Magazine 2024

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# K.S.R. COLLEGE OF ENGINEERING

## (Autonomous)

**Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.**

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

# CODE SPHERE

**ACADEMIC YEAR 2024-2025**

# Institution vision and mission

## Vision of the Institution

We envision to achieve status as an excellent Educational Institution in the global knowledge hub, making self-learners, experts, ethical and responsible engineers, technologists, scientists, managers, administrators and entrepreneurs who will significantly contribute to research and environment friendly sustainable growth of the nation and the world.

## Mission of the Institution

**IM 1 :** To inculcate in the students self-learning abilities that enable them to become competitive and considerate engineers, technologists, scientists, managers, administrators and entrepreneurs by diligently imparting the best of education, nurturing environmental and social needs

. **IM 2 :** To foster and maintain mutually beneficial partnership with global industries and Institutions through knowledge sharing, collaborative research and innovation.

# Department vision and mission

## Vision of the Department:

To create ever green professionals for software industry, academicians for knowledge cultivation and researchers for contemporary society modernization.

## Mission of the Department:

DM 1 : To produce proficient design, code and system engineers for software development

DM 2: To keep updated contemporary technology and fore coming challenges for welfare of the society.

## Programme Educational Objectives (PEOs):

**The graduates of the programme will be able to :**

**Rational Computing:**

Figure out, formulate, analyze typical problems and develop effective solutions by imparting the idea and principles of science, mathematics, engineering fundamentals and computing.

**Professional Excellence:**

Competent professionally and successful in their chosen career through life-long learning

.

**Social and Ethical Technocrats:**

Excel individually or as member of a team in carrying out projects and exhibit social needs and follow professional ethics.

**Program Outcomes (POs)**

PO1 Engineering Graduates will be able to: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

PO4 Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6 The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO7 Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

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PO10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

PO11 Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**Program Specific Outcomes (PSOs)**

PSO1 Technical competency: Develop and Implement computer solutions that accomplish goals to the industry, government or research by exploring new technologies

PSO2 Professional awareness: Grow intellectually and professionally in the chosen field..

# K.S.R. COLLEGE OF ENGINEERING

An Autonomous Institution

**Thiru.R.SRINIVASAN, B.B.M.**

**Chairman,**

**KSR Educational Institutions**

## Message

Education is the foundation of a brighter tomorrow, and this magazine reflects the vibrant spirit of our learners. May it continue to inspire creativity, excellence, and lifelong curiosity in every reader. The college's proactive approach to research and development plays a pivotal role in shaping both students and faculty into intellectuals capable of meeting the challenges of the modern world. Through various initiatives, KSRCE explores new areas of practice and enhances the quality of professional services, ensuring that its community remains at the forefront of innovation and excellence.

The upcoming magazine promises to be a significant milestone in this journey, reflecting the vibrant spirit of KSRCE's learners and their relentless pursuit of knowledge. It serves as a testament to the institution's unwavering commitment to inspiring creativity, excellence, and lifelong curiosity in every reader.

As you eagerly anticipate the release of this magazine, it stands as a beacon of the collective efforts and aspirations of the KSRCE community. May it continue to inspire and guide future generations towards a brighter tomorrow.

With best wishes

**Mr. R. Srinivasan**

**Chairman**

**KSR Educational Institutions**

# K.S.R. COLLEGE OF ENGINEERING

An Autonomous Institution

**Dr.M.VENKATESAN,M.E.,Ph.D.,**

**Principal**

## Message

It is with immense pride and joy that I present to you the latest edition of our CSE Department magazine a vibrant reflection of the creativity, talent, and achievements of our students and staff.

Over the past one decade, KSRCE has served the young engineering aspirants of our nation by providing state-of-art facilities and well knowledgeable faculty members.

The Institute has held high the lighted torch of teaching and learning and has not failed in its duty in the hour of need. The students imbibe qualities of an excellent teacher and researcher to set academic standards. The last couple of years marked several milestones in the history of KSRCE.

