

DESIGNBITS

FUSION OF COMPUTER SCIENCE AND DESIGN



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"Design is thinking made Visual!"
"Digital design is like painting, except the paint never dries."
Immerse into the world of technology, innovation, science, advancement and much more...

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From the Desk of Principal, BCREC



First of all congratulations to the team and the leader for coming out with the Magazine **DESIGNBITS**. It's the first issue and many congratulations to start with. The design team of the Institute has an important significance in the campus and I am sure the work done by the team will have an impact and inspiration to all. The magazine is a media to represent and express the thoughts amongst all. It can be a technical, poetic, visual etc, but reflecting the essence of the design in it. Let it be a magazine/newsletter which needs to be published after every equal intervals starting with yearly and increasing it to six monthly and quarterly. There are infinite literature, information, ideas and content to be presented in it, but ensure to follow the ethics and integrity in publication by considering the plagiarism principles, to ensure it's a controversy free. This experience will also lead and give opportunity to budding researchers and entrepreneurs to judge their ideas and views and gather a feedback. Let this be available on the website free for all so that all can have a view of it and give a real feedback. This will help all of us in improving ourselves and move to higher levels. I also feel to have some of the articles related to the

publication, methods, standards, and options so that all the stake holders are able to be guided in right directions for their contribution to be published. The field of design is not new but the use of technology in it has improved significantly. There are numerous technologies used such as a Blockchain, Artificial Intelligence and Machine Learning, Generative AI, Cloud Computing, Cryptography etc which should be introduced in a simple terms so that interested ones can go into deep and acquire the expertise to work in the area. I would also be happy to see the applications and examples that are expected to happen in next 10 to 15 years so that all can have a thought and may be able to contribute to its realization. My best wishes once again to the team members and I am sure to have many more such issues to be continued for years to come.

Prof (Dr) Sanjay S Pawar
Principal, BCREC.

From the desk of the Head of the Department



It gives me immense pleasure to know that the Department of Computer Science and Design (CSD) is turning its dream of publishing a departmental magazine into reality in the form of "**DESIGNBITS**" with its first issue. It is a special moment and achievement for a young Department that started its journey only two years ago in the year 2021. The beginning of its journey is more satisfactory and encouraging because of the fact that the whole episode of activities is splendidly executed by our energetic, creative, innovative and multi-talented students. I hope this will go a long way in providing a multi-facet platform for the students, faculty and staff members in exchanging and sharing ideas, provoking thoughts in different curricular and extracurricular activities. The students of the department are engaged in several creative thinking and skill development activities throughout the year under its own Technical Club "**DEZINOVA**". I would like to congratulate the Editorial team of the "**DESIGNBITS**" and all those who are directly or indirectly involved for achieving this milestone. The existence of the "**DESIGNBITS**" itself proves the talent pool, quality, managerial skills, leadership capability and the attitude of our students in multiple domains. I take pride in their talent. I welcome the joining of another batch of students this year and wish this will add to our talent pool and strengthen our creative thinking diversity. I hope this endeavor will help the students to enrich their skills, creativity, thinking and innovations to explore their desired avenues of opportunities. I wish all success for the journey of the "**DESIGNBITS**" and hope that the readers will enjoy and encourage creativity of our budding professionals.

Dr. Raj Kumar Samanta
HOD,CSD Dept.

Editorial's Note

We are thrilled to present this special edition of our magazine, celebrating the two-year milestone of the newly established department of computer science and design. Over the past two years, the faculty, staff, and students of this department have started a new chapter, pushing boundaries and redefining what it means to embrace creativity and technology. As students, we have had the privilege to witness and be a part of this remarkable journey so far, and we are excited to share the collective learnings and accomplishments with our readers.

One of the main purposes of **DESIGNBITS** is to provide a platform for students to showcase their skills and accomplishments. By publishing articles, drawings, and poems, students can express their thoughts, ideas, and creativity to a wider audience. This not only boosts their confidence but also provides them with recognition for their work.

It is an opportunity for students to see their efforts acknowledged by their peers and teachers. This magazine also showcases the achievements of students of this department in the two years at various events including the **Dezinova club** which is specially set up by the students of this department that organizes events, workshops, and seminars that provide students with hands-on experience and opportunities to enhance their skills and gain practical knowledge about the latest trends and technologies in the field of design and computer science.



Vinayak Kumar



Souvik Basu



Samik Mandal



Sunidhi Singh



Shruti



Vandana Verma



Nishant Kumar Rai

CONTENTS

ABOUT OUR CLUB : "DEZINOVA".	01
ARTICLES :-	
• EXPERIENCE THE FUTURE : 3D GRAPHICS.	04
• ARTIFICIAL INTELLIGENCE.	05
• THE RISE OF PASSWORDS LESS SIGN-IN THE NEAR FUTURE.	06
• TRANSFORMATIVE ROLE OF AI IN ENGINEER'S LIFE.	07
• METAVESE.	08
• WEB DEVELOPMENT.	09
• 5G TECHNOLOGY.	10
• IMPACT OF SOCIAL NETWORKING.	11
• COMPUTER SCIENCE TRENDS.	12
• EXPLORING THE MULTIVERSE.	14
• CANISTER IN BLOCKCHAIN.	15
• FUTURE : AR ,VR ,AND GAME DEVELOPMENT.	16
POEMS :-	
• THE WORLD THAT CONVERGES ART AND CODE.	21
• MY KIND OF LOVE.	22
• A SCHOOL LIFE.	23
• BEAUTY UNLACQUERED.	24
PHOTOGRAPHY & SKETCHES.	25
AWARDS AND GREETINGS :-	
• ACADEMICS.	32
• SPORTS.	33





DEZINOVA

Dezinova club is our departmental club created and established by the HOD and students of Computer science and design department of our college. From being vibrant and dynamic, it also provides a platform to all students to showcase their talent and skills in various fields. It provides a platform for enthusiasts to explore the fascinating realms of technology while finding out the inner inbuilt talents in them. Our club organizes various seminars, workshops, competitions on technical and emerging topics and also activities which will enhance students' skills viz. poster designing competitions, learning new applications like blender etc. In this journey of innovation and learning, the students of our department are working to make it a success and hope this reaches greater heights.





Road Map To Bright Career

31st Aug. 2022



Debate on National Education policy

7th Sept. 2022



Poster Competition

14th Sept. 2022



Experience the Future

GRAPHICS TECHNOLOGY IS REVOLUTIONIZING

As a tech enthusiast, I have always been fascinated by the advancements in the world of technology, especially in the field of 3D graphics. Over the years, there has been a significant evolution in the use of 3D graphics technology, and it has revolutionized the way we create and consume content. In this article, I will explore the benefits of using 3D graphics, the different types of 3D graphics, and the applications of 3D graphics in various industries.

Introduction to 3D graphics technology

3D graphics technology involves the creation, manipulation, and rendering of three-dimensional images using specialized software. It is a powerful tool that can be used to create realistic and immersive visual experiences that engage audiences in new and exciting ways. The technology has come a long way since its inception, and today, it is widely used in various industries such as film, video games, architecture, and product design.

The benefits of using 3D graphics

One of the significant benefits of using 3D graphics is its ability to create realistic and immersive visual experiences. With 3D graphics, it is possible to create lifelike environments, characters, and objects that can be viewed from any angle. This creates a more engaging and memorable experience for the audience. Another benefit of using 3D graphics is that it allows for more creativity and flexibility in the design process. With 3D graphics, designers can experiment with different colors, textures, and materials to create unique and innovative designs. This is particularly useful in industries such as architecture and product design, where the ability to visualize designs before they are built can save time and money.



Examples of 3D graphics

There are numerous examples of 3D graphics in various industries. In the film industry, 3D graphics are used extensively to create special effects and lifelike characters. For example, the recent live-action adaptation of "The Lion King" used 3D graphics to create realistic-looking animals that could be animated and voiced. In the video game industry, 3D graphics are used to create immersive and interactive game environments. Games such as "Fortnite" and "Minecraft" use 3D graphics to create visually stunning and engaging game worlds. In the architecture industry, 3D graphics are used to create digital models of buildings and structures. This allows architects to visualize the design and make changes before construction begins, saving time and money.

The evolution of 3D graphics technology

The evolution of 3D graphics technology has been remarkable. In the early days, 3D graphics were simple wireframe models with limited detail. Today, 3D graphics are photorealistic and can be used to create lifelike environments and characters.

Advancements in hardware and software have played a significant role in the evolution of 3D graphics technology. Today's computers are much more powerful than those of the past, and specialized software such as Maya and 3D Studio Max allow for more complex and detailed 3D designs.

