E - Magazine | Volume 12 | 2020 - 21

Department of
COMPUTER SCIENCE & ENGINEERING

COMPSENSE

ST JOSEPH ENGINEERING COLLEGE
AN AUTONOMOUS INSTITUTION
VAMANJOOR, MANGALURU - 575 028, KARNATAKA, INDIA

VISION

To be recognized as a Centre of excellence in computer and allied areas with quality learning and research environment.

MISSION

- Prepare competent professionals in the field of computer and allied fields enriched with ethical values.
- Contribute to the Socio-economic development of the country by imparting quality education in computer and Information Technology.
- Enhance employability through skill development.

PROGRAMME EDUCATIONAL OBJECTIVES

- To impart to students a sound foundation and ability to apply engineering fundamentals, mathematics, science and humanities necessary to formulate, analyze and design and implement engineering problems in the field of computer science.
- To develop in students the knowledge of computer science and engineering to work in various fields networks, data, web and system engineering.
- To develop in students the ability to work as part of team through effective communication on multidisciplinary projects.
- To train students to have successful careers in computer and information technology industry to meet the needs of society enriched with professional ethics.
- To develop in students the ability to pursue higher education and engage in research through continuous learning.

PROGRAMME OUTCOMES

By the end of the undergraduate Programme in CSE, graduates will be able to:

1. Apply knowledge of mathematics, science, engineering fundamentals, computer science and engineering to solve complex engineering problems.

2. Identify, formulate, research literature, and analyze complex engineering problems in reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. 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.

4. Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. 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.

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

8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. 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, give and receive clear instructions.

11. 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.

12. 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.

PROGRAMME SPECIFIC OUTCOMES

By the end of the undergraduate Programme in CSE, graduates will be able to:

1. Understand the principles underlying entrepreneurship, freelancing and the requirements to initiate a start up in the IT or related domains.

2. Participate effectively in competitive examinations related to certification, career growth and admission to higher studies.

Director's Message

The academic year 2021-22 is round the corner and as we go Autonomous, I wish this year enriches you with much-awaited God's bountiful blessings. It is heartening to note that the Department of CSE is coming out with yet another issue of its Magazine & Newsletter.

This is a tribute to the dynamic leadership of the faculty along with the active participation of the students. It lets the educational community and stakeholders at large, know and be aware of the happenings in the department and partner them in the way forward.

The institutional Autonomy is sure to open up a plethora of opportunities in the technology sector and the department is going to be at the forefront of it. The collaboration with industries in the preparation of the new curriculum will ensure that the students entering this department will learn relevant technologies and be industry ready at the end of their graduation.

As they share the department centered news with you, I immensely thank the editor, the HOD and the faculty for their generous contribution to go with the continued support in updating you with the chain of events that were coordinated in this department.

We look forward to many more editions with enriching insights and experiences!

With best regards,

Rev. Fr Wilfred P. D'Souza
Director-SJEC

Assistant Director's Message

It gives me great pleasure to give my best wishes to COMPSENSE, a newsletter from Department of Computer Science & Engineering of St. Joseph Engineering College, Vamanjoor, an Autonomous Institution. The students and faculties of department are always proactive in taking initiatives in technical, cultural and social events. I hope that this newsletter will serve the purpose of reflecting all activities of department and it will inspire others to do their best. We are now autonomous institution, let us make use of this great privilege and grow towards our goals in imparting quality education to our students.

I congratulate all the people who are responsible in making of this Newsletter. Let this department excel in all the ways, wishing you all the best.

Rev. Fr Alwyn D'Souza
Asst. Director - SJEC

Principals Message

"Where tireless striving stretches its arms towards perfection; Where the clear stream of reason has not lost its way into the dreary desert sand of dead habit"

These two lines from the poem "Where the mind is without fear", written by Rabindranath Tagore in the collection Geetanjali, should inspire us to be tireless in our pursuit for perfection, though we may never actually achieve it. It is also important to keep ourselves constantly refreshed with new ideas and innovations in all we do, so that our ability to reason out does not diminish.

Blindly following ideas of others, based on narrow thought processes, without questioning and reasoning out, have led us to many of the problems in society today. An approach of reasoning out and questioning existing pedagogies will lead to a better way of learning and innovating. This will lead to a better society where professionals will contribute solutions that will solve problems, without losing the harmony with nature.

The Department of Computer Science and Engineering has the potential to contribute to society in many ways through the efforts of its staff and students. This magazine/newsletter, it is hoped, will capture such potential ways in which they are already contributing.

I wish the staff and students success in their efforts to bring out this magazine/newsletter!

Dr Rio D'Souza
Principal – SJEC

HOD's Message

With a tremendous increase in the number of affected people during the second wave of the covid pandemic that hit our country, all educational institutes had to be shutdown. But even in such unprecedented times, we in the education sector did not stop from providing formal education.

During the past year, our faculty and staff have worked tirelessly to provide an excellent educational experience for our students over various digital platforms. While the coronavirus pandemic has had many disruptive effects, we have continued our academic offerings for students via online content delivery using Google Classroom and Canvas and maintained our interactions with students, alumni and industry in all possible forms, including inauguration and activities of our department associations CIPHER, CSI and DeltaDevOps. However, this transition from a physical to an 'online mode' has had its share of challenges. These include limited access to the Internet, lack of uninterrupted power supply, ill-equipped students, absence of a robust monitoring method, hindrances to replicating the rapport between teacher and students in an online world, bridging the patchy and impersonal online experience and increase in screen-time.

