MITSTECH2021

DEPARTMENT OF COMPUTER APPLICATIONS

In a world driven by rapid advancements, technology continues to redefine the way we live, work, and connect. From artificial intelligence revolutionizing industries to quantum computing pushing the boundaries of computation, the digital era is shaping the future at an unprecedented pace. This edition of our technical magazine explores groundbreaking innovations, emerging trends, and the minds behind transformative ideas. Whether it's cybersecurity fortifying digital landscapes or blockchain reshaping financial ecosystems, we bring you insights into the technologies that are steering the world forward.

Stay ahead of the curve and immerse yourself in the ever-evolving world of technology—because the future is now!

As we delve into the latest developments, we also celebrate the creative spirit of engineers, developers, and tech enthusiasts who dare to think beyond limitations. This issue highlights real-world applications, expert perspectives, and thought-provoking discussions that will inspire the next generation of innovators.

"TECHNOLOGY IS BEST WHEN IT BRINGS PEOPLE TOGETHER."
– MATT MULLENWEG
"THE SCIENCE OF TODAY IS THE TECHNOLOGY OF TOMORROW."
– EDWARD TELLER
"INNOVATION DISTINGUISHES BETWEEN A LEADER AND A FOLLOWER."
– STEVE JOBS

Whether you're a tech enthusiast, an industry professional, or a curious learner, this magazine is your gateway to understanding the forces shaping our digital future. From startup success stories to futuristic research, we present a collection of articles designed to inspire, educate, and provoke thought. Join us as we explore the limitless possibilities of technology and its impact on the world!

MITSTECH STUDENTS
MCA

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS INSTITUTION)
Affiliated to JNTUA, Ananthapuramu & Approved by AICTE, New Delhi
NAAC Accredited with A+ Grade, NIRF India Rankings 2021 - Band: 201-250 (Engg.)
NBA Accredited - B.Tech. (CIVIL, CSE, ECE, EEE, MECH), MBA & MCA

Department of Computer Applications

MITSTECH2021

Perfection is our goal; Excellence will be tolerated.

- Unknown

MESSAGE FROM THE CORRESPONDENT

I feel exhilarated that the Department of Computer Applications of MITS is bringing out a magazine called MITSTECH from the year 2021. This Magazine brings out the intellectual brilliance in various new techniques introduced in Information Technology industry.

``HARD WORK, SINCERITY, DEDICATION AND ENTHUSIASTIC DEVOTION TO WORK WILL FETCH YOU UNBOUND SUCCESS, MAY THE LORD SHOWER HIS BLESSINGS ON YOU``

I heartily congratulate the students and the staffs of MCA Department and Wish them a grand success.

Dr. N. VijayaBhaskarChoudary
Correspondent

MESSAGE FROM THE PRINCIPAL
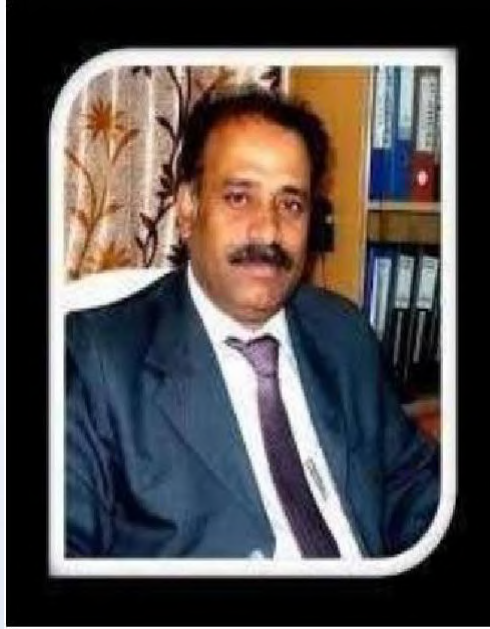
I feel delighted about the magazine "MITSTECH2021" to be hosted by the Department of Computer Applications of MITS.

On this magnanimous occasion, I congratulate all the students and faculty members of department of Computer Applications for their great efforts and coordination in bringing out the magazine a great success.

Principal
Dr. C. Yuvaraj

MESSAGE FROM THE HEAD OF THE DEPARTMENT

MITSTECH is dedicated for addressing the emerging topics and challenges in the area of technology. **MITSTECH** is to create great awareness on new innovative ideas and technologies. I wish the readers of **"MITSTECH"** for their support and also can provide the useful feedback to improve the standards of magazine.