-Prashun Jha
3rd year





AI



Artificial Intelligence: A Necessary Tool for Disease Detection and Early

Introduction:

The field of healthcare is experiencing a transformative shift with the integration of artificial intelligence (AI). From diagnostics to treatment and disease management, AI is revolutionizing the way diseases are detected and addressed. In this article, we explore how AI is becoming a necessary tool for disease detection, enabling early intervention and improved patient outcomes.

1) Enhanced Accuracy in Diagnostics:

Artificial intelligence algorithms have shown remarkable capabilities in analyzing medical data and images, surpassing human accuracy in some cases. AI-powered systems can process vast amounts of patient data, including medical records, lab results, genetic information, and imaging scans, to identify patterns and indicators of diseases. For instance, AI algorithms have demonstrated exceptional accuracy in detecting cancerous tumors in medical images such as mammograms, MRIs, and CT scans. The ability of AI to analyze and interpret subtle patterns that might be missed by human observers can lead to earlier and more accurate diagnoses, enabling timely interventions and improving patient outcomes.

2) Early Detection and Prevention:

One of the most significant benefits of AI in disease detection is its potential to identify diseases at their earliest stages, even before noticeable symptoms occur. By analyzing various data sources, including electronic health records, wearable devices, and genetic profiles, AI can flag potential risk factors and indicators of diseases. For example, AI algorithms can analyze a combination of patient data, such as lifestyle factors, genetic predispositions, and environmental influences, to predict the likelihood of developing conditions like diabetes, heart disease, or certain types of cancer. This early detection allows healthcare professionals to intervene with preventive measures, lifestyle modifications, or targeted screenings, significantly improving the chances of successful treatment or even preventing the onset of the disease.



3) Personalized Medicine and Treatment Plans:

AI also plays a vital role in tailoring treatment plans and therapies to individual patients. By analyzing vast amounts of patient data, including genetic information, medical history, and treatment outcomes, AI algorithms can identify patterns and associations that help predict a patient's response to specific treatments. This personalized approach can significantly improve the efficacy of treatment, reduce the risk of adverse effects, and optimize healthcare resources. AI algorithms can assist healthcare professionals in selecting the most suitable medications, dosages, and treatment strategies for each patient, leading to better outcomes and a higher quality of care.

4) Early Warning Systems and Outbreak Detection:

AI's ability to process and analyze large volumes of data in real-time makes it a valuable tool in monitoring and detecting disease outbreaks. By analyzing data from various sources, such as social media, search trends, and electronic health records, AI algorithms can identify patterns and early warning signs of infectious diseases.

Conclusion

Artificial intelligence has emerged as a necessary tool for disease detection and diagnosis, revolutionizing healthcare practices worldwide. By leveraging its capabilities in data analysis, pattern recognition, and predictive modeling, AI has the potential to enhance early detection, improve accuracy in diagnosis, accelerate drug discovery, and enable personalized treatment plans. As technology continues to advance, integrating AI into healthcare systems will play a crucial role in improving patient outcomes, reducing healthcare costs, and transforming the way diseases are detected, diagnosed, and managed.

-Debarati Thakur
3rd year



THE RISE OF PASSWORD LESS SIGN-IN IN THE NEAR FUTURE



The Rise of Password less Sign-In in the Near Future

Introduction:

In an era where passwords are increasingly vulnerable to hacking and user frustration, a transformative shift is underway in the realm of authentication. The rise of password less sign-in promises to revolutionize the way we access our accounts and systems securely, offering a more convenient and secure alternative. This article explores the emergence of password less sign-in, its potential benefits, and the factors driving its rapid adoption in the near future.

1. The Password Problem: Discuss the challenges and limitations of traditional password-based authentication, including the risks of weak passwords, password reuse, and susceptibility to phishing attacks. Highlight the growing need for a more robust and user-friendly authentication solution.

2. Understanding Password less Sign-In: Explain the concept of password less sign-in and how it eliminates the reliance on traditional passwords. Introduce various password less authentication methods, such as biometrics, one-time codes, public/private key.

3. authentication, and hardware tokens. Benefits of Password less Sign-In: Outline the advantages that password less sign-in brings to users and organizations. Discuss improved security through biometric factors and cryptographic methods, reduced friction in the login process, and the elimination of password-related issues like forgotten passwords or password resets.

4. Biometric Authentication: Examine the role of biometric authentication in password less sign-in. Discuss advancements in biometric technologies, such as facial recognition, fingerprint scanning, iris recognition, and voice authentication. Highlight the accuracy, convenience, and user experience enhancements associated with biometrics.



5. Industry Adoption and Standardization: Examine the increasing adoption of password less sign-in across industries and organizations. Discuss the efforts towards establishing industry-wide standards and protocols to ensure interoperability, security, and user trust in password less authentication systems.

6. Security and Privacy Considerations: Address the security and privacy implications of password less sign-in. Discuss the measures taken to protect user data, prevent unauthorized access, and comply with privacy regulations. Highlight the importance of robust authentication mechanisms and secure storage of authentication credentials.

Conclusion: Summarize the transformative potential of passwordless sign-in and its imminent rise in the near future. Emphasize the benefits it offers to users and organizations, including enhanced security, improved user experience, and reduced reliance on traditional passwords. Encourage individuals and businesses to embrace the passwordless revolution for a more secure and convenient digital authentication experience.

So far, Apple, Google, and Microsoft have all said that they expect the new sign-in capabilities to become available across platforms in the next year, although a more specific roadmap has not been announced. Although the plot to kill the password has been underway for years, there are signs that, this time, it may have finally succeeded.

-Divya Raj
3rd year





THE TRANSFORMATIVE ROLE OF AI IN AN ENGINEER'S LIFE

Introduction:

The rapid advancements in artificial intelligence (AI) are reshaping the engineering landscape, revolutionizing the way engineers work, and unlocking new possibilities. From automating repetitive tasks to augmenting expertise and enabling innovative solutions, AI is playing a transformative role in an engineer's life. This article explores how AI is revolutionizing engineering practices, enhancing productivity, and driving innovation.

1. Automation of Repetitive Tasks:

AI technology automates mundane and repetitive tasks, such as data entry, documentation, and quality control. This enables engineers to focus their time and skills on more complex and critical aspects of their work, boosting productivity and efficiency.

2. Design and Optimization:

AI-powered design tools and algorithms are transforming the engineering design process. By leveraging machine learning and generative design techniques, engineers can explore a vast design space, discover optimized solutions, and accelerate the product development cycle.

3. Intelligent Manufacturing and Automation:

AI-enabled automation and robotics are transforming manufacturing processes. With machine vision systems, intelligent robots, and adaptive control algorithms, engineers can achieve higher precision, improve quality control, and optimize production efficiency.

4. Safety and Risk Management:

AI plays a vital role in enhancing safety and risk management in engineering. By analyzing historical data, AI algorithms can identify potential hazards, predict risks, and propose preventive measures. This aids engineers in ensuring a safer work environment and minimizing accidents.



5. Collaborative Engineering Systems:

AI facilitates collaboration among engineers by providing tools for seamless communication, knowledge sharing, and project management. Collaborative engineering systems leverage AI algorithms to integrate multidisciplinary expertise, enabling efficient teamwork and fostering innovation.

Conclusion:

The transformative role of AI in an engineer's life is undeniable. From automating repetitive tasks to augmenting expertise, enabling innovation, and optimizing processes, AI empowers engineers to tackle complex challenges and unlock new possibilities. As AI continues to evolve, engineers must embrace and responsibly harness its potential to shape a future where AI and human ingenuity work hand in hand for greater achievements in the engineering field.

-Adil Khan
3rd year





METaverse: THE FUTURE OF VIRTUAL REALITY

In recent years, the idea of the metaverse has drawn more and more attention. The metaverse is a virtual environment that enables three-dimensional user interaction with digital items and other users. Although virtual worlds have existed for many years, the metaverse raises the bar by building a seamless, permanent environment that can be visited at any time and from any location.

One of the key drivers behind the development of the metaverse is the rise of virtual reality and augmented reality technology. With devices like the Oculus Rift and the Microsoft HoloLens, users can enter a fully immersive digital environment and interact with it as if it were a real world space. This opens up all sorts of possibilities for social interaction, gaming, and even education and training.

However, the metaverse is much more than just a collection of virtual reality experiences. It is a fully realized digital world with its own economy, social structures, and even governance systems. In fact, some proponents of the metaverse envision it as a sort of alternate reality that could eventually become more important than the physical world.

At its core, the metaverse is all about creating a space for human interaction and collaboration. In a world that is increasingly digital, the metaverse provides a way for people to connect and engage with each other in meaningful ways. For example, people could use the metaverse to attend virtual conferences, or simply hang out with friends in a virtual space.