I am proud of the dedication and creativity of our faculty in delivering their courses digitally, as well as the perseverance and commitment of our students in an online learning environment. No matter how long this crisis may persist, I am confident in the resilience of our program because of our dedicated faculty, our hard-working students, and our supportive management.

In addition to safeguarding our students' learning experiences and growth opportunities, our department has made various changes to our academic and student support procedures with the goal of helping our students academically and morally.

Thanking the editors of our Newsletter for an excellent job done.

Wishing a healthy life ahead to everyone!!!

Dr Sridevi Saralaya
HOD CSE– SJEC

Editor's Message

We are happy to present before you **COMPSENSE 2020-21,** Department Magazine and Newsletter of Computer Science and Engineering which reflects the academic, extracurricular and individual achievements of the faculty, students and the department as a whole for the academic year 2020-21.

It gives us immense pleasure in compiling the technical and non technical events happened in the department throughout the year. The FDP's/training programs and competitions helped the faculty and students to enhance their knowledge and provided opportunities to explore the challenges offered by the new technologies.

We are grateful to all stakeholders who played key role in providing us with the necessary information and helped us to bring out the Magazine/newsletter during the pandemic situation.

We thank the Management, Principal and HOD of CSE department for their words of wisdom, encouragement and continuous support.

A special thanks to the students and faculties of CSE Department for their support and cooperation.

We wish a blessed and fruitful year 2021-22.

Mr. Gerald H Fernandes
Assistant Professor – CSE-SJEC

CONTENTS

DEPARTMENT ACTIVITIES

"Online Faculty Development Programme on "Blockchain Technology & its Applications"

The Department of Computer Science and Engineering of St Joseph Engineering College in association with CSI-SJEC Student Chapter organized a three day online Faculty development programme (FDP) on "Blockchain Technology & its Applications" from 4th to 6th March 2021. The three day FDP was inaugurated virtually on 4th March 2021 at 9:30AM. Dr Sridevi Saralaya, Head, Department of CSE and Convener of the FDP welcomed the Management, resource persons and participants. Dr Rio D'Souza, Principal and Rev. Fr Wilfred Prakash D'Souza, Director, SJEC spoke about the importance of Blockchain Technology and also wished the participants a happy learning. This was followed by the introduction of all the session topics, schedule and the respective session speakers.

The inaugural was compered by Ms. Nisha Roche, Assistant Professor, Dept of CSE. The sessions were compered and moderated by Ms. Prajna Udupa and Ms Eden Sequeira, Assistant Professors, Dept of CSE. Dr Sridevi Saralaya was the convener; Ms. Sunitha Guruprasad and Ms. Renuka Tantry were the coordinators of the three day FDP.

Day-wise session summary :

Day 1 (March 4, 2021)

Resource Person: Dr Manish Kumar, Asst Prof, MSRIT, Bengaluru

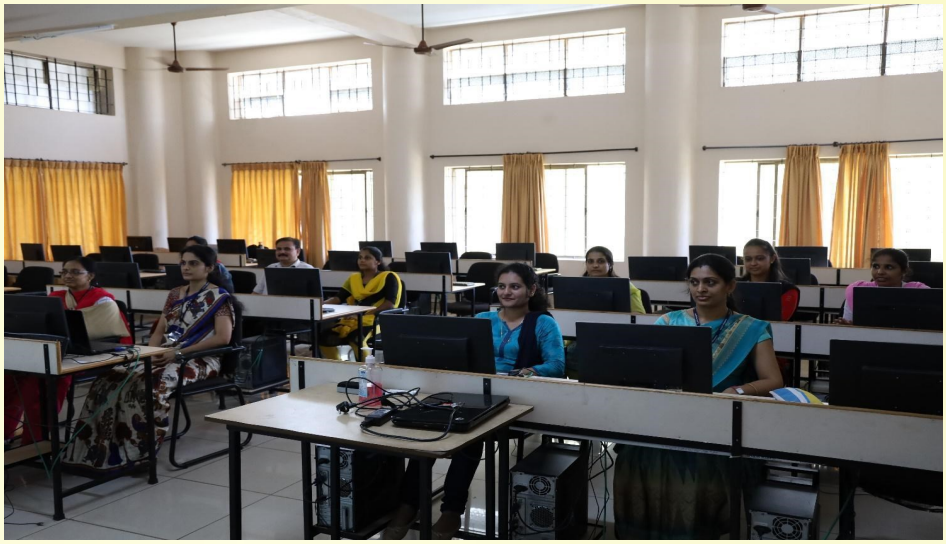
Dr Manish Kumar gave introduction about Blockchain technology. He explained how to create chains of blocks and also he demonstrated the same with examples. He spoke on importance of public Ledgers, Bitcoin and Smart Contracts Transactions. He also displayed many videos that explained the relevant topics. He elaborated on Distributed Consensus and how it can be used to create chain of blocks. He demonstrated the security aspects of Public and Private Block chain using a video. The session concluded with a Q & A session.

Afternoon session began by introduction to hyperledger. He explained the architecture of hyperledger fabric, Identities and Policies, Membership and Access Control. This was followed by a hands on session. He demonstrated and instructed the participants to install the hyperledger fabric. He showed many examples of how the hyperledger fabric can be used in creating chain of blocks. The session concluded with a Q and A session and a note of thanks to the resource person.

The resource person posted a quiz and instructed them to complete it by the end of the day.

