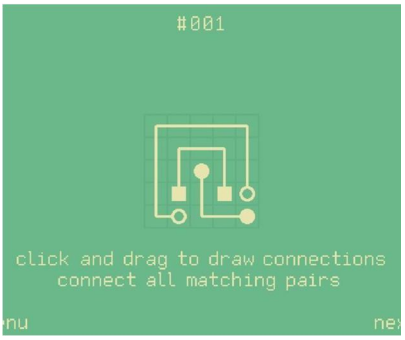
IV. RESULT AND DISCUSSION

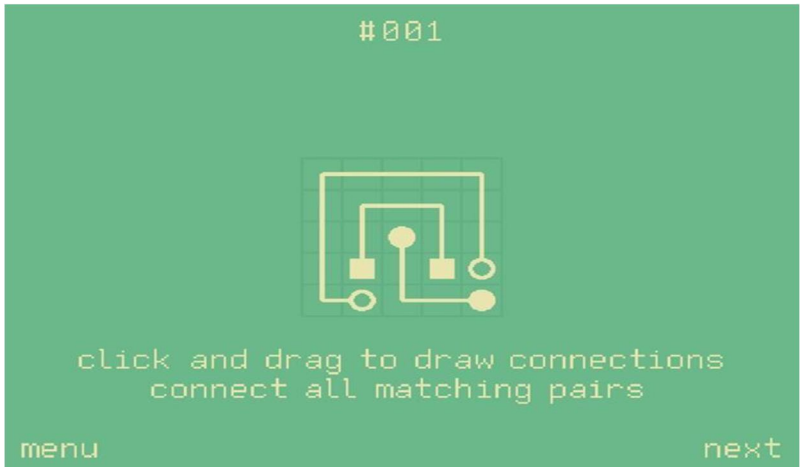
Cu63 is a simple puzzle based game but it has many more things within it. It may look like a normal connecting dot game but it's a real time iq based game.Through this game we can detect the basic iq and decision making time of the players and it shows the real time values of the players decision making time playing it. We have made a small jump by developing this idea by which we can also track a record of the movement of the player's hands.


CU63-CUBE

Player Name	Game Level	Time Taken	Percentage	Performance
Sayan Roy	Upto level 5	1 min 42 sec	75%	Average
Atunu Mallick	Upto level 5	1 min 13 sec	100%	Excellent
Taniya Paul	Upto level 5	1 min 58 sec	50%	Poor
Avijit Mandal	Upto level 5	2 min 01 sec	50%	Poor
Sukumar Das	Upto level 5	1 min 31 sec	75%	Average
Ankan Majumder	Upto level 5	1 min 10 sec	100%	Excellent
Ajay Saha	Upto level 5	1 min 44 sec	75%	Average
Deep Das	Upto level 5	1 min 52 sec	50%	Poor
Tanmoy Roy	Upto level 5	2 min 10 sec	50%	Poor
Koushik Saha	Upto level 5	1 min 36 sec	75%	Average
Sanjay Kumar	Upto level 5	1 min 20 sec	100%	Excellent







V. CONCLUSION

In conclusion, the Shape Connect game project developed using Unity and C# presents an engaging and immersive gaming experience where players connect cubes by matching their shapes. Through the utilization of Unity's powerful game engine and the versatility of the C# programming language, the project successfully brings to life a captivating and challenging gameplay concept.

By following a structured methodology encompassing planning, design, development, testing, and deployment, the team has been able to create a polished and enjoyable game. Throughout the development process, Unity's comprehensive features and tools have been leveraged to design and manipulate game assets, implement game mechanics, and deploy the game across various platforms. C#, as the scripting language, has allowed for the creation of intricate behaviors and logic, enabling the game to provide an engaging and dynamic experience for players.

The project's success has been further enhanced by incorporating elements such as obstacles, scoring systems, and a visually appealing user interface. These additions elevate the gameplay experience, fostering player engagement and motivating them to strive for higher scores and overcome challenges. In summary, the Shape Connect game project demonstrates the capabilities of Unity and C# in game development, showcasing the potential for creativity and innovation within the field. The project's methodology, implementation of game mechanics, and attention to detail contribute to a polished and enjoyable gaming experience.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

VI. ACKNOWLEDGMENT

I would like to express my deep gratitude and appreciation to my thesis advisor, Ms. Debmitra Ghosh, for her unwavering guidance, invaluable insights, and unwavering support throughout the entire research process. Their expertise and dedication have been instrumental in shaping the direction of this thesis. I am also grateful to my committee members, Roshmikana Pal, Ramkrishna Das, Ritam Singha, Kushal Dixit, for their constructive feedback and valuable suggestions that greatly improved the quality of this research. Lastly, I am grateful to all the participants and individuals who contributed to this study, without whom this research would not have been possible. This thesis is the culmination of the efforts and support of many, and I am truly thankful for each one of you who played a part in this endeavor