Of course, the development of the metaverse raises a number of important questions about privacy, security, and the role of corporations in shaping our digital lives. As the metaverse becomes more important, it will be critical to ensure that users have control over their own data and that the platform itself is not controlled by a small group of powerful companies.

One potential benefit of the metaverse is that it could provide a way for people to earn a living in a purely digital economy. For example, people could create digital art (NFT) or music and sell it to others in the metaverse. Similarly, virtual real estate could become a valuable asset that people could buy and sell for real money.

However, the metaverse also has the potential to exacerbate existing inequalities. As with any economy, there will likely be winners and losers in the metaverse, and those who are already disadvantaged in the physical world may find it difficult to compete in the digital realm. It will be important to ensure that the benefits of the metaverse are shared fairly and that vulnerable populations are not left behind.



Another challenge facing the development of the metaverse is the issue of interoperability. Currently, there are a number of different virtual reality platforms and social networks, each with their own standards and protocols. In order for the metaverse to truly take off, these platforms will need to be able to communicate with each other seamlessly. This will require collaboration and coordination between a wide range of stakeholders, including developers, hardware manufacturers, and standards bodies.

Despite these challenges, the potential of the metaverse is undeniable. It has the power to transform the way we live, work and play, and to create entirely new forms of social interaction and collaboration. As we continue to develop this technology, it will be important to keep in mind the values that we want the metaverse to embody, including openness, accessibility, and inclusivity.

In conclusion, the metaverse represents an exciting new frontier in the digital world. It has the power to completely transform how we communicate with one another and with digital things, as well as to develop brand-new models of social and economic organization. However, it also comes with it a number of challenges that must be overcome if we are to make the most of it. By working together and keeping our values in mind, we can create a metaverse that is both transformative.

Nabab Uddin
3rd year



WEB DEVELOPMENT



WEBSITE CREATION AND MAINTENANCE ARE BOTH PARTS OF WEB DEVELOPMENT. THE DEVELOPMENT AND UPKEEP OF WEB APPS REQUIRE THE USAGE OF SEVERAL TECHNOLOGIES AND TECHNIQUES. WE'LL LOOK AT THE SCIENCE OF WEB DEVELOPMENT IN THIS POST, AS WELL AS THE UNDERLYING CONCEPTS AND IDEAS THAT MAKE IT POSSIBLE TO BUILD CUTTING-EDGE ONLINE APPS.

CLIENT-SERVER ARCHITECTURE: THE CLIENT-SERVER ARCHITECTURE IS ONE OF THE FUNDAMENTAL IDEAS IN WEB DEVELOPMENT. WEB APPLICATIONS' ORGANIZATIONAL STRUCTURE IS BEING DISCUSSED HERE. A WEB APPLICATION USUALLY CONSISTS OF TWO COMPONENTS: A CLIENT, WHICH IS THE USER INTERFACE THAT RUNS ON A WEB BROWSER, AND A SERVER, WHICH IS THE BACK END THAT HANDLES REQUESTS AND PRODUCES RESULTS.

HTTP AND HTTPS: WEB APPLICATIONS EMPLOY THE HTTP (HYPERTEXT TRANSFER PROTOCOL) OR HTTPS (HTTP SECURE) PROTOCOL TO COMMUNICATE BETWEEN THE CLIENT AND THE SERVER. THESE PROTOCOLS PROVIDE METHODS FOR SENDING AND RECEIVING REQUESTS AS WELL AS ANSWERS WHEN DATA IS TRANSFERRED BETWEEN A CLIENT AND A SERVER.

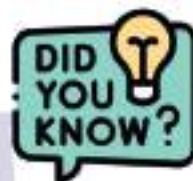
HTML, CSS, AND JAVASCRIPT: HTML, CSS, AND JAVASCRIPT ARE THREE FUNDAMENTAL TECHNOLOGIES— HTML (HYPERTEXT MARKUP LANGUAGE), CSS (CASCADING STYLE SHEETS), AND JAVASCRIPT — THAT ARE AT THE BASIS OF ANY ONLINE APPLICATION. THE WEB PAGE'S STRUCTURE IS PROVIDED BY HTML, ITS CSS STYLE, AND ITS JAVASCRIPT INTERACTION. THE STRUCTURE OF A WEB PAGE, INCLUDING THE TEXT, GRAPHICS, AND OTHER INFORMATION IS DEFINED BY HTML. THE VISUAL LOOK OF THE WEBSITE, INCLUDING THE COLOURS, FONTS, AND LAYOUT, IS DEFINED BY CSS. JAVASCRIPT IS USED TO MAKE A WEB PAGE MORE INTERACTIVE BY MANAGING USER INPUT AND DYNAMICALLY CHANGING THE PAGE.

WEB FRAMEWORKS: ALTHOUGH HTML, CSS, AND JAVASCRIPT SERVE AS THE FOUNDATIONAL TECHNOLOGIES FOR WEB DEVELOPMENT, THERE ARE A WIDE VARIETY OF ADDITIONAL TOOLS AND FRAMEWORKS THAT PROGRAMMERS MAY USE TO CREATE ONLINE APPLICATIONS. WEB FRAMEWORKS OFFER A READY-MADE SELECTION OF TOOLS AND RESOURCES THAT SIMPLIFY THE DEVELOPMENT OF ONLINE APPLICATIONS. REACT, ANGULAR, AND VUE.JS ARE A FEW WELL-KNOWN WEB FRAMEWORKS. THESE FRAMEWORKS OFFER A SELECTION OF TOOLS FOR DESIGNING USER INTERFACES, PROCESSING USER INPUT, AND MANAGING DATA. MOREOVER, THEY OFFER A SET OF STANDARDS AND BEST PRACTICES THAT MAKE IT SIMPLER TO CREATE SCALABLE AND STABLE ONLINE APPLICATIONS.

WEB PERFORMANCE: WHILE DEVELOPING A WEBSITE, THIS FACTOR MUST BE TAKEN INTO ACCOUNT. POOR USER EXPERIENCE AND POORER SEARCH ENGINE RANKINGS MIGHT RESULT FROM SLOW WEB PAGES. THE SIZE OF THE ONLINE PAGE, THE NUMBER OF REQUESTS NECESSARY TO LOAD THE PAGE, AND THE SERVER'S SPEED ARE ONLY A FEW OF THE VARIABLES THAT MIGHT AFFECT WEB PERFORMANCE. DEVELOPERS EMPLOY A RANGE OF METHODS, SUCH AS CACHING, COMPRESSION, AND MINIFICATION, TO ENHANCE THE SPEED OF WEBSITES. DATA THAT IS REGULARLY REQUESTED IS CACHED SO THAT IT MAY BE RAPIDLY RETRIEVED WITHOUT SENDING A REQUEST TO THE SERVER. BY ELIMINATING UNUSED WHITESPACE AND COMMENTS, COMPRESSION AND MINIFICATION WORK TO SHRINK THE SIZE OF WEB PAGES.

REACT: A WELL-LIKED JAVASCRIPT LIBRARY FOR CREATING USER INTERFACES IS CALLED REACT. IT IS FREQUENTLY USED TO BUILD SOPHISTICATED, INTERACTIVE, AND DYNAMIC WEB APPLICATIONS. REACT MAKES IT SIMPLER TO CONSTRUCT AND MAINTAIN LARGE-SCALE APPLICATIONS BY ENABLING DEVELOPERS TO DESIGN REUSABLE UI COMPONENTS AND EFFECTIVELY MANAGE AN APPLICATION'S STATE. MOREOVER, REACT HAS A SIZABLE AND HELPFUL COMMUNITY AND A WEALTH OF TOOLS TO AID DEVELOPERS IN THEIR LEARNING AND PROFESSIONAL DEVELOPMENT. FACEBOOK, INSTAGRAM, AND NETFLIX ARE WELL-KNOWN EXAMPLES OF ONLINE APPS CREATED WITH REACT.

SOUMIK NEOGI
3RD YEAR



- WEB DEVELOPMENT INVOLVES DEVELOPING A WEBSITE FOR THE INTERNET (WORLD WIDE WEB) OR AN INTRANET (A PRIVATE NETWORK).
- IN 1989, SIR TIM BERNERS-LEE, A BRITISH COMPUTER SCIENTIST, PROPOSED THE CONCEPT OF THE WORLD WIDE WEB WHILE WORKING AT CERN (EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH) IN SWITZERLAND. HE DEVELOPED THE NECESSARY TECHNOLOGIES, SUCH AS THE HYPERTEXT TRANSFER PROTOCOL (HTTP), HYPERTEXT MARKUP LANGUAGE (HTML), AND THE FIRST WEB BROWSER (CALLED WORLDWIDEB), TO CREATE A SYSTEM THAT ALLOWED THE SHARING AND BROWSING OF DOCUMENTS ACROSS THE INTERNET.
- THERE ARE THREE KINDS OF WEB DEVELOPER SPECIALIZATION: FRONT-END DEVELOPER, BACK-END DEVELOPER, AND FULL-STACK DEVELOPER.