Day 2 (March 5, 2021)

Dr Manish Kumar explained the Consensus Algorithm and gave basic introduction on Proof of Work (PoW). He then spoke about the Proof of Stake Distributed consensus in closed environment. The Byzantine general problem and Byzantine fault tolerant system were explained in detail with videos and examples. He also explained about Lamport-Shostak-Pease BFT Algorithm over distributed system. The session concluded with a Q & A session.



Afternoon session began with Installation and Configuration of IBM Hyperledger. The resource person demonstrated various development of applications using Hyperledger. The session concluded with a Q and A session and a note of thanks to the resource person.

The resource person posted a quiz and peer-to-peer assignment links to the participants and instructed them to complete it within three days.

Day 3 (March 6, 2021)

Resource Person: Mr. Raghavendra, Member of Technical Staff - 1 R&D, Mavenir Systems, Bengaluru.

Ms Prajna Udupa welcomed the participants and introduced the resource person to the audience. Mr. Raghavendra started the session by explaining the architecture of Blockchain and how distributed ledger works. He briefed about consensus algorithm, proof of work, proof of stake and various applications of Blockchain Technology. This was followed by a hands-on session on Ethereum. He gave an introduction to remix and ganache tools. He demonstrated and instructed the participants to install the above tools. The hands-on session included executing small smart contracts and observing the transactions.

Afternoon session began with an introduction to IPFS (Inter-planetary file system). This was followed by hands-on session for IPFS. He requested the participants to download and install IPFS. He executed and showed the working of the same.

The session concluded with a Q & A session and a note of thanks to the resource person.

DEPARTMENT ASSOCIATIONS

CIPHER Delta Devops and CSI SJEC Chapter

Inauguration of CSE Department Associations (Cipher, Delta Devops and CSI SJEC Chapter)

The Department of Computer Science and Engineering organized a virtual inauguration of the Department Associations [Cipher, Delta DevOps and CSI- SJEC Chapter] on 13th November 2020 at 9.30 am.

The program began with the welcome speech by Ms Shravya, this was followed by an inaugural video as a mark of the inauguration of the associations. Ms Renisha Ferrao, Mr. Wilton Dsouza and Mr. Vinsten Dsouza, Presidents of Cipher, CSI- Chapter SJEC and Delta DevOps respectively put forth the action plan for the academic year 2020-21. Dr Sridevi Saralaya HOD -CSE, called upon students to actively participate in these associations. Dr Rio Dsouza, Principal SJEC and Rev Fr Wilfred Prakash Dsouza, Director SJEC also addressed the gathering.

The formal function was compelled by Ms Rachael Mendonsa. In the later part of the day cultural programs and games were conducted online. Ms Nisha Roche and Ms Renuka Tantry, Assistant Professors, Department of CSE were the Faculty Coordinators of the associations.
The session ended with proposing the vote of thanks

CSI-SJEC CHAPTER

CSI SUMMMER CODEATHON

The **CSI-SJEC Chapter** conducted an **Online Hakathon Competition "Think Debug Code"** for all CSE students on 16th June 2021. The event was conducted by the CSI association as a part of **ANUSPANDANA-2021** (Online Competition). It was a technical event, basically a hackathon containing coding questions which were to be solved by the participants as a team of maximum 3 in the given time.

The event was conducted for duration of 3 hours from 11.30 am to 2.30 pm. There were 17 teams with 2-3 participants in each team. This event was open to all the Computer Science branch students from 1st to 4th year.

A WhatsApp group was created 2 days before the event to address the teams and briefly explain them about the event and clear their doubts about the same. A Google meet was also conducted on the event day and the coordinators were presenting the meet during the event to help the participants in solving any of the confusion.

The event was held in an online platform called Hackerrank. The hackathon consisted of 4 coding questions each with increasing difficulty level. The first 3 questions carried 50 marks each and the 4th problem was of 100 marks. The questions covered some of the concepts like: Recursion and iteration, Data structures (array), Minimization and math, Greedy method concepts.

The teams were allowed to submit only one response (by the team leader) and all other members could communicate with each other using any communication media. The top 2 teams were considered as the winners. First place is bagged by IDK team and the second place is bagged by Code Braniacs team.

The event was successful with good coordination between the teams and the coordinators. We received positive feedbacks on the event by the participants. The event was coordinated by the CSI Association members: Mr. Wilton Santhosh Dsouza – President, Ms Evanka Dsouza - Vice President, Ms Rachel Gwynath Mendonsa– Treasurer and Ms Sana Parveen – Secretary.

ONLINE CODING COMPETITION "THINK DEBUG CODE"

The **CSI-SJEC Chapter** conducted an **Online Coding Competition "Think Debug Code"** all CSE students on 12th November 2020 from 2.00p.m to 5:00pm.The session was welcomed by Mr. Wilton DSouza, President of CSI association, followed by briefing of the coding competition which was done by Ms Rachel Mendonca.

There were 11 teams registered and there was three rounds in the competition each round was an elimination round to get into the next round. The first round was Quiz followed by Puzzle and Debug round and finally third round was Hackathon.

The Quiz round which basically had 25 questions. Each question was given 1 minute to answer. The round started exactly at 2.10pm after the introduction followed by clearing doubts from participants. Best 7 teams were qualified for the 2nd round. The debug round was a 4-stage round. One puzzle was given before the debug file. Each puzzle answer was the key for the debug file. This was done alternatively for both puzzle and debug file. It started at 2.45 and went up to 4pm. Debug questions were on C language. Total of best 5 teams were qualified for the 3rd round. The third round (Hackathon) was purely a coding round. There were 2 questions both were supposed to be done in C language. Best 2 teams were selected as the winners.