Dr. N. Naveen Kumar
Head of the Department

ABOUT MITS

Madanapalle Institute of Technology & Science is established in 1998 in the picturesque and pleasant environs of Madanapalle and is ideally located on a sprawling 26.17 acre campus on Madanapalle - Anantapur Highway (NH-205) near Angallu, about 10km away from Madanapalle. MITS, originated under the auspices of Ratakonda Ranga Reddy Educational Academy under the proactive leadership of and Dr. N. VijayaBhaskar Choudary, Secretary & Correspondent and Sri. N. Krishna Kumar, Chairman of the Academy.

MITS is governed by a progressive management that never rests on laurels and has been striving conscientiously to develop it as one of the best centers of Academic Excellence in India. The Institution's profile is firmly based on strategies and action plans that match changing demands of the nation and the student's fraternity. MITS enjoys constant support and patronage of NRI's with distinguished academic traditions and vast experience in Engineering & Technology.

ABOUT DEPARTMENT

The Department has grown from strength to strength since its inception in 2004. It offers 3 year MCA and 2 year MCA (Direct 2nd year) programmes. These programmes are fully governed by AICTE, New Delhi and affiliated to JNTU Ananthapuramu. The Department is dedicated to the mission of inculcating value-based, socially committed professionalism to the cause of overall development of students and society. It promotes the prime objective of educating and preparing students as dynamic, competent and knowledgeable professionals. Excellent academic results, high-end computer labs, well- defined and documented academic and administrative processes and student counselling sessions (personal and academic) are the core strength of the department.

The Department obtained UGC-Autonomous Status in the year 2014 and is running the programmes successfully by meeting all the requirements. The College Academic Council, Board of Studies of the department strive to provide quality education and most advanced curriculum to make the students industry-ready and excel in the contemporary business world.

The department is frequently organizing Faculty Development Programs, Conferences, Seminars, Symposium and workshops on various emerging areas and technologies. The guest lectures are arranged, eminent professors and industry resource persons are invited from reputed IT industries, top ranked Universities. All the qualified and competent students are placed in renowned organizations, both national and international. Despite maintaining global standards in teaching and learning, successful placement in different renowned organizations and consistent 100% admission in the department are the hallmarks of the department. The M.C.A. Programme under Department of Computer Applications was Accredited by the National Board of Accreditation (NBA) of All India Council for Technical Education (AICTE).

VISION

To be the source of producing competent computer application professionals in academic and research activities to serve the industry and society.

MISSION

M1 : To empower students with knowledge of computer applications through state-of-art infrastructure and curriculum.

M2 : To groom students to become competent professionals in emerging technologies with industry specific programs.

M3 : To inculcate ethical values, leadership and managerial skills in the students.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1 Excel in the software industry with the application of comprehensive knowledge and skills.

PEO2 Contribute by building innovative and sustainable solutions to the problems in the IT industry.

PEO3 Achieve successful career by exhibiting social responsibility leading to lifelong learning.

## List of students and Magazine Title for the Academic Year 2021-22

S. No.	Name of the Student	Roll Number	Title	Publisher Details
1	D. Amaranath	20691F0001	Social Media Data Analysis Tool	MITSTECH-2021 Dept. Magazine
2	G. Anupama Sharon	20691F0007		
3	K. Taheera	20691F00I3	Block Chain-Based Voting System	MITSTECH-2021 Dept. Magazine
4	P. Supriya	20691F00H9		
5	A. Vishnu Vardhan Reddy	20691F00J3		
6	C. Haritha	20691F0032	An Enhanced Ensemble Diagnosis Cervical Cancer – A Pursuit of Machine Intelligence towards Sustainable Health	MITSTECH-2021 Dept. Magazine
7	G. Sai Kumar	20691F0059	Autism Spectrum Disorder Detection using Machine Learning Techniques	MITSTECH-2021 Dept. Magazine
8	K. Sainath	20691F00B9	Price Comparison Website for Online Shopping	MITSTECH-2021 Dept. Magazine
9	K. Bhanuprakash	20691F00D3	Enhanced Performance of Machine Learning Techniques for recognition chronic kidney disease	MITSTECH-2021 Dept. Magazine