5G

5G TECHNOLOGY



Empowering Enhanced Connectivity and Unprecedented Speed

Introduction:

In our hyper-connected world, where information flows at lightning speed, 5G technology emerges as a game-changer. With its unparalleled connectivity and blazing-fast speeds, 5G is set to revolutionize the way we connect, communicate, and consume data. In this article, we will explore how 5G technology enhances connectivity and speed, enabling a new era of seamless communication and unlocking tremendous opportunities across industries.

1) Lightning-Fast Speeds:

One of the most significant advancements offered by 5G technology is its exceptional speed. While 4G networks typically provide download speeds ranging from 10 to 100 megabits per second (Mbps), 5G takes it to a whole new level. With potential download speeds of up to 10 gigabits per second (Gbps), 5G technology enables users to download large files, stream high-definition videos, and engage in bandwidth-intensive activities with minimal lag.

2) Reduced Latency:

Latency, the delay experienced when data is transmitted between devices, is another crucial aspect that 5G technology addresses. While 4G networks typically offer latency of around 50 milliseconds (ms), 5G significantly reduces this delay to mere single-digit milliseconds. This near-instantaneous response time allows for real-time communication and interaction, opening up possibilities for applications that require immediate feedback.

3) Massive Device Connectivity:

Another remarkable feature of 5G technology is its ability to support a massive number of connected devices simultaneously. While previous generations struggled to accommodate the vast number of devices in the Internet of Things (IoT) ecosystem, 5G provides a solution to this challenge. The technology's enhanced capacity and efficient use of spectrum enable it to connect up to one million devices per square kilometer, effectively paving the way for a highly connected world.



4) Empowering Emerging Technologies:

The enhanced connectivity and speed of 5G technology unlock the full potential of emerging technologies. Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) applications, which require large amounts of data to be transmitted in real-time, thrive on the high bandwidth and low latency of 5G networks. This enables immersive experiences, interactive simulations, and enhanced training and educational opportunities. Moreover, 5G acts as a catalyst for the development of futuristic technologies like autonomous vehicles, drones, and robotics. These applications rely on instant and reliable communication for coordinated movement, remote control, and advanced decision-making, ensuring a safer and more efficient integration of these technologies into our daily lives.

Conclusion:

5G technology is transforming the digital landscape, empowering enhanced connectivity and delivering unprecedented speed. Its faster speeds, reduced latency and increased capacity unlock new possibilities across various industries revolutionizing sectors like telecommunications, healthcare, transportation, and more. As 5G continues to evolve and expand its footprint globally, it holds the promise of empowering a connected future, driving innovation, and reshaping the way we live, work, and communicate.

-Adarsh Pratap Singh
3rd year





Impact Of Social Networking On Teenager



INTERNET-BASED SOCIAL MEDIA OR SITES TO STAY CONNECTED TO FRIENDS, FAMILIES, AND OTHER PROFESSIONAL GROUNDS. SOCIAL MEDIA PROVIDES A SPACE TO CONNECT PEOPLE FOR PERSONAL PURPOSES AND ON PROFESSIONAL GROUNDS. SOCIAL NETWORKING IS ALSO A SIGNIFICANT OPPORTUNITY FOR MARKETERS SEEKING TO ENGAGE CUSTOMERS. FACEBOOK REMAINS THE LARGEST AND MOST POPULAR SOCIAL NETWORK, WITH 2.91 BILLION PEOPLE USING THE PLATFORM ON A MONTHLY BASIS, AS OF DEC. 31, 2021. INSTAGRAM, TWITTER, AND PINTEREST ARE AMONG THE NEXT MOST POPULAR, ACCORDING TO STATISTA. SOCIAL NETWORKING SITES ALLOW USERS TO SHARE IDEAS, DIGITAL PHOTOS, AND VIDEOS, POSTS, AND TO INFORM OTHERS ABOUT ONLINE OR REAL-WORLD ACTIVITIES AND EVENTS WITH PEOPLE WITHIN THEIR SOCIAL NETWORK. WHILE IN-PERSON SOCIAL NETWORKING – SUCH AS GATHERING IN A VILLAGE MARKET TO TALK ABOUT EVENTS – HAS EXISTED SINCE THE EARLIEST DEVELOPMENT OF TOWNS, THE WEB ENABLES PEOPLE TO CONNECT WITH OTHERS WHO LIVE IN THE TERM SOCIAL NETWORKING REFERS TO THE USAGE OF DIFFERENT LOCATIONS ACROSS THE GLOBE (DEPENDENT ON ACCESS TO AN INTERNET CONNECTION TO DO SO). DEPENDING ON THE SOCIAL MEDIA PLATFORM, MEMBERS MAY BE ABLE TO CONTACT ANY OTHER MEMBER.

ADVANTAGES OF SOCIAL NETWORKING

AVAILABILITY AND CONNECTIVITY: LONG-RANGE INFORMAL COMMUNICATION DESTINATIONS PERMIT CLIENTS TO INTERFACE WITH INDIVIDUALS FROM ONE SIDE OF THE PLANET TO THE OTHER, PAYING LITTLE MIND TO THE COUNTRY THEY ARE AVAILABLE IN. IN A FLASH, YOU CAN KEEP IN CONTACT WITH YOUR FAMILY MEMBERS, COMPANIONS, AND OFFICEMATES BUILDING SOLID CONNECTIONS. TO THE EXTENT YOU ARE HAVING A WEB ASSOCIATION AND A CLIENT PROFILE, YOU CAN GET ASSOCIATED WITH INDIVIDUALS EVEN IF YOU DON'T HAVE ANY IDEA. FOR CERTAIN INDIVIDUALS, WITHOUT INFORMAL COMMUNICATION DESTINATIONS, THERE IS NO CONCEIVABLE APPROACH TO INTERFACING WITH THEIR OLD MATES.

WORLDWIDE INFORMATION: GONE ARE THE DAYS WHEN WE NEED TO SIT BEFORE A TV OR READ A PAPER FOR GETTING REFRESHES ABOUT NEWS FROM ONE SIDE OF THE PLANET TO THE OTHER. LIKE BREAKING NEWS ON A TV, YOU CAN IN A SPLIT SECOND GET REFRESHES ABOUT THE MOST RECENT NEWS. INDEED, EVEN MOST NEWS ASSOCIATIONS TODAY UTILIZE SOCIAL NETWORKING DESTINATIONS OTHER THAN TV AND RADIO FOR SHARING DATA. PARTICULARLY, THE UTILIZATION OF TWITTER IS BECOMING FAMOUS FOR STANDARD NEWS SHARING. IF THERE SHOULD BE AN OCCURRENCE OF A CRISIS, FOR EXAMPLE, A CATASTROPHIC EVENT OR A PSYCHOLOGICAL MILITANT ASSAULT, INDIVIDUALS CAN BE ALARMED RAPIDLY. NONETHELESS, NOT ALL THE NEWS SHARED VIA ONLINE MEDIA WILL IN GENERAL BE VALID. THE HONESTY OF THE NEWS RELIES UPON THE EXAMINATION YOU DO.

INCREASED COMMUNICATION: FOR IMPARTING UTILIZING AN ONLINE MEDIA STAGE, YOU SIMPLY NEED TO HAVE A CELL PHONE OR A PC. WITHOUT UTILIZING A LANDLINE OR CONVENTIONAL MAIL, YOU CAN IMMEDIATELY SPEAK WITH INDIVIDUALS. THE CLIENT CAN LIKewise MAKE A GATHERING THAT ASSISTS THEM WITH GETTING ASSOCIATED WITH NUMEROUS INDIVIDUALS. ALSO, YOU CAN REMARK ON A POST TO OFFER VIEWPOINTS AND INPUT, WITH SIMPLY A WARNING THEY WILL RESPOND TO YOUR REMARK.

BRAND MARKETING: ENTREPRENEURS CAN SHOWCASE THEIR IMAGE UTILIZING WEB-BASED MEDIA SO THEY COULD CONNECT WITH THEIR CLIENTS WITHOUT ANY PROBLEM. INDEED, THERE ARE NUMEROUS PRIVATE VENTURES TODAY THAT ALTOGETHER DEPEND ON WEB-BASED MEDIA TO ADVANCE THEIR IMAGE. WITHOUT THEM, THEY ESSENTIALLY CAN'T WORK. FOR THIS, THEY CAN UTILIZE DIFFERENT PROCEDURES LIKE DIRECT PROMOTING AND PUBLICIZING. SUBSEQUENTLY, THIS CAN LEAD THE BUSINESS TO MORE BENEFITS AND LESS EXPENSE SINCE THE MAIN COST REQUIRED HERE IS FOR ADVERTISING AND ADVANCEMENT.