The session ended by proposing vote of thanks by Ms. Evanka, Vice-President of CSI Association.

IEEE-SJEC CSE CHAPTER

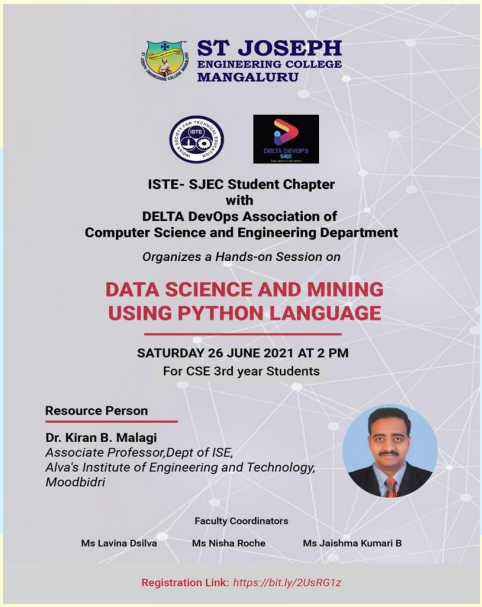
The Department of Computer Science and Engineering in association with IEEE-SJEC Student Branch organized a webinar on **"A Discussion and Ideas for the Development of Intelligent Applications"** for all staff and students of SJEC on 19th June 2021, from 11.00 am to 12.30 pm in the Cisco Webex platform. The resource person for the webinar was Dr Manjunath Mulimani, Assistant Professor, Department of CSE, MIT, Manipal.

MIND QUEST SYNOPSIS

Mind Quest is a non-technical event that was organised by Cipher Association, on 16th June 2021. The event was held from 3:00 pm to 7.30 pm. A total of 62 groups were involved in this extravagant competition, which comprised of three rounds. The first round, Grab & Snap, had students clicking funny selfies and uploading in the specific folders within ten minutes. The event was supervised by Rhea, Jenifer, Christina, Manjunath, Akanksha, Abigail, Nishmitha. The second round, Test Your Skills, had teams decoding phrases with the help of emoji's and translated song guesses. This was managed by Nisha, Dhanushree, Renisha & Nikitha using Google Forms and Multibuzzer as a tool to decide the fastest team to answer. However, only 10 teams made it to the final round, which was called Bamboozled. In the final round which was managed by Caron and Rhea, all the teams had to answer quizzes revolving around current affairs and general knowledge and also on the famous sitcom F.R.I.E.N.D.S. Application likeMultibuzzer was used to make the most out of the third round. At the end, two teams were declared as winners. Indeed, this event helped many students to put out their best efforts.

ISTE CHAPTER

ISTE- SJEC Student Chapter with DELTA DevOps Association of Computer Science and Engineering Department organized a **Hands-on session on the topic "Data Science and Mining using Python Language" for the third-year students of the CSE Department** on Saturday 26th June 2021, from 2.00 pm to 5.00 pm using the Zoom platform. The resource person for the session was Dr Kiran B. Malagi, Associate Professor, Dept of ISE, Alva's Institute of Engineering and Technology, Moodbidri.



FACULTY CORNER

Faculty as Resource Persons for FDPs/training activities/STTPs :

Sl No	Name of the Faculty	Organizing Institution	Name of the Program
1	Dr Sridevi Saralaya	CSE-SJEC	Emerging Trends in Information Technology
2	Dr Kavitha K Mahesh	Manipal Institute of Technology, Manipal	Online AICTE Sponsored Six days Short Term Training Program under AQIS (SERIES - 2) on 'Natural Language Processing'
3	Dr Ashwin T S	NITK Surathkal	EQIP-III sponsored ONLINE Workshop on Advanced Topics in Information Technology and Computer Science
		PCCOE	Machine Learning
4	Dr Harivinod N	PACE Mangaluru	AICTE sponsored Online STTP on Machine Learning for Societal Applications
5	Ms Supreetha R	Government Women's Polytechnic, Manglauru	Soft Skill Training

Online Courses taken up by Faculty :

Sl No	Name of the Faculty	Course Details	Name of the Course
1	Dr Sridevi Saralaya	Coursera	Big Data Modeling and Management Systems
2	Dr Ashwin T S	Coursera	Deep learning Specialization
			Tensor flow Developer Specialization
3	Ms Sunitha G	Coursera	Programming Foundations with JavaScript, HTML and CSS
			Programming for Everybody (Getting started with Python)
			Block chain Basics
4	Ms Supriya Salian	IUCEE Foundation	Foundation course on Research Methods
5	Ms Gayana M N	Coursera	Introduction to Probability and Data with R
			Create your first Chatbot
6	Ms Supreetha R	Coursera	Programming for Everybody(Getting Started with Python)
7	Ms Renuka Tantry	IUCEE Foundation	Foundation course on Research Methods
		Udemy	Machine Learning A-Z- Hands on python and R in data science
			Complete Python Bootcamp
8	Ms Evita Coelho	Coursera	AI For Everyone
			The Data Scientist's Toolbox
9	Ms Anusha M M	Coursera	AI For Everyone
			Google IT Support
		University of Michigan	Introduction to Data Science in Python