SOCIAL MEDIA DATA ANALYSIS TOOL
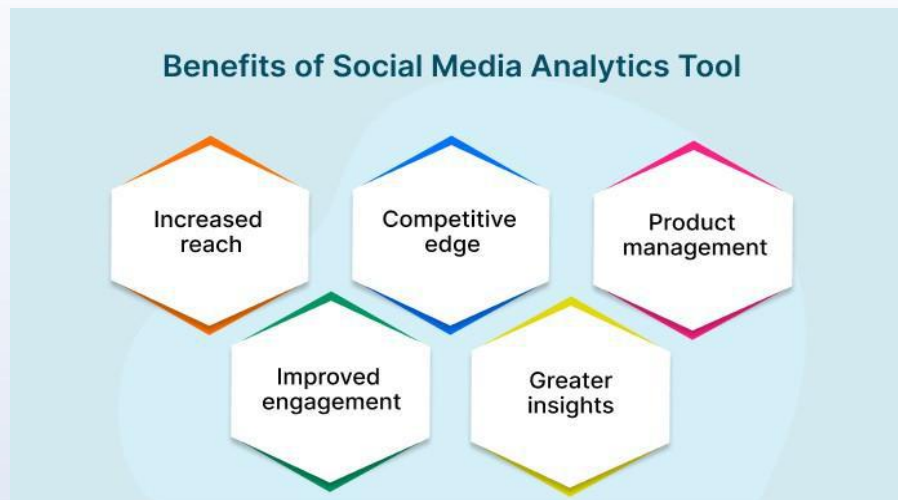
The rise of social media has transformed how individuals, businesses, and organizations communicate, share information, and engage with their audiences. With billions of users generating content daily, social media platforms offer a rich source of data that, if properly analysed, can reveal valuable insights into public sentiment, emerging trends, and user behaviour. This paper presents the development of a **Social Media Data Analysis Tool** designed to monitor and analyse trends, sentiments, and user engagement across multiple social media platforms such as Twitter, Facebook, Instagram, and LinkedIn. The tool aims to provide users with actionable insights for decision-making in marketing, brand management, public relations, and research.

The system is built on a multi-step process that begins with data collection from various social media platforms via API integrations, ensuring continuous, real-time access to posts, comments, likes, shares, and other forms of engagement. It utilizes **Natural Language Processing (NLP)**
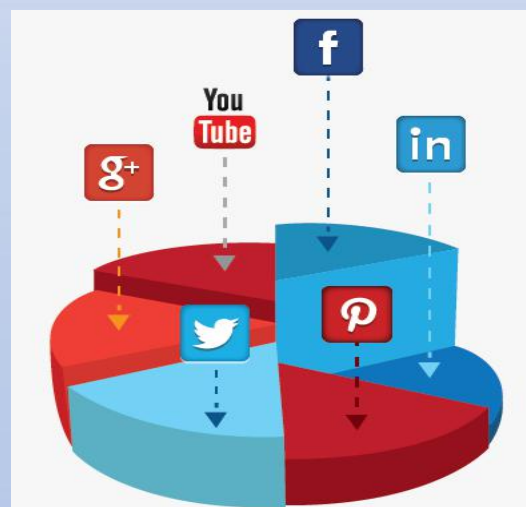
algorithms to preprocess **textual data, including tokenization, lemmatization, and sentiment classification**. Sentiment analysis, based on machine learning models, categorizes social media posts into positive, negative, and neutral sentiments, providing an overall sentiment score for specific topics, products, or brands.

Trend analysis is performed using techniques such as **time-series analysis** and topic modelling, enabling users to identify popular themes, hashtags, and topics that are gaining traction across the platforms. The system also includes user engagement metrics, such as likes, shares, and comments, to measure the effectiveness of content and gauge audience interaction. Visualization tools, including sentiment heatmaps, trend graphs, and demographic breakdowns, present the data in an intuitive and actionable format, making it easier for users to track the evolution of trends and measure the impact of social media campaigns.

This tool is intended to help businesses, marketers, and social media analysts make informed decisions by providing a comprehensive understanding of public sentiment, emerging trends, and the level of user engagement. By harnessing the power of social media analytics, users can respond to shifts in public opinion, identify potential risks, and better align their strategies with consumer interests.