DE-STRESS: SOCIAL NETWORKING LOCALES FILL IN AS A PRESSURE BUSTER BY GOING ABOUT AS A WELLSPRING OF AMUSEMENT. FOR A NORMAL INDIVIDUAL, IT TENDS TO BE MORE ENJOYABLE AND FULFILLING TO UTILIZE ONLINE MEDIA WHILE HAVING SOME TIME OFF FROM THEIR STANDARD WORK. IT IS PROBABLY THE BEST TYPE OF RELAXATION. SOCIAL NETWORKING LOCALES PERMIT A CLIENT TO LIKE, REMARK, TRANSFER, AND OFFER PHOTOGRAPHS AND RECORDINGS OF EVERYTHING THAT CAN FULFILL A CLIENT.

DISADVANTAGES OF SOCIAL NETWORKING

MAKE YOU ADDICTED: MANY INDIVIDUALS WHO UTILIZE SOCIAL INDIVIDUALS GET DEPENDENT ON IT BEING DIVERTED FROM THIS PRESENT REALITY. PARTICULARLY, TEENS AND CHILDREN REGULARLY GET IMPACTED. THEY NEVER AGAIN CAN ENVISION AN EXISTENCE WITHOUT WEB-BASED MEDIA. THOSE INDIVIDUALS GENERALLY CHECK THEIR NEWSFEEDS AND PROFILE OF OTHERS BURNING THROUGH A TON OF TIME. SOME OF THE TIME THESE ADDICTIONS CAN PROMPT SAD RESULTS.

WELLBEING RISKS: OVER-THE-TOP UTILIZATION OF SOCIAL NETWORKING LOCALES CAN ADVANCE, DEJECTION, DESPONDENCY, NERVOUSNESS, AND OTHER EMOTIONAL WELLNESS HAZARDS. ESPECIALLY, GROWN-UPS FREQUENTLY GET IMPACTED BY ROLLING OUT AN IMPROVEMENT IN THEIR OWN CONDUCT. AND FURTHERMORE, THE COUNTERFEIT LIGHTS DISCHARGED BY THE SCREEN AND CELL PHONE SCREEN IS VIEWED AS HURTFUL FOR THE EYES AND IT IS KNOWN TO CAUSE CHANGES IN THE HUMAN REST CYCLE. OTHER THAN EMOTIONAL WELL-BEING, DELAYED UTILIZATION OF WEB-BASED MEDIA ADDITIONALLY BY IMPLICATION INFLUENCES OUR ACTUAL WELL-BEING. INDIVIDUALS WHO UTILIZE WEB-BASED MEDIA GENERALLY SIT BEFORE A PC OR HOLD A CELL PHONE, JUMPING TO DO A FEW PROACTIVE TASKS.

RECENT COMPUTER SCIENCE TRENDS

1. Quantum Computing Makes Waves

"Quantum computing" searches are up 225% over 10 years. Interest spiked in late 2019 when Google announced it had achieved quantum supremacy. Quantum computing is the use of quantum mechanics, such as entanglement and superposition, to perform computations. It uses quantum bits (qubits) in a similar way that regular computers use bits. Quantum computers have the potential to solve problems that would take the world's most powerful supercomputers millions of years. Quantum computers have the potential to completely transform data science. They also have the potential to accelerate the development of artificial intelligence, virtual reality, big data, deep learning, encryption, medicine and more.

2. Cloud Computing Hits the Edge

"Edge computing" searches have risen 131% over the past 5 years. This market may be worth \$8.67 billion by 2025. Gartner estimates that 80% of enterprises will shut down their traditional data centers by 2025. This is mainly because traditional cloud computing relies on servers in one central location. Network latency is one downside of traditional cloud computing. If the end-user is in another country, they have to wait while data travels thousands of miles. Modern edge computing brings computation, data storage, and data analytics as close as possible to the end-user location. And when edge servers host web applications the result is massively improved response times. According to Wired, approximately 10% of web traffic now goes through CloudFlare. As a result, some estimates suggest that the edge computing market will be worth \$61.14 billion by 2028. And Content Delivery Networks like CloudFlare that make edge computing easy and accessible will increasingly power the web.

3. More Digital Twins

Interest in "Digital twin" has steadily grown (280%) over the last 5 years. A digital twin is a software representation of a real-world entity or process, from which you can generate and Analyse simulation data. This way you can improve efficiency and avoid problems before devices are even built and deployed. GE is the big name in the field and has developed internal digital twin technology to improve its own jet-engine manufacturing process. GE's Predix platform is a huge player in the digital twin technology market. This technology was initially only available at the big enterprise level, with GE's Predix Industrial Internet of Things (IoT) platform. But now we're seeing its usage permeate across other sectors like retail warehousing, auto manufacturing, and healthcare planning. Yet case studies of these real-world use cases are thin on the ground, so the people that produce them will set themselves up as industry experts in their field.





4. Kotlin Overtakes Java

"Kotlin" searches are up 155% in 5 years. Interest in this programming language rocketed in 2022. Kotlin is a general-purpose programming language that first appeared in 2011, it's designed specifically to be a more concise and streamlined version of Java. And so, it works for both JVM (Java Virtual Machine) and Android development. Kotlin is billed as a modern programming language that makes developers happier. There are over 7 million Java programmers in the world right now. Since Kotlin offers big advantages over Java, we can expect more and more programmers to make the switch between 2023 and 2026. Google even made the announcement in 2019 that Kotlin is now its preferred language for Android app developers.

5. The Web Becomes More Standardized

"OpenAPI Specification" searches over 10 years. OpenAPI became a separate project from the Swagger framework in 2016. REST (Representational State Transfer) web services power the internet and the data behind it. But the structure of each REST API data source varies wildly. It depends entirely on how the individual programmer behind it decided to design it. The OpenAPI Specification (OAS) changes this. It's essentially a description format for REST APIs. OpenAPI attempts to streamline APIs. Data sources that implement OAS are easy to learn and readable to both humans and machines. This is because an OpenAPI file describes the entire API, including available endpoints, operations and outputs. This standardization enables the automation of previously time-consuming tasks. For example, tools like Swagger generate code, documentation and test cases given the OAS interface file. This can save a huge amount of engineering time both upfront and in the long run. Another technology that takes this concept to the next level is GraphQL. This is a data query language for APIs developed at Facebook. It provides a complete description of the data available in a particular source. And it also gives clients the ability to ask for only the specific parts of the data they need and nothing more.

6. Demand For Cybersecurity Expertise Skyrockets

"Hack The Box" searches have increased by 300% over 5 years. According to CNET, at least 7.9 billion records (including credit card numbers, home addresses and phone numbers) were exposed through data breaches in 2019 alone. As a consequence, large numbers of companies seek cybersecurity expertise to protect themselves. Searches for "cybersecurity" have increased by more than 190% over 5 years. Hack The Box is an online platform that has a wealth of educational information and hundreds of cybersecurity-themed challenges. And they have 290,000 active users that test and improve their skills in penetration testing. So they've become the go-to place for companies to recruit new talent for their cybersecurity teams. Hack The Box is a hacker heaven both in terms of content and design. And software that helps people to identify if they've had their credentials compromised by data breaches will also trend.



Exploring the Multiverse: Unraveling the Infinite Possibilities

Introduction: The concept of a multiverse has fascinated human beings for centuries, igniting our curiosity and prompting us to question the nature of our existence. The multiverse theory proposes that there may be multiple universes, each with its own set of physical laws, dimensions, and possibilities. While this idea may seem like science fiction, it has gained significant attention and support from scientists and philosophers alike. In this article, we will delve into the fascinating realm of the multiverse, contemplating its implications and drawing inspiration from the profound teachings of the Bhagavad Gita, an ancient Hindu scripture.

Understanding the Multiverse: According to the multiverse theory, our universe is just one among an infinite number of universes, collectively forming the multiverse. These parallel universes may exist in the same physical space but remain detached from one another, following their own unique trajectories. The multiverse hypothesis offers an explanation for various cosmological puzzles, such as the fine-tuning of physical constants and the origin of the universe itself.

There are different interpretations of the multiverse theory, including the bubble, parallel, and string theory multiverses. The bubble multiverse suggests that universes can form within bubble-like regions, each with its own distinct physical properties. In the parallel multiverse, each universe branches off from a parent universe, resulting in an infinite array of parallel realities. The string theory multiverse posits the existence of multiple dimensions and universes, intertwined within a cosmic fabric of vibrating strings.