FDP and Workshops Attended by Faculty

Sl No	Name of the Faculty	Organizing Institution	Name of the Program
1	Dr Sridevi Saralaya	Women Engineering College, Ajmer.	Online ATAL FDP on Internet of Things (IoT) -(Applications in Biomedical Instrumentation, Healthcare and Pharma)
		Bharati Vidyapeeth College of Pharmacy, Kolhapur	Online ATAL FDP on Artificial Intelligence
		Sri Jayachamarajendra College of Engineering, Mysore	Online ATAL FDP on Mathematics for Machine learning
		GMR Institute of Technology, Kakinada	Recent Trends in Big Data, Data Science and it's Applications
2	Dr Kavitha Mahesh	St Joseph Engineering College Mangaluru	Emerging Trends in Artificial Intelligence and Data Science
			Hands-on Workshop Series on Online Teaching Tools & Virtual Labs
			Online FDP on Emerging Trends in Information Technology 2021
		ATAL Academy, AICTE in conjuction with Motilal Nehru Institute of Technology, Allahabad	Online FDP on Artificial Intelligence
		St Aloysius College Mangaluru & Konkani Lekhak Sangh Karnataka	National Seminar on NLP and NEP in the context of progress of Konkani Language
3	Dr Usha Divakarla	J C Bose University of Science and TEchnology, Faridabad	Teqip-III Sponsored FDP on Data Analytics Using R
4	Dr Ashwin T S	IUCEE	AI for all
			Online Teaching
		St Joseph Engineering College Mangaluru	Blockchain Technology and Its Applications
			FDP on Emerging Trends in Artificial Intelligence & Data Science
5	Dr Shreenath Acharya	CySeck, Govt of Karnataka in association with McAfee	Malware trends and analysis
			Introduction to Cloud Access Security Broker
		IUCEE	IUCEE Annual Leadership Summit
		Chalapathy Institute of Engg & Technology	National workshop on AI/ML

		St Joseph Engineering College Mangaluru	Insights on Writing Research Proposals and Funding Opportunities
		NMAMIT, Nitte	AICTE sponsored short term training program on Advanced Topics in Machine Learnin & its Application in Engineering and Technology - **Linear Algebra and Probability Basis**
			AICTE sponsored short term training program on Advanced Topics in Machine Learning & its Application in Engineering and Technology- **Statistics & Neural Basis**
			AICTE sponsored short term training program on Advanced Topics in Machine Learning & its Application in Engineering and Technology- **Advanced Topics and Applications of Machine Learning**
		SANJOSH, Teaching Learning Centre, SJEC, Mangaluru	Hands-on Workshop Series on Online Teaching Tools & Virtual Labs
		ATAL Academy, in conjunction with Department of Information Science & Technology, NMAMIT, Nitte	ATAL Online FDP on "Block Chain"
		Department of Information & Communication Technology, MIT, Manipal	AICTE Sponsored Online STTP on "Natural Language Processing"
6	Ms Sunitha G	Reva University, Bengaluru	FDP on Network Simulation Tools - NS2 & NS3
		All India Council for Technical Education(AICTE), New Delhi	Inculcating Universal Human Values in Technical Education
		MIT, Manipal	Design of Knowledge based Systems using Artificial Intelligence and Machine Learning models: In the context of Agricultural and Food products
		St Joseph Engineering College Mangaluru	Hands-On Workshop Series on Online Teaching Tools and Virtual Labs
			Technology Enabled Learning Resources for Academic Excellence
			FDP on "Emerging Trends in Information Technology"
		Christ College of Engineering, Thrissur, Kerala	2 day hands-on training on Data Science and Analytics

7	Ms Smitha V George	NMAMIT, Nitte	Three day Faculty Development Programme on NLP and Related Technologies
		Research & Facilities Group, SJEC, Mangaluru	FDP on "Insights on Writing Research Proposals & Funding Opportunities
		All India Council for Technical Education(AICTE).	Online workshop on Universal Human Value on the theme "Inculcating Universal Human Values in Technical Education"
		SANJOSH, Teaching Learning Centre, SJEC, Mangaluru	Hands-On Workshop series on Online Teaching Tools and Virtual Labs
		Manipal Institute of Technology, Manipal	AICTE sponsored six days online STTP on Natural Language Processing
			AICTE sponsored six days online STTP on Natural Language Processing
		Infosys Limited -campus connect	Train The Trainer Program on Java Programming
8	Ms Supriya Salian	NMAM Institute of Technology, Nitte.	Three day Faculty Development Programme on NLP and Related Technologies
		C-DAC Hyderbad & SETS	Webinar in IoT security
		Mathworks	MATLAB certification on MATLAB fundamentals, Machine learning and deep learning with MATLAB
		St Joseph Engineering College Mangaluru	Hands on workshop series on online teaching tools and virtual labs
			Online FDP on Insights on writing research proposals and funding opportunities
			Emerging trends in Information Technology
		IUCEE	Cyber Hygiene using virtual labs
9	Ms Gayana M N	Infosys Limited	Faculty Enablement Programme on "PYTHON programming through INFYTQ Platform"
		Research & Facilities Group, SJEC, Mangaluru	FDP on "Insights on Writing Research Proposals & Funding Opportunities