Technology is constantly evolving, and staying up to date with the latest trends can help us stay competitive in the job market, give you access to new features and capabilities.

I congratulate the editorial team, contributors, and all those who have worked tirelessly to bring this edition to life. Let this magazine serve not only as a record of our accomplishments but also as an inspiration for the journeys yet to come.

With best wishes

**Dr.M.VENKATESAN, M.E.,Ph.D.,**

Principal, K.S.R. College of Engineering.

MAGAZINE 2024

# K.S.R. COLLEGE OF ENGINEERING

An Autonomous Institution

**Dr.V.Sharmila M.E.,Ph.D**

**Professor & Head**

## Message

The HOD of CSE take great honor in congratulating the students who have contributed for the current year's Evolve magazine. I really hope that this would be as useful as the last Evolve editions. Acknowledging the fact that the magazine is completely created and designed by the students I really hope this would kindle a spark in the minds of the students who are yet to contribute towards the progress of the Evolve Initiative in the upcoming years. All the best students! Wishing you all continued success — keep evolving!

With best wishes

Dr. V. Sharmila

Professor & Head CSE


# Editorial Team

- Dr.V.Sharmila
- Dr.E.Baby Anitha
- Mr.V.Ramesh
- Mr.M Gobinath/ III CSE - A
- Mr.A Ananthu / II CSE - A
- Mr.R Vishwa / III CSE – B
- Ms .V Yamini / I CSE - D

CSE Department of COMPUTER SCIENCE & Engineering



# *Articles....*

| S.NO | NAME OF THE ARTICLE |
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| 2. | SIGN LANGUAGE CONVERSION USING DEEP LEARNING |
| 3. | AI AND ROBOTICS |
| 4. | ARTIFICIAL INTELLIGENCE |
| 5. | CLOUD COMPUTING |
| 6. | GRAPHICAL PASSWORD AUTHENTICATION FOR SECURITY |
| 7. | CYBER SECURITY |
| 8. | SMART WHEELCHAIR CONTROL VIABRAIN COMPUTER INTERFACE |

**Machine learning**

Machine learning (ML) has emerged as a pivotal technology, revolutionizing various fields by enabling systems to learn from data, identify patterns, and make informed decisions with minimal human intervention. This presentation explores the fundamental principles of machine learning, including supervised and unsupervised learning, and delves into the key algorithms that drive its functionality.

We will discuss the broad applications of ML across industries such as healthcare, finance, and manufacturing, showcasing its potential to enhance decision-making, improve efficiency, and enable innovations such as personalized medicine, predictive maintenance, and autonomous vehicles.

The presentation also addresses the challenges and ethical considerations in deploying ML systems, including issues related to data privacy, bias, and transparency. By examining both the capabilities and limitations of machine learning, we aim to provide a comprehensive overview of its current state and future directions.

Name: Harshini M
Class: II Year

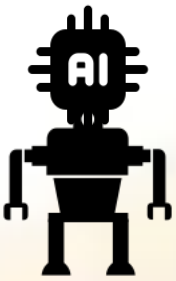
**Sign language conversion using deep learning.**

Two-way sign language translator system that enables real-time translation between speech/text and sign language. This system leverages Python's OpenCV library for image processing, Media Pipe for gesture recognition, and NLTK for text processing to create an inclusive and efficient tool for facilitating communication between the hearing and hearing-impaired communities.

Our system translates spoken or written language into sign language and vice versa, allowing for seamless interaction and understanding. This technology is particularly impactful in educational settings, where enrolment and literacy rates among hearing- impaired youth are significantly lower than the general population.

By integrating this tool into regular schools, we aim to improve accessibility and inclusivity, making education more attainable and affordable for hearing- impaired students.