Keywords: Social Media Analytics, Sentiment Analysis, Trend Analysis, User Engagement, **Data Visualization, Natural Language Processing**, Social Media Trends, Topic Modeling, Real-time Data, Social Media Monitoring, Public Opinion.
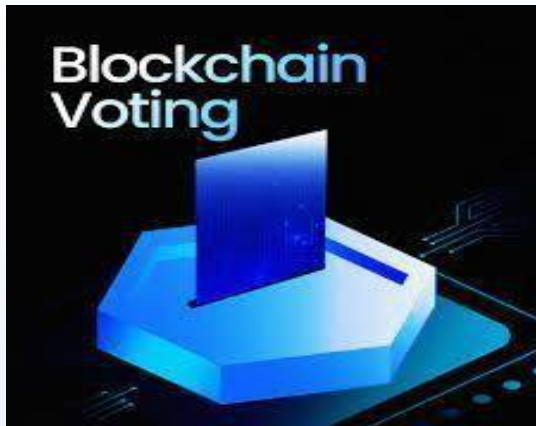
Article Published By

AMARANATH D

Reg No. 20691F0001

ANUPAMA SHARON G

Reg No. 20691F0007

BLOCK CHAIN-BASED VOTING SYSTEM

This paper presents the development of a block chain-based voting system designed to enhance the security, transparency, and efficiency of the electoral process. This innovative system leverages the power of block chain technology to ensure the integrity and immutability of votes, addressing concerns related to voter fraud, manipulation, and lack of trust in traditional voting systems.

KEY FEATURES:

Secure and Transparent Voting: Block chain technology ensures the security and transparency of the voting process by creating an immutable and auditable record of votes.

Voter Verification: The system employs robust voter verification mechanisms, such as biometric authentication or digital identity, to prevent voter impersonation and double voting.

Tamper-Proof Voting Records: Block chain technology guarantees the integrity of voting records, making it impossible to alter or manipulate votes after they are cast.

Real-time Vote Tallying and Results: The system enables real-time vote tallying and result dissemination, providing timely and accurate election outcomes.

Enhanced Voter Privacy: The system prioritizes voter privacy by implementing cryptographic techniques to protect voter identities and voting preferences.

TECHNICAL IMPLEMENTATION:

Blockchain Technology: The system utilizes a decentralized blockchain network to store and process voting data, ensuring data security and transparency.

Smart Contracts: Smart contracts are employed to automate the voting process, enforce voting rules, and ensure the integrity of the system.

Cryptography: Cryptographic techniques, such as digital signatures and encryption, are used to secure voter identities, protect vote privacy, and verify the authenticity of votes.

User Interface: A user-friendly interface is designed to facilitate voter registration, voting, and result verification.
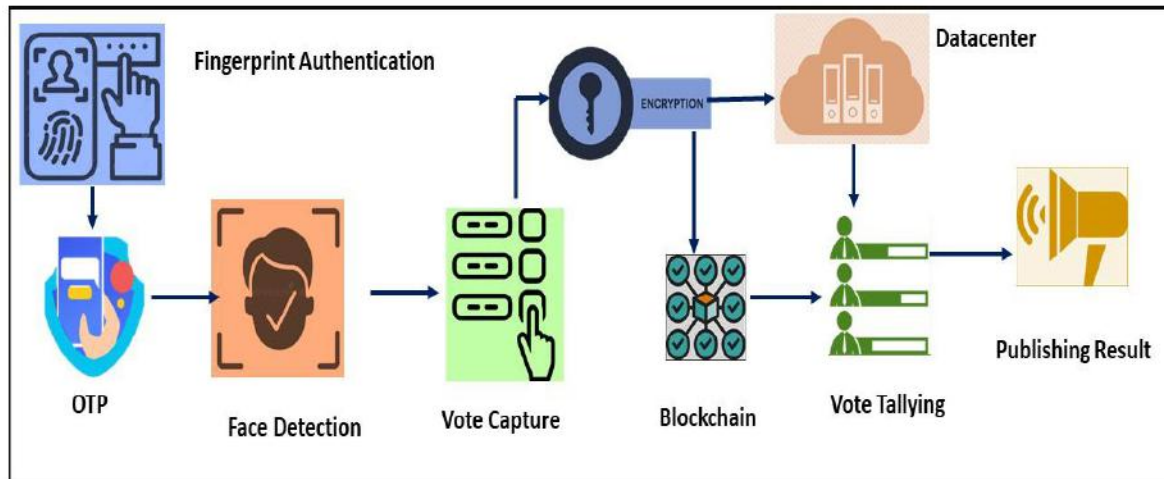
FUTURE WORK:

Scalability: The system can be further optimized to handle large-scale elections by exploring scalability solutions, such as sharding and layer-2 scaling techniques.