		Department of CSE, SJEC, Mangaluru	FDP on Emerging Trends in Artificial Intelligence & Data Science
		SANJOSH, Teaching Learning Centre, SJEC, Mangaluru	Hands-On Workshop series on Online Teaching Tools and Virtual Labs
		Department of Information Science & Technology, NMAMIT, Nitte	ATAL Online FDP on "Block Chain"
		Department of Information & Communication Technology, MIT, Manipal	AICTE Sponsored Online STTP on "Natural Language Processing"
10	Ms Supreetha R	Research & Facilities Group, SJEC, Mangaluru	Insights on Writing Research Proposals and Funding Opportunities
		All India Council for Technical Education(AICTE).	Online workshop on Universal Human Value on the theme "Inculcating Universal Human Values in Technical Education"
		SANJOSH, Teaching Learning Centre, SJEC, Mangaluru	Hands-on Workshop Series on Online Teaching Tools & Virtual Labs
		Correal Technologies	Image Processing and Machine Learning Applications Using MATLAB
		Department of Information & Communication Technology, MIT, Manipal	AICTE Sponsored Online STTP on "Natural Language Processing"
		AJ Institute of Engineering and Technology, Mangaluru	National Level Skill Development Program on Mobile Application Development
11	Ms Renuka Tantry	NMAMIT, Nitte	Applied Machine Learning using Python
		Infosys Limited	Python Programming through INFYTQ Platform
		Research & Facilities Group, SJEC, Mangaluru	FDP on "Insights on Writing Research Proposals & Funding Opportunities
		KSTA, Department of Science and Technplogy,Govt of Karnataka	4 Days Live Webinar on "Research Methodology and Data Analysis"

		VTU, Kalaburgi	Exemplary practices in Teaching-Learning and Evaluation of courses in computer Science and Information Technology
		St Joseph Engineering College Mangaluru	FDP on "Emerging Trends in Information Technology"
12	Ms Evita Coelho	St Joseph Engineering College Mangaluru	Emerging trends in artificial intelligence and data science
			Hands on workshop series on online teaching tools and virtual labs
		Bangalore institute of technology	Deep learning and NLP using modern tools
		Dadi institute of engineering and technology	Artificial intelligence
13	Mr Gerald Fernandes	Chalapathy Institute of Engg & Technology	National workshop on AI/ML
		VTU, Kalaburgi	Exemplary practices in Teaching-Learning and Evaluation of courses in computer Science and Information Technology
		All India Council for Technical Education(AICTE)	workshop on Universal Human Value on the theme “Inculcating Universal Human Values in Technical Education”
14	Ms Lavina Jean D’Silva	TKR College Of Engineering & Technology	Advanced Data Processing Using ML and DI Processing using ML and DI
		NMAMIT, Nitte	NLP and Related Technologies
		IUCEE	IUCEE Annual Leadership Summit
		St Joseph Engineering College Mangaluru	Hands-On Workshop Series On Online Teaching Tools And Virtual Labs
15	Ms Anusha M M	Infosys Limited	Faculty Enablement Programme on "PYTHON programming through INFYTQ Platform"
		Research & Facilities Group, SJEC, Mangaluru	FDP on "Insights on Writing Research Proposals & Funding Opportunities
		Department of CSE, SJEC, Mangaluru	FDP on Emerging Trends in Artificial Intelligence & Data Science
			Online Teaching Tools and Virtual Labs
			Block chain Technology and Its Applications

16	Ms Sona Mundody	Dayanand Sagar Academy of Technology and Management	FDP on "Entrepreneurship and Innovation"
		C-DAC and the NSM Nodal Centres for Training in HPC and AI NSM Nodal Centres for Training in HPC and AI	Workshop on ARM based HPC
		Department of CSE, SJEC, Mangaluru	FDP on Blockchain Technology and Its Applications
			FDP on "Emerging trends in Information Technology"
		HKBK College of Engineering, Bengaluru	FDP on "Mobile Application Development"
17	Ms Nisha J Roche	Department of Business administra-tion, SJEC in association with MHRD	Forming a company for startups- legal guide to setup a company
		Dept of CSE, School of Engineering Dayananda Sagar University	FDP on Research Perceptive on Futuristic Technologies
18	Ms Eden Sequeira	SJEC Mangalore	Insight on writing research proposal and funding opportunities
		Canara Engineering College, Mangaluru	FDP on Image Processing and Data Science
19	Mr Rohan Don Salins	SJEC Mangalore	Insight on writing research proposal and funding opportunities
20	Mr Karthik K	Webinar Series on Research and Publication Ethics - Progress with Prof.Mahamani, YouTube channel.	Webinar on “Journal Indexing Database and Impact Factor”
		SMVITM, Bantakal, Udupi	RECENT TRENDS IN DATA SCIENCE APPLICATIONS
		Webinar Series on Research and Publication Ethics - Progress with Prof.Mahamani, YouTube channel.	Webinar on “Writing Research Proposal and Research Funding for Women and Young researchers”
		Webinar Series on Research and Publication Ethics - Progress with Prof.Mahamani, YouTube channel.	Webinar on “How to write an impactful research paper”