Name: Lavanya N
Class: II Year

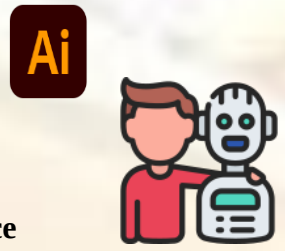



**AI and Robotics**

Our presentation explores the rapidly evolving fields of Artificial Intelligence (AI) and Robotics, highlighting their intersection and impact on various industries. It begins by defining AI and Robotics, followed by an examination of different types of AI systems, including reactive machines, limited memory, theory of mind, and self-aware AI.

The presentation also delves into the benefits AI brings to robotics, such as enhanced efficiency, accuracy, and automation. Additionally, it covers the rise of AI-powered chatbots, their applications, and the emergence of humanoid robots. A special focus is given to Sophia, the advanced humanoid robot, showcasing her capabilities and significance in robotics. Lastly, the presentation discusses the future scope of AI and robotics, envisioning the potential societal and technological impacts.

Name: Soundarrajan S
Class: IV Year




**Artificial Intelligence**

Artificial intelligence (AI) encompasses a broad range of technologies designed to simulate human cognitive functions, including learning, reasoning, and problem-solving. This paper explores the foundational concepts of AI, its key methodologies—such as machine learning, natural language processing, and computer vision—and the ethical implications of its deployment across various sectors.

We examine current applications, from healthcare to autonomous systems, highlighting both the transformative potential and challenges posed by AI. The discussion also addresses the importance of responsible AI development, emphasizing the need for transparency, accountability, and societal considerations as we integrate these technologies into everyday life.

Name: Ananthu N
Class: I Year

**Cloud Computing**

Cloud computing has fundamentally changed how businesses and individuals use and manage technology. By providing services such as data storage, computing power, and software applications over the internet, it eliminates the need for physical hardware and data centers. This approach offers scalability and cost- efficiency, allowing companies to pay for only what they need and adapt resources based on changing demand, making it highly attractive for businesses of all sizes. Cloud services are categorized into three main models. Infrastructure as a Service (IaaS) delivers essential computing resources such as virtual machines and storage. Platform as a Service (PaaS) gives developers a platform to build and deploy applications without worrying about infrastructure management. Software as a Service (SaaS) provides ready-to-use applications accessible through the web, minimizing the need for local installations and updates. These models help organizations streamline their operations and focus on core business goals.

Despite its advantages, cloud computing comes with its own set of challenges, particularly around data privacy, compliance, and the risk of becoming dependent on specific providers. As more businesses move to the cloud, they must navigate these risks carefully to fully benefit from cloud technologies while maintaining security, efficiency, and flexibility in a competitive digital environment.

Name: Logesh G
Class: I Year


**Graphical password authentication for enhanced security.**

Graphical Password Authentication is a form of authentication using images rather than letters, digits, or special characters. Graphical password authentication offers an innovative solution to the challenges of remembering complex passwords across multiple websites. This Cybersecurity project introduces a visual approach where users select a sequence of images, such as different chocolates, in a specific pattern. First, the user must register if the registration does not exist. Second, user must login with a valid user ID and password. Upon subsequent login attempts, the images are shuffled, but the user must replicate the initial pattern to gain access. User should choose according to the registration password, it must to match at login time.

Recognition Based Techniques are used in this project which is popular choice, as its more user-friendly and resistant to shoulder surfing attacks. This method enhances security as the sequence remains the same, while the image placement changes, making it resilient to brute force and dictionary attacks. By leveraging visual recognition and memory, graphical password authentication provides a robust and user-friendly alternative to traditional password-based systems, alleviating the burden of remembering complex passwords and enhancing overall Cybersecurity.

Name: Raghul B
Class: II Year

**Cybersecurity**

The Introduction, Common Cyber threats, Cyber security tools, Cyber security best practices, Importance of cyber security in business, Future of cyber security.