Implications and Significance: The idea of a multiverse challenges our traditional understanding of reality and opens up a vast landscape of possibilities. It suggests that every choice we make could potentially create new universes, where alternate versions of ourselves exist. The multiverse also addresses the question of why our universe appears to be so finely tuned for life, as it proposes that only in a tiny fraction of the multiverse would the conditions be suitable for life as we know it.

Furthermore, the concept of the multiverse invites us to ponder the interconnectedness of all things. It encourages us to contemplate the vastness of existence beyond our own universe, fostering a sense of humility and awe for the cosmic tapestry of which we are a part. It prompts us to explore the limits of our knowledge and embrace the mystery and wonder that lie beyond our current understanding.



Inspiration from the Bhagavad Gita: The Bhagavad Gita, a sacred Hindu scripture, offers profound insights that resonate with the concept of the multiverse. In Chapter 2, Verse 22, Lord Krishna tells Arjuna, "As a person puts on new garments, giving up old ones, the soul similarly accepts new material bodies, giving up the old and useless ones." This verse hints at the idea of the soul traversing different physical forms, potentially extending to different universes within the multiverse. It suggests that our journey of self-realization transcends the boundaries of a single existence.

In Chapter 4, Verse 5, Lord Krishna proclaims, "Many, many births both you and I have passed. I can remember all of them, but you cannot!" This verse implies the existence of multiple lifetimes and experiences that span across various dimensions of existence. It speaks to the timeless nature of the soul and its potential existence beyond the limitations of our known universe.

Conclusion: The multiverse theory challenges our understanding of reality, offering a glimpse into a vast cosmic landscape of infinite possibilities. As we explore this concept, we are reminded of the profound teachings of the Bhagavad Gita, which encourage us to contemplate the eternal nature of the soul and its potential existence beyond a single universe.

-Sunidhi Singh
3rd year



THE CONCEPT OF CANISTER IN BLOCKCHAIN



The concept of canisters is an important component of blockchain technology, particularly in the emerging decentralized finance (DeFi) ecosystem. In the context of blockchain, canisters are similar to smart contracts, which are self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code. However, canisters differ from smart contracts in a number of ways.

What are Canisters?

Canisters are essentially self-contained, executable environments that are capable of running code and storing data. They are designed to be deployed on a blockchain network and can be used to build decentralized applications (Dapps). Canisters allow developers to write code that can be executed by the blockchain, allowing for the creation of trustless, decentralized applications.

One of the key benefits of canisters in the blockchain context is their ability to ensure the security and privacy of data. Canisters are isolated from other canisters on the network and are designed to be tamper-proof, meaning that once code is deployed to a canister, it cannot be altered. This helps to prevent attacks and security breaches by limiting the potential impact of any individual canister. Another benefit of canisters is their scalability. Canisters are designed to be highly efficient and scalable, allowing them to handle large amounts of traffic and data without slowing down or becoming overloaded. This scalability is achieved through a combination of techniques, including sharding, caching, and load balancing. Canisters can be shared across multiple nodes on the network, allowing them to scale horizontally as demand increases. They can also use caching to reduce the amount of data that needs to be retrieved from the network, and load balancing to distribute traffic evenly across multiple nodes.

Canisters also enable greater interoperability and integration with other systems. They can communicate with external systems and services using standard protocols and interfaces, such as HTTP and JSON. This makes it easy to integrate canisters with existing applications and services, as well as enables interoperability between different canisters on the network. It also makes it easier to build applications that span multiple platforms and technologies, as canisters can be used to bridge the gap between different systems.



In the context of DeFi, canisters have a wide range of use cases, from simple data storage and retrieval to complex, distributed applications. Some common use cases for canisters include decentralized exchanges (DEXs), lending platforms, and stable coins. Canisters can also be used to build decentralized social networks and messaging platforms, peer-to-peer marketplaces for goods and services, decentralized games and virtual worlds, and decentralized tracking and trading systems for goods and products.

SAPTARSHI DAS
3RD YEAR



Blockchain is important in the modern world because it offers secure, transparent, and decentralized solutions that can revolutionize industries, streamline processes, and enhance trust in various sectors.

Canisters are important for blockchain because they enable the execution of decentralized applications (dApps) in a secure, scalable, and autonomous manner, contributing to the versatility and functionality of the blockchain ecosystem.

The concept of canisters was introduced by the DFINITY Foundation as part of their Internet Computer blockchain platform. The development and introduction of canisters are credited to the team of researchers and developers affiliated with the DFINITY Foundation.



Unlocking the Future: Mapping Your Path in AR, VR, and Game Development

This article gives its readers a detailed version of everything that I have learned and gathered so far on AR, VR, and Game development, anybody who is interested in exploring these domains should definitely consider this article as a very basic yet informative roadmap to approach this topic...the self-knowledge inflicted in this article also contributes to my personal growth and creativity which is something I would want to pass on.



Digital Art by *Madhurima Sasmal*

Roadmap to AR Effect

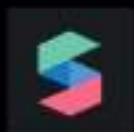


Understand AR and Filter Concepts:

- Familiarize yourself with the concept of Augmented Reality (AR) and the different types of AR experiences.
- Understand the purpose and capabilities of AR filters and their use in social media platforms.

Choose an AR Filter Development Platform:

- Select an AR filter development platform that aligns with your target platform (e.g., [Spark AR Studio](#) for Facebook and Instagram, [Lens Studio](#) for Snapchat).
- Install the necessary software and become familiar with the platform's interface and features.



Meta Spark Studio



Lens Studio

Learn Programming and Scripting Languages:

- Gain proficiency in programming and scripting languages commonly used in AR filter development, such as JavaScript or C#.
- Understand the fundamentals of programming, including variables, data types, functions, and control structures.

Master the AR Filter Development Platform:

- Dive deep into the AR filter development platform you've chosen.
- Understand its features, tools, and capabilities for creating interactive and visually appealing AR filters.
- Learn about face tracking, object recognition, image manipulation, and other features specific to the platform.

Design Visual Elements for AR Filters:

- Develop your skills in graphic design and digital art to create visually appealing assets for AR filters.
- Use tools like Photoshop, Illustrator, or 3D modeling software to design textures, images, animations, and 3D models.

Learn Augmented Reality Concepts:

- Acquire knowledge of AR concepts such as marker-based tracking, markerless tracking, plane detection, and spatial mapping.
- Understand how these concepts apply to AR filter development and how to leverage them effectively.

Implement Interactivity and Effects:

- Add interactivity and effects to your AR filters to enhance user engagement.
- Learn how to incorporate gestures, animations, particle effects, sound effects, and custom interactions.

Test and Optimize AR Filters:

- Thoroughly test your AR filters on various devices and under different conditions.
- Identify and resolve any performance issues, glitches, or bugs.
- Optimize your filters for smooth performance and efficient use of device resources.

Stay Up-to-Date with AR Filter Platforms:

- Keep up with the latest updates, features, and guidelines of your chosen AR filter development platform.
- Regularly check the platform's documentation, forums, and release notes for new tools, capabilities, and best practices.

Build a Portfolio and Collaborate:

- Create a portfolio of your AR filters to showcase your skills and attract potential clients or employers.
- Collaborate with others, participate in AR filter development communities, and engage in projects to gain practical experience and expand your network.

Roadmap to AR App



Establish a Strong Foundation:

- Familiarize yourself with the basics of Augmented Reality (AR), its applications, and the various types of AR experiences.
- Gain a solid understanding of computer graphics, computer vision, and spatial computing concepts.

Master Programming Languages:

- Develop expertise in programming languages commonly used in AR development, such as C#, C++, or JavaScript.
- Understand data structures, algorithms, and object-oriented programming (OOP) principles.

Choose an AR Development Platform/Framework:

- Select an AR development platform or framework based on your target platforms (e.g., mobile, smart glasses) and preferred programming language.
- Popular options include:
- [ARKit \(iOS\)](#)



- [ARCore \(Android\)](#)



- [Unity](#) with [Vuforia](#) or [AR Foundation](#)



- [Unreal Engine](#) with ARCore or ARKit



Learn AR-specific Tools and Libraries:

- Explore the tools and libraries provided by your chosen AR platform or framework.
- Gain proficiency in features like environment understanding, tracking, surface detection, lighting, and user interactions.

Master 3D Modeling and Animation:

- Acquire skills in 3D modeling and animation to create virtual objects and assets for AR experiences.
- Learn popular 3D modeling software such as Blender, Autodesk Maya, or 3ds Max.
- Understand how to optimize 3D models for real-time rendering in AR applications.



3D Model by [Seikh Nabab Uddin](#) in *Blender*

Build AR Prototypes and Projects:

- Start by developing small AR prototypes to grasp core concepts and workflows.
- Progress to larger projects, experimenting with advanced features like image recognition, object tracking, or markerless AR.