		St Agnes College(Autonomous)	Online FDP on "Cyber Security"
		CoreEL Technologies	FDP on Artificial Intelligence using MATLAB
		SVEC, Bengaluru	Data Analytics in Machine Learning Techniques
		SJEC, Mangaluru	Blockchain Technology and its Applications
			Emerging Trends in Information Technology 2021
21	Dr Harivinod N	Mathworks India	FDP on Artificial Intelligence using MATLAB
		AICTE STTP SVCE Bengaluru	STTP on Data Analytics and Machine Learning Techniques
		Department of CSE, SJEC, Mangaluru	FDP on Blockchain Technology and Its Applications
			FDP on Emerging trends in Information Technology
			FDP on Emerging Trends in Artificial Intelligence & Data Science
		Indian Institute of Information Technology, Allahabad	FDP on Advances in Deep Architectures for Signal, Image and Vision Applications
		ATAL FDP Dept. of CS, Mangalore University	FDP on Machine Learning and Deep Learning for Video Analytics
		ATAL FDP IIT Dharawad	FDP on Speech Processing using Deep Learning
		Library and Learning Group, SJEC	Webinar on Effetive Utilization of VTU E-Resources
		Industry and Innovation Group, SJEC	Webinar on Entruprenurship and Business Model Canvas
		Dept of Physics, SJEC	Brain Inspired Technologies for Future Artificial Intelligence
22	Ms Prajna Udupa	Department of CSE, SJEC, Mangaluru	Blockchain Technology and Its Applications
			FDP on Emerging trends in Information Technology
		Mathworks India	FDP on Artificial Intelligence using MATLAB
23	Ms Shravya Shetty	Mathworks India	Artificial Intelligence uisng MATLAB
		E&ICT Academy, IIT Kanpur	FDP on Data Science
24	Ms Jaishma Kumari	Nmamit, Nitte	NLP And Related Technologies
		SJEC, Mangaluru	AI Using Matlab

ACHIEVEMENTS

PhD awarded :

Dr Shreenath Acharya, Associate Professor, CSE Dept is awarded with Ph.D Degree from VTU, Belagavi for his research work titled **Energy Efficient Cost Aware Dynamic Provisioning Mechanisms for the Virtual Machines in Cloud Environment**, under the guidance of Dr Demian Antony D'Mello, Professor & HOD - CSE Dept, Canara Engineering College, Mangaluru on 02.04.2021.

MOUs signed and anchored by the Department

Sl. No.	Industry	Events/Activities
1	Ardelis Technologies Mangalore	Student Internships, Project and Placements

External Research Grants received by the Department during the year 2020-21

Name of the Project	Name of the Faculty Coordinator	Year of Award	Amount Sanctioned (In Rupees)	Name of the Funding Agency	Type (Government/ non-Government)
AI-Based Covid-19 Patient Monitoring System	Ms. Lavina Jean D'silva	2020-21	4,000/-	KSCST	KSCST SPP 44th Series
Multipurpose Drone for Rescue Service during Flooding Scenarios	Dr Kavitha Mahesh	2020-21	5,000/-	VTU	VTU Innovative Projects
IoT Well Being System	Ms Supreetha R	2020-21	5,000/-	VTU	VTU Innovative Projects

Research Publications

Sl No	Name of the Faculty	Title of the paper/ Book	Title of the Journal/ proceedings of the conference	National / International	Publication Month
1	Dr Kavitha K Mahesh	Video Description based YouTube Comment Classification	Applications of Artificial Intelligence in Engineering, Algorithms for Intelligent Systems	International	June 2021
		Mining Morphological Similarities for Translation Lexicon Augmentation	Applications of Artificial Intelligence in Engineering, Algorithms for Intelligent Systems	International	June 2021
2	Dr Harivinod N	Multimodal biometric system using Undecimated Dual-Tree Complex Wavelet Transform	4th international Conference on Soft Computing and Signal Processing	International	June 2021
3	Ms Sunitha Guruprasad	Efficient Scheduling of tasks in Cloud	2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV)	International	Feb 2021
4	Ms Renuka Tantry	Pixort: A Novel Approach for Effective Photo Album Clustering	IOP Conference Series: Materials Science and Engineering- ASCI 2020	International	Dec 2020

STUDENT CORNER

Online Courses taken up by Students

Sl No	Name of the Student	Course Details	Name of the Course
1	Joysil Saldanha	Coursera, July 2020	SQL for Data Science
2	Winston Dsouza	Coursera, July 2020	Getting Started with Azure
			AWS Fundamentals: Going Cloud-Native
3	Crystal DSouza	Cisco Networking Academy, July 2020	CCNA Routing and Switching: Routing and Switching Essentials
4	Cheryl Lina Mathias	Coursera, July 2020	The Bits and Bytes of Computer Networking
		Cisco Networking Academy, July 2020	CCNA Routing and Switching: Routing and Switching Essentials
5	Sriganesh	Coursera, July 2020	Python for Everybody
6	Raksharaj Shetty	Coursera, July 2020	Introduction to Data Science in Python
		Udemy, July, 2020	Complete Python Bootcamp – Go from zero to hero in Python 3

7	Rahul Rao	Coursera, July 2020	Android App Components - Services, Local IPC, and Content Providers
			Java for Android
			Android App Components - Intents, Activities, and Broadcast Receivers
8	Prathvi N B	Coursera, July 2020	Python Data Structures
			Programming for Everybody (Getting Started with Python)
9	Nisha	Coursera, July 2020	Programming for Everybody (Getting Started with Python)
10	Neha	Coursera, July 2020	JavaScript
11	Laureen Maria Fernandes	Coursera, July 2020	Grammar and Punctuation
12	Krithika P	Coursera, July 2020	Programming for Everybody (Getting Started with Python)
13	Dhanushree S	Progate, July, 2020	Python Course
			Java Course
		Udemy, July, 2020	The Web Developer boot Camp
14	Dale Chelsea Vas	Progate, July, 2020	Java Course
15	Chaithra	Progate, July, 2020	Python Course
			Java Course
16	Athrika	Udemy, Aug, 2020	Java in Depth : Become a complete Java Engineer
		Progate, July, 2020	Java Course
17	Ashwin Sharon Fernandes	Progate, July, 2020	Java Course
			Python Course