Cybersecurity, a rapidly evolving field, encompasses the protection of digital information and systems from unauthorized access, use, disclosure, disruption, modification, or destruction. As our reliance on technology grows, so does the potential for cyberattacks. This abstract provides a concise overview of the key concepts, challenges, and trends within cybersecurity.

Cybersecurity refers to the practice of protecting systems, networks, programs, and data from digital attacks, unauthorized access, damage, or theft. It involves various technologies, processes, and measures to ensure the integrity, confidentiality, and availability of information. Cybersecurity is critical in today's digital age due to the growing number of threats and the increasing reliance on digital systems across sectors like finance, healthcare, government, and businesses.

Name: Dharshini J
Class: I Year

**Smart Wheelchair Control via Brain-Computer Interface**

The proposed solution is a Brain Computer Interface (BCI) based wheelchair using Fuzzy Neural Networks (FNN). The proposed system captures motor imagery obtained from electroencephalography (EEG) aimed at empowering individuals with severe motor disabilities to move and explore their surroundings without assistance.

Fuzzy Neural Networks are used here to strengthen the weak points as well as the decision-making process since it captures both fuzzy logic and neural networks making the control of the wheel chair more flexible and adaptive. The system then analyses and classifies the recorded active brainwaves using real time commands and movements such as moving forward, backwards, turning left and right.

The accuracy and adaptability of this BCI is improved by the embedding of FNNs, thus increasing its responsiveness to the user’s intended action. The system also embeds other safety features such as avoidance of crashing into obstacles to allow smooth movement within the space.