Explore Advanced AR Concepts:

- Dive into advanced AR development topics, such as:
- Simultaneous Localization and Mapping (SLAM)
- Physics simulations in AR
- Occlusion and depth perception
- Gesture recognition and hand tracking
- Multiuser AR experiences

Stay Updated with Industry Trends:

- Follow industry blogs, forums, and social media channels to stay up-to-date with the latest AR trends, hardware advancements, and emerging AR platforms.
- Attend conferences and workshops to network with other professionals and gain insights into cutting-edge AR technologies.

Collaborate and Expand Your Expertise:

- Engage in collaborative projects and teams to gain practical experience and learn from peers.
- Explore related areas such as Virtual Reality (VR), Mixed Reality (MR), or XR (Extended Reality) to broaden your skill set.

Continual Learning and Innovation:

- AR development is a rapidly evolving field, so continuous learning is essential.
- Experiment with new tools, frameworks, and technologies to push the boundaries of what's possible in AR.
- Contribute to the AR developer community by sharing your knowledge through tutorials, blog posts, or open-source projects.

Roadmap to VR App



Understand VR and Its Applications:

- Familiarize yourself with the concept of VR, its potential applications in various industries, and its impact on user experience.
- Research existing VR applications and explore different types of VR experiences, such as gaming, training, simulations, and virtual tours.

Learn Programming Languages:

- Start by mastering programming languages commonly used in VR development, such as C#, C++, or JavaScript.
- Understand the principles of object-oriented programming (OOP) and how to apply them effectively.

Choose a Development Platform/Framework:

- Select a VR development platform or framework based on your target platforms (e.g., PC, mobile, standalone VR devices) and your preferred programming language.
- Popular options include:
- [Unity](#) with the [Oculus SDK](#) or [SteamVR](#).



- [Unreal Engine](#) with the Unreal VR Framework or SteamVR.



Explore VR-specific Tools and Libraries:

- Dive into the tools and libraries provided by your chosen development platform. Understand their features, capabilities, and limitations.
- Learn how to use these tools for tasks such as head tracking, hand tracking, spatial audio, and haptic feedback.

Master 3D Modeling and Animation:

- Acquire skills in 3D modeling and animation to create virtual environments, objects, and characters for your VR experiences.
- Learn popular 3D modeling software such as [Blender](#), [Autodesk Maya](#), or 3ds Max.



Blender



Maya

- Understand how to optimize 3D models and animations for real-time rendering in VR applications.

Build VR Prototypes:

- Start by developing simple VR prototypes to understand the core concepts and workflows.
- Experiment with locomotion techniques, user interactions, and environmental interactions.
- Gain proficiency in creating immersive and interactive VR experiences.

Expand Your Skills:

- Explore advanced VR development topics, such as:
- Advanced locomotion techniques (teleportation, smooth locomotion)
- Physics simulations in VR environments
- Advanced user interactions (gestures, voice commands)
- Multiplayer or social VR experiences

Stay Up-to-Date:

- VR development is a rapidly evolving field, so it's crucial to stay updated with the latest trends, frameworks, and technologies.
- Follow VR-related blogs, forums, and social media channels to keep track of industry news, conferences, and emerging VR platforms.

Build Real-world VR Applications:

- Apply your skills to real-world VR projects.
- Collaborate with other developers or join VR development communities to gain practical experience and learn from peers.
- Consider exploring different industries that utilize VR, such as gaming, education, healthcare, or architecture.

Continual Learning and Experimentation:

- Keep learning and experimenting with new technologies, frameworks, and tools.
- Stay curious, explore emerging VR platforms, and consider expanding your knowledge into related areas such as AR or XR.

Roadmap to Game Dev.



Define Your Goals and Interests:

- Identify your specific interests within game development, such as game design, programming, art, or sound design.
- Clarify your goals and aspirations, whether it's creating indie games, working in a game development studio, or starting your own game development business.

Understand the Game Development Process:

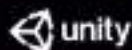
- Familiarize yourself with the different stages of game development, including concept ideation, pre-production, production, testing, and release.
- Learn about the roles and responsibilities within a game development team, such as game designers, programmers, artists, and sound engineers.

Learn Programming Languages:

- Master programming languages commonly used in game development, such as C++, C#, or JavaScript.
- Understand programming principles and concepts, including data structures, algorithms, and object-oriented programming (OOP).

Choose a Game Engine/Framework:

- Select a game engine or framework based on your preferred programming language and the type of games you want to develop.
- Popular options include:
 - [Unity \(C#\)](#)



- [Unreal Engine \(C++\)](#)



Master Game Development Tools:

- Familiarize yourself with the game development tools provided by your chosen engine or framework.
- Learn how to use the editor, scene management tools, asset pipelines, and scripting systems.

Develop Core Game Development Skills:

- Gain proficiency in the key areas of game development, including:
 - Game design principles and mechanics
 - Gameplay programming and scripting
 - 2D and 3D art creation and animation
 - Sound design and audio implementation
 - Level design and game balancing

Build Game Prototypes:

- Start by creating small game prototypes to practice and reinforce your skills.
- Experiment with different genres, mechanics, and art styles to broaden your experience.

Expand Your Skill Set:

- Explore advanced game development topics, such as:
 - Procedural content generation
 - Artificial intelligence (AI) for non-player characters (NPCs)
 - Multiplayer and network programming
 - Optimization and performance tuning
 - Virtual Reality (VR) or Augmented Reality (AR) integration

Create Full-fledged Games:

- Move beyond prototypes and focus on developing complete games.
- Collaborate with others to gain experience in teamwork and project management.
- Publish your games on platforms like PC, console, mobile, or web.

Continual Learning and Industry Awareness:

- Stay up-to-date with the latest trends, technologies, and advancements in the game development industry.
- Follow game development communities, attend conferences, and participate in game jams to expand your network and learn from others.



Nishant Kumar Rai
3rd Year



The World that converges Art and Code

In the realm where creativity meets code,
Lies a department, where we all board.
This is the realm where art and logic align,
Computer Science and Design is the department, which we
entwine.

This is the ocean where the art of design resides,
there's a ship that will pick you up to explore the tides,
It's a long journey, so take your seats,
There are unknown islands that we need to visit.

We are on an electrifying voyage of discovery,
where we can discover the true motive of the story.
Graphic Design might be a key to that World,
as it captures hearts, minds, and souls" unfurled.

In this creative fusion, possibilities unfurl,
As we navigate the oceans, our passions swirl.
With pixels and algorithms, we embark on this quest,
Merging aesthetics and logic, we are truly blessed.

So let us embrace this synergy, hand in hand,
Where technology and art, forever expand.
Together they shape our digital sphere,
Innovation and beauty make it crystal clear.



Samik Mandal

3rd Year



My Kind of love-

The days talks, the night laughs
The lovely cuddles and the handwritten notes
Yes I want an old school rose.
That how was your day messages not just creeping your nasty ways
Saying least times I love you but meaning it in most of your plays.
Not long varieties of movies but just a favourite series everytime
A special song to dedicate, and never saying goodbyes
Yes , I want an old school romantic lies
Being not just my lover
But being a shoulder to cry on
Being a bed to lie on leaving all my worries on chill
Yes , I want to have that kdrama thrill .
Who doesn't hesitate to become a bad guitarist or a good therapist
for my mood
Who loads my heart with love not with slavery on my head .
Yes , I want a love story like no one else have .
The person who expresses his every emotion not just his anger
Who grabs me when he feels cold not just outside but inside his own
Who doesn't text just a sorry but writes you an old school praise
notes
No expensive gifts , no expensive dates
Just a purple orchid and his hug that's insane .
I need a man , who support me like my father ,
cares for me like my mother, protect me
like my brother and love me like my forever 🌌💜

-Prashun Kumar Jha
3rd Year





THE BEST PART OF LIFE IS A SCHOOL LIFE

Final day is very near', the moment I thought this, it rushed to my memory lanes the past sweet days. Oh ! Dear, how can I forget those golden days when I was a kid, as usual, like you all, I also hate to go to school. I really hated to get up early in the morning, take bath and get ready for school. I considered it as a lay of boredom. But, gradually, I knew the importance of school and now I consider school as the best place on Earth other than home. When the teacher separate you from yours friend and make you sit in different bench, but you come back to same bench after that period ends. Last Bench is not just a Bench It's a kitchen,theatre and Bedroom for us. What I feel, the best part of our life is school-life. School days are really great.

The morning assembly, long boring speeches, boring lectures of History, rush of students in recess, few stories of love-n-friendship and several other things are to be missed by School forever. Surely, I will miss it forever. The memories of this school have captured the wings of thought. The memories of first day in this school are vivid. I feel worst, when I realize that this is my last session here, just five-six months more after that we all will enter into the world of real, tough competition. Then there will be no time for friends and even schools will be just a formality. The rest of life is going to be very struggling and then slowly all the memories will be washed by the tide of time but one thing which is going to shine forever in our memory lane-is the mesmerizing school-stays. The playground, the hidden love of teachers in their school, the silent-walls and pictures in classroom will always remain in our heart.