REFERENCES

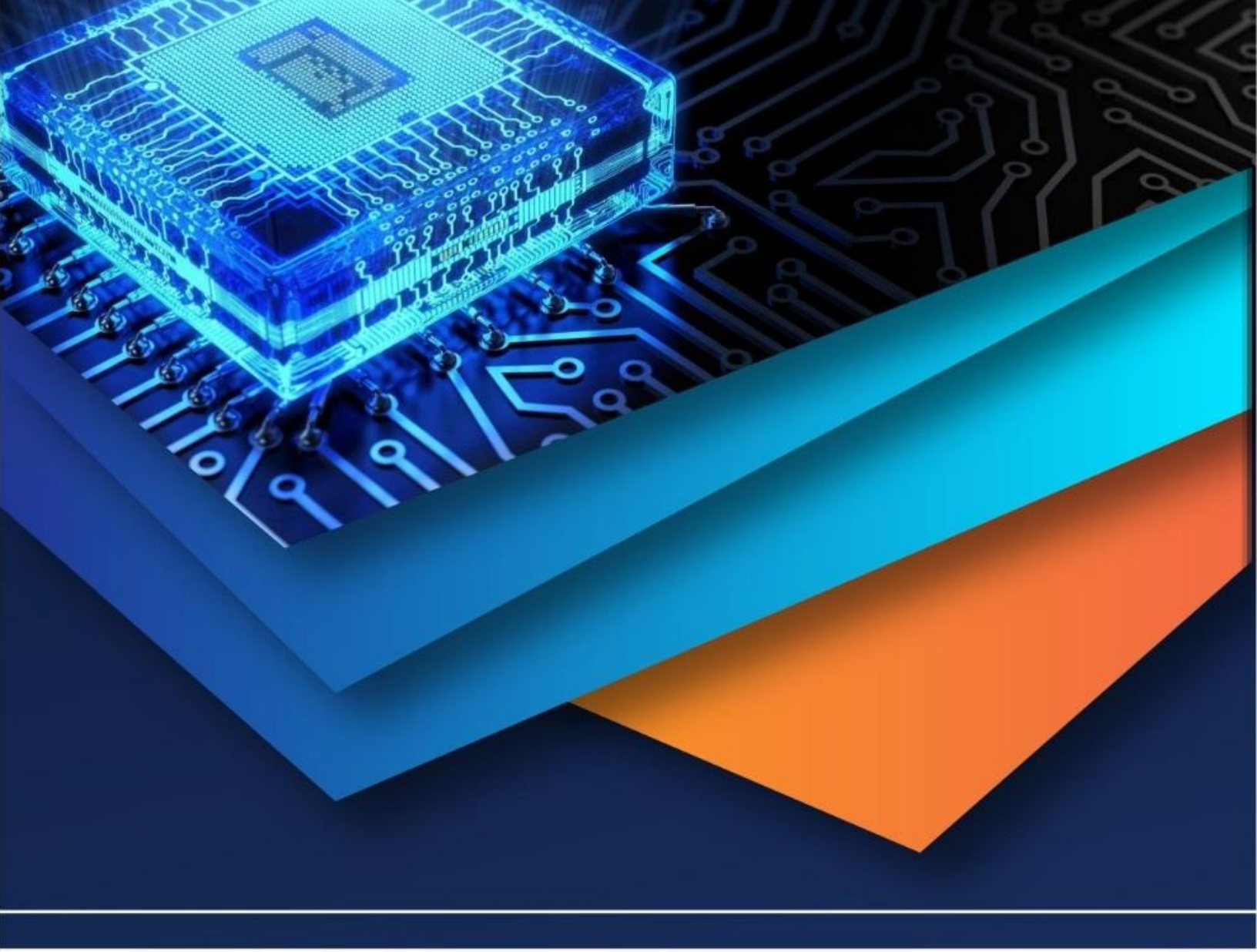
[1] Enabling Visual Design Verification Analytics– From Prototype Visualisations to anAnalytics Tool using the Unity Game EngineMarkus Borg1 , Andreas Brytting2 , Daniel Hansson31RISE SICS AB, Lund, Sweden, markus.borg@ri.se, +46 733 5045372 KTH Royal Institute of Technology, Stockholm, Sweden, andreas.brytting@gmail.com3Verifyter AB, Lund, Sweden, daniel.hansson@verifyter.com

[2] Combining features of the Unreal and Unity Game Enginesto hone development skills Ioannis Pachoulakis and Georgios Pontikakis Department of Informatics Engineering Technological Educational Institute of Crete Heraklion, Crete 71500, Greece {ip@ie.teicrete.gr, pontikakis.gewrgios@gmail.com}

[3] Literature Review of Game Development Technologies and its Impact Jash Hima Gharat Late Bhausaheb Hiray S S Trust's Hiray Institute of Computer Application, Mumbai, India

[4] International Journal of Advanced Research in Science, Communication and Technology(IJARSCT) Volume 2, Issue 1, July 2022

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)