Name: Vimalraj P
Class: III Year

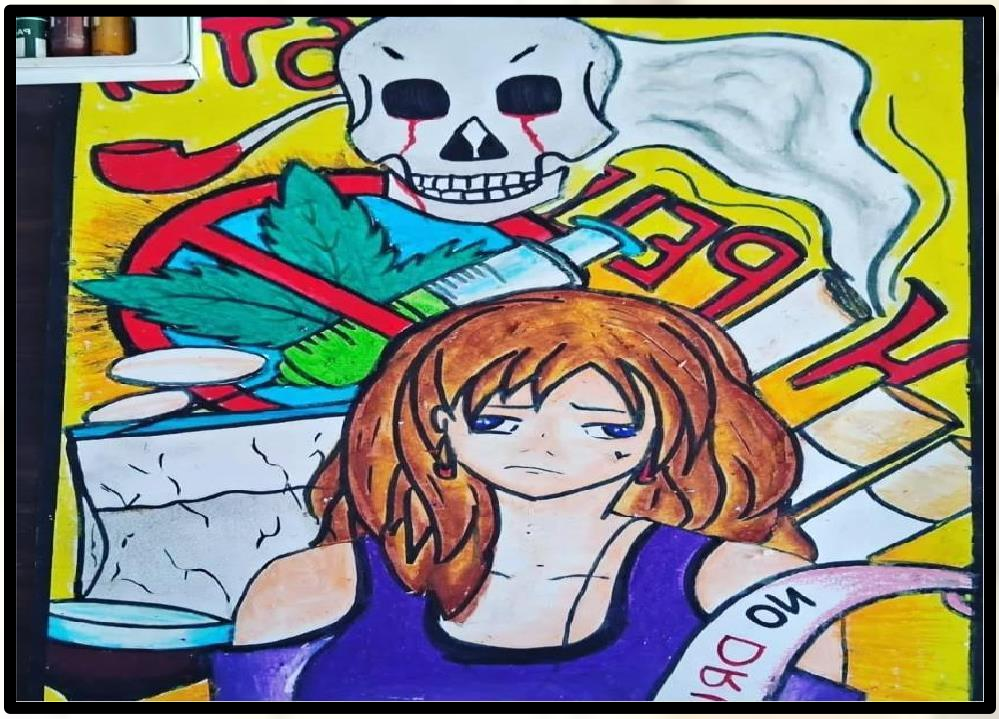

Name: JEGAN D

Class: I YEAR

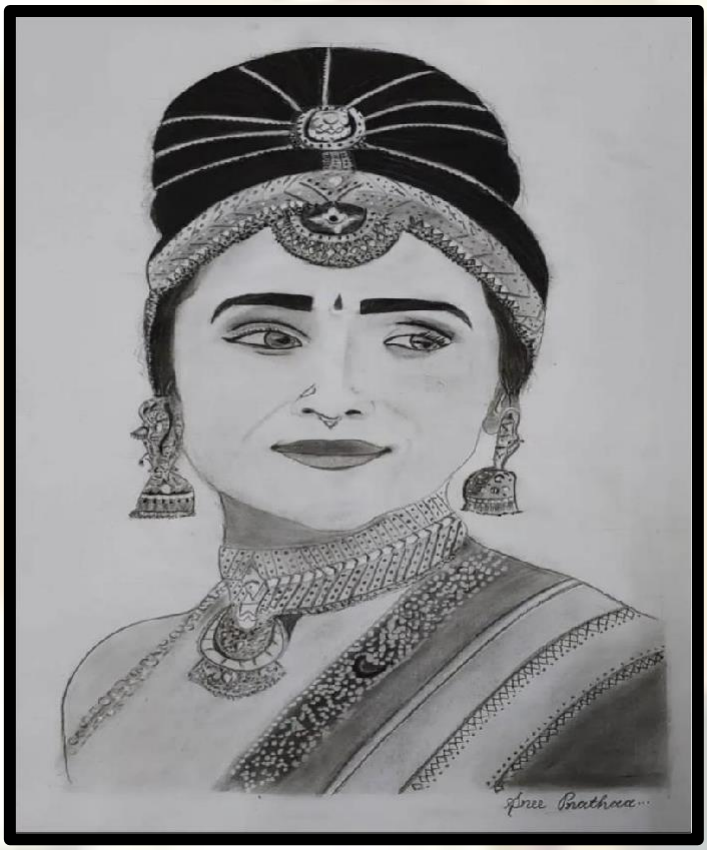

Name: LOGESH J

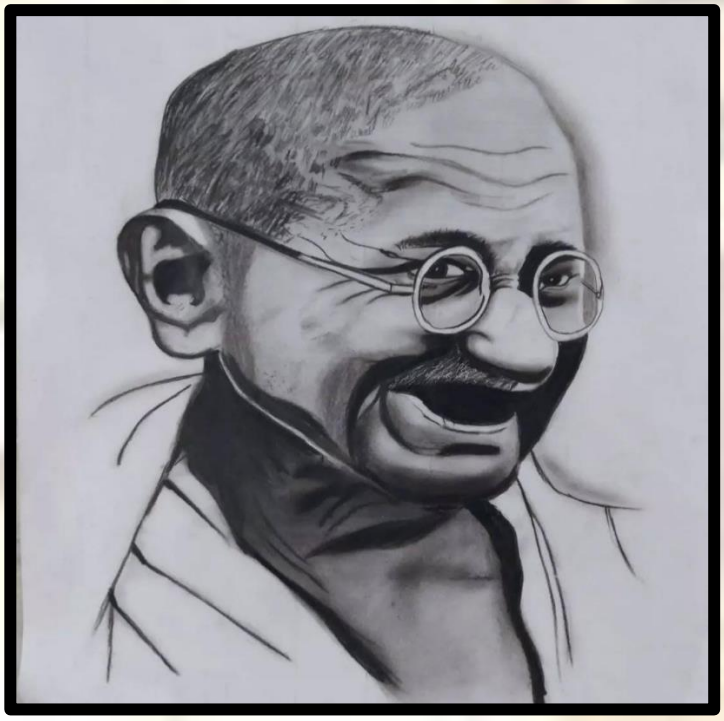
Class: I YEAR

Name: P S Dhivya



Name: S Dhesika



Name: Sree Prathaa

SPORTS PRIZE WINNER:


Name: S. Kaviya