Interoperability: The system can be designed to be interoperable with other blockchain-based systems, enabling cross-border voting and international elections.

Accessibility: The system can be made accessible to people with disabilities by incorporating assistive technologies and user-friendly design principles.

Security Enhancements: Continuous research and development can be conducted to enhance the security of the system, including advanced cryptographic techniques and zero-knowledge proofs.

Keywords: blockchain, voting system, election security, cybersecurity, smart contracts, cryptography, decentralization, transparency, accountability.

Article Published By

K. Taheera   **P. Supriya**

Reg No. 20691F00I3   **Reg No20691F00H9**

A. Vishnu Vardhan Reddy

Reg No. 20691F00J3

AN ENHANCED ENSEMBLE DIAGNOSIS CERVICAL CANCER - A PURSUIT OF MACHINE INTELLIGENCE TOWARDS SUSTAINABLE HEALTH

An Enhanced Ensemble Diagnosis Cervical Cancer system leverages machine learning techniques to improve the accuracy and efficiency of cervical cancer diagnosis. By using an ensemble approach, which combines multiple machine learning models, the system enhances predictive capabilities, reducing the likelihood of false positives or negatives. The model aggregates the strengths of various algorithms, such as decision trees, support vector machines, and neural networks, to deliver a more robust diagnosis.
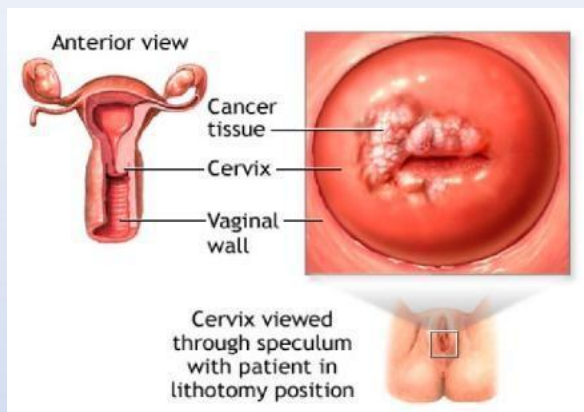
This intelligent system analyzes patient data, including medical imaging, histopathology, and clinical records, to identify early signs of cervical cancer with high precision. The pursuit of machine intelligence in this area not only supports early detection but also fosters sustainable healthcare by enabling quicker, cost-effective diagnoses, improving treatment outcomes, and reducing the burden on healthcare systems. Such advancements are crucial for increasing the accessibility of cancer screening and improving survival rates globally.

Example:

A real-life example of an enhanced ensemble diagnosis system for cervical cancer is **IBM Watson for Oncology**, developed in collaboration with Memorial Sloan Kettering Cancer Center. Watson uses machine learning and artificial intelligence to analyze vast

amounts of medical data, including imaging, clinical notes, and pathology reports, to assist doctors in diagnosing and treating cancer. For cervical cancer, Watson helps in identifying patterns in patient data, such as abnormal pap smears or HPV infections, which may indicate potential risk factors.

The system combines multiple machine learning models (ensemble techniques) to provide a comprehensive analysis, offering doctors evidence-based treatment recommendations tailored to each patient's unique condition. This AI-driven approach improves diagnosis accuracy, reduces human error, and accelerates decision-making, leading to better outcomes for patients.

Article Published by

C.Haritha

(Reg No. 20691F0032)

AUTISM SPECTRUM DISORDER DETECTION USING MACHINE LEARNING TECHNIQUES

Autism Spectrum Disorder (ASD) detection using machine learning techniques involves analyzing various data types, such as behavioral patterns, speech analysis, genetic information, and neuroimaging data, to identify early signs of ASD. Machine learning models, including decision trees, support vector machines, and deep learning algorithms, are trained on large datasets to recognize subtle patterns that may indicate ASD. These models can classify children as being at risk for autism based on their developmental milestones, social behaviour, and communication skills.