This is a place that should be cherished by us forever till eternity. I wish i could live my school life again ..because one day you'll cry to live this life again.

-Rithik Yadav
2nd year





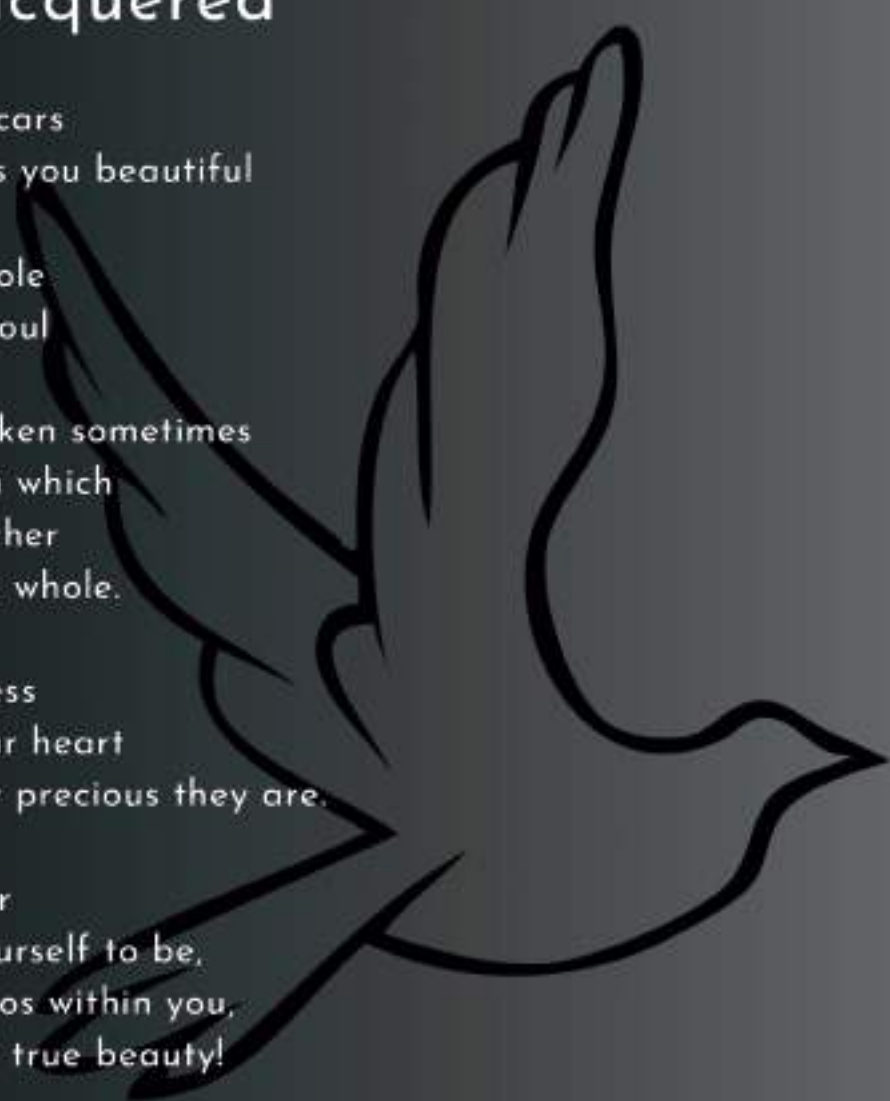
Beauty Unlacquered

You keep hiding your scars
Thinking it never makes you beautiful
But dear, never forget
Beauty isn't a visible mole
But is reflected in the soul

It's okay if you feel broken sometimes
Because the grace, with which
You hold yourself together
Makes you perfect as a whole.

The warmth and kindness
You've treasured in your heart
Lets people realise how precious they are.

And trust me, no matter
How plain you think yourself to be,
With the delightful chaos within you,
You are the epitome of true beauty!



PHOTOGRAPH



AND
SKETCHES



PHOTOGRAPH

Aditi Biswas
2nd year



Soumik Neogi
3rd year

Rithik Yadav
2nd year



Abhinaba Mukherjee
3rd year



Abhinaba Mukherjee
3rd year



Saptarshi Das
3rd year



Ankan Maity
2nd year

Seikh Nabab Uddin
3rd year

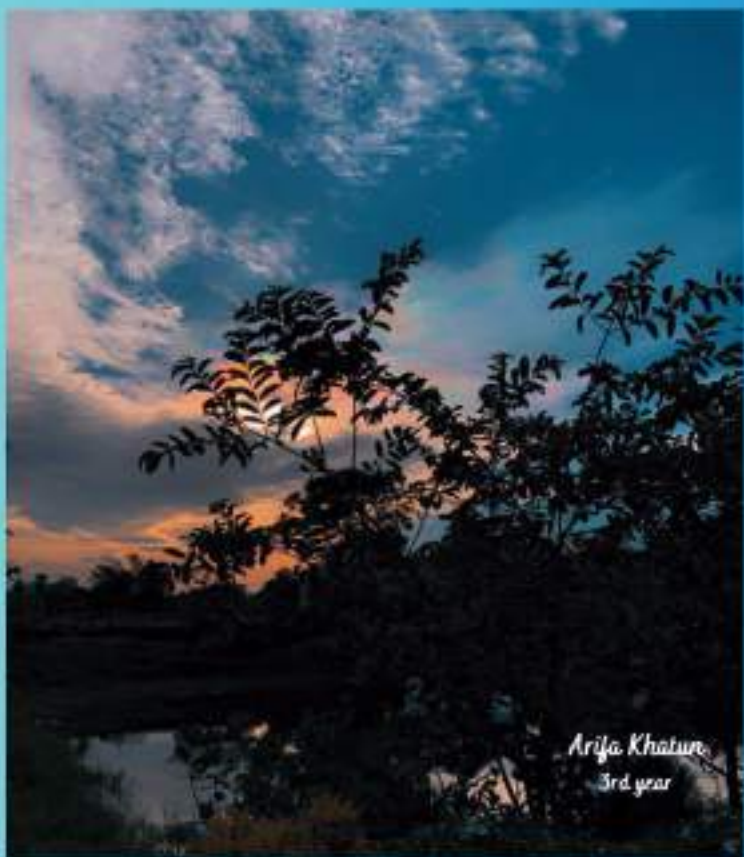


Chandrajit Banerjee
2nd year

Epsita Banerjee
3rd year

Vinayak Kumar

3rd year



Arifa Khatun
3rd year



Sunidhi Singh
3rd year



Vandana Verma
3rd year



Priyanshu Kumar
3rd year



Nishant Kumar Rai
3rd year



Shruti
3rd year



Vijaya Laxmi
2nd year



Subhajit Pal
2nd year



Vijaya Laxmi
2nd year



Shreya Karmakar
2nd year



AWARDS



AND GREETINGS

ACADEMICS

Avishek Mukherjee

Event-On spot hackathon at Aarohan (Annual tech fest, NIT Durgapur)
(1st position)



Nishant Kumar Rai

Event:- Meta* G20:Digital transformation, An indian story.
(At Sushma Swaraj Bhavan, New Delhi)
The creators of Metaverse program, supported by AICTE in collaboration with Meta.

Tech Fest 2023

<u>Name</u>	<u>Event</u>	<u>Position</u>
Nishant Kumar Rai	System Design	1st
Nishant Kumar Rai Sunidhi Singh Nisha Yadav	Technovation (ppt presentation)	1st
Sourav Sandilya	Business model	1st
Sunidhi Singh	Flashextempo	2nd
Priyanshu Kumar	System Design	2nd
Shubham Kumar	Graphic Design	2nd

SPORTS



Adil Khan

Karate events:-

- i) Dhanbad district karate championship (1st position)
- ii) Ramgarh state karate championship (1st position)
- iii) Parakram karate championship (3rd position)

Madhurima Sasmal

Karate events:-

- i) Dhanbad district karate championship (1st position)
- ii) Bhusikan district championship (2nd position)



Vandana Verma

Event-

- i) 7th all India Bushikan cup (1st position in kata)
- ii) University Games (2nd position)

Indrajit Sadhu

Inter college football
(runners up)



Volume #01
**EXCLUSIVE
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*Tech & Design
Magazine*

DESIGNBITS



Graphic Technology

Technology finatics believe graphic technology to be a revolutionizing aspect of today's generation which is being reflected on various domains as well

ROLE OF AI

The simulation of human intelligence processed by machine altering our lives

A vision what many in the computer industry believe to be the next iteration of internet

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