By automating the detection process, machine learning offers a more efficient and accurate method for early diagnosis, enabling timely intervention and support. Such systems also reduce diagnostic time, improve consistency, and assist healthcare professionals in making informed decisions, ultimately enhancing the quality of care for children with ASD.

Example:

A real-life example of autism spectrum disorder (ASD) detection using machine learning is the **"Autism & Beyond" project**, developed by researchers at Duke University. This project uses machine learning algorithms to analyze children's facial expressions and eye movements during a play-based video assessment. The system captures subtle behavioural cues and patterns that may indicate the presence of ASD, such as reduced social interaction or differences in eye gaze.

By analyzing these visual cues, along with data from a series of questions answered by parents, the machine learning model can identify potential signs of autism. This approach aims to provide a more accessible and non-invasive method for early screening, allowing for faster detection and timely intervention. The project has shown promise in improving the accuracy of autism diagnosis and helping clinicians make more informed decisions.

Article Published by

G. Sai Kumar

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PRICE COMPARISON WEBSITE FOR ONLINE SHOPPING

A Price Comparison Website for Online Shopping allows consumers to compare prices for products across multiple online retailers in one place. These platforms aggregate product information, such as prices, descriptions, and user reviews, from various e-commerce websites and present them in an easy-to-navigate interface. Users can search for specific products and instantly see which retailer offers the best deal, including any discounts, shipping costs, or promotions. The website typically provides features such as filtering by price range, brand, and customer ratings, helping users make informed purchasing decisions.

By streamlining the process of price comparison, these platforms save time and money for shoppers, while also fostering competition among retailers. Examples of popular price comparison websites include **Google Shopping**, **PriceGrabber**, and **Shopzilla**, which allow users to shop smarter and ensure they get the best deals.

Example:

A real-life example of a Price Comparison Website for Online Shopping is **Google Shopping**. Google Shopping allows users to search for products across various online retailers, displaying prices, product descriptions, and available deals from different e-commerce platforms.

When users search for a specific item, Google Shopping aggregates the listings from multiple stores, showing the most relevant and affordable options.

It also highlights special offers such as discounts, Free shipping, and seasonal sales. Additionally, Users can filter search results by price, rating, and seller, making it easier to find the best deal. This service helps consumers make informed decisions while saving both time and money by comparing prices across a range of trusted online retailers.

Article Published by

K. Sainath

Reg No. 20691F00B9

ENHANCED PERFORMANCE OF MACHINE LEARNING TECHNIQUES FOR RECOGNITION CHRONIC KIDNEY DISEASE

Enhanced performance of machine learning techniques for the recognition of chronic kidney disease (CKD) focuses on improving the accuracy and efficiency of diagnosing the disease at an early stage. Machine learning models, including decision trees, random forests, support vector machines, and deep learning algorithms, are trained on medical datasets containing patient information such as lab test results, demographic details, and clinical histories. Advanced techniques like feature selection, hyperparameter tuning, and ensemble methods are employed to optimize model performance, reducing false positives and negatives.

Additionally, deep learning models like convolutional neural networks (CNNs) are being explored for analyzing medical imaging, such as kidney scans, to further aid diagnosis. These enhanced machine learning models not only improve the precision of CKD prediction but also facilitate early detection, enabling timely intervention and better management of the disease, ultimately leading to improved patient outcomes.

Example:

A real-life example of enhanced machine learning techniques for recognizing chronic kidney disease (CKD) is **KidneyIntelX**, a machine learning-based diagnostic tool developed by **Fresenius Medical Care** and **Biovista**. KidneyIntelX uses artificial intelligence and machine learning to predict the risk of CKD progression in patients. By analyzing patient data, including lab results, medical histories, and genetic information, the system generates a risk score that helps healthcare providers identify patients at higher risk of developing advanced stages of kidney disease.

This approach combines advanced machine learning algorithms with a vast array of clinical data to improve the accuracy of CKD diagnosis and prediction. KidneyIntelX has been shown to provide better outcomes by enabling earlier intervention and more personalized treatment plans for CKD patients.

Article Published by

K. Bhanuprakash

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