Workshops conducted by various Associations :

Sl No	Association Name	Workshop / Topic	Date of conduction
1	CIPHER	Awareness on certification courses by Ms Alonie for 2nd year CSE Students	01-02-2021
2	CSI and Alumni Association	Tricks to crack Placements by Ms Shreema Simran for 2nd and 3rd year CSE students	06-02-2021
		Webinar on "Entrepreneurship as a career path: Turning the passion into your job" by Ms Hamshika for students of SJEC	05-06-2021
3	Delta Devops and IEEE	Data Science and Mining using Python Language by Dr Kiran Malagi, Associate Professor, ALvas Institute of Technology, Moodabidri for 3rd year CSE Students	26-06-2021
4	ISTE	A Discussion and ideas for the development of intelligent applications by Mr Manjunath Mulimani, Assistant Professor Manipal University, Manipal for all students of SJEC	19-06-2021

Students participated in various events in 2020-21 :

Sl No	Student Name	Name of the event	Date Of Participation
1	Ankitha Rai K	Ariticle Writing Competition, IEEE TEAMS SJEC	1st August,2020
		Git Workshop org By IEEE Computer Society,RVCE Student Chapter	27th and 28th Aug 2020
		Best Project in Computer Graphics and Visualization Laboratory	2020-2021
2	Brayan Dominic Caldeira	INGENIOUS - 2K21	21st June 2021
3	Raksharaj S Shetty	CSI Summer Codethon Carpe Diem,Anuspandana-2021	17th July 2021
4	Mohammed Ridhun	Carpe Diem by Delta DevOps	
5	Siona Crissel D'souza	CSI Summer Codethon,Anuspandana-2021	
6	Novin Misquith Novin Misquith	Hang in there!!Where?,Anuspandana-2021	
		The Mega Event-Exactories,Anuspandana-2021	
7	Raksharaj S Shetty	The Mega Event-Exactories,Anuspandana-2022	
8	Pranith Rao	The Mega Event-Exactories,Anuspandana-2021	
		Mecha Hunch,Anuspandana-2021	
		Marvel quest: Treasure Hunt,Anuspandana-2021	
		CSI Summer Codethon Carpe Diem,Anuspandana-2021	
9	Anusha Shetty	Best Project in Computer Graphics and Visualization Laboratory	2020-2021
10	Akanksha Gaonkar	CSI Summer Codethon Carpe Diem,Anuspandana-2021	17th July 2021
		Participated in "COVID-19 and Nursing Homes" Org by Harvard Medical School	22nd July,2020
		Online Quiz in Python	27th July,2020
		Best Project in Computer Graphics and Visualization Laboratory	2020-2021
		Article Writing Competition, IEEE TEAMS SJEC	1st August,2020

PROJECTS 2020-21

	Title of the Project	Student Name	Guide Name
1	Virtual Learning with Person Identification	Andrea May Fernandes Enola Lesni Coelho Dhiraj Nayak M Joyline Menezes	Ms Eden Sequeira
2	Health Inspector	Abigail Janice Tauro Ajay M Kamath Chaithali S Suvarna Melroy Dsouza	Ms Evita Coelho
3	Integrated City App	Allan Noel Dsouza Aronstun Ralph Dsouza Bryan Dominic Caldeira Dinesh	Mr Rohan Don Salins
4	Process Discovery and Conformance Checking in Healthcare	Aquilla Miranda Isha Bekal Jyothi Y Lahari Kotian	Dr Sridevi Saralaya
5	Website Evaluation using Sentimental analysis	Jahnavi P S Manisha Prathap Mariamma K V Maryam Suhana	Mr Karthik K
6	Disease Detection using Deep Learning Model	Adimaya Pai Anisha Viola Menezes Cleona Ginelle Concesso Ferrin Maria Christina Dsouza	Mr Gerald H Fernandes
7	Automated Image Caption Generator for Visually Impaired People	Hazel Shefali John Kavitha J Rao Kavya U Lavita Preethi Mathias	Dr Ashwin T S
8	Emotion Based Music Player Using Facial Recognition	Ananya G Akanksha J K Alvita Lasly Pinto Melisha Dsouza	Ms Gayana M N
9	IoT Well-being System	Aldrick Christon Rasquinha Ashlesh B R K Marrel Keith Pinto Milyn Dsilva	Ms Supreetha R

10	Image Story Teller	Akshatha K Chandana M N Jothsna Maria DSouza Kripashree M S	Mr Rohan Don Salins
11	Multipurpose Drone for Rescue Services during Flooding Scenarios (Solar VTOL)	Amal Tom Deep Ghetia K Adarsh Rao Kurian Joseph	Dr Kavitha K Mahesh
12	Plant Identification by Leaf Images	B R Kavya Ganavi Bhat Keerthi K	Ms Supriya Salian
13	Vehicle Number Identification System	Alonie Jane Crasta Carol DSouza Divya Cheryl Moras Karvender Singh	Ms Gayana M N
14	Easy Rail	Akash B A Chandini Deepak Harshitha B A	Mr Rohan Don D'silva
15	Vocal-PPT	Blaze Brayan Dsouza Clithesh Aquin Dsouza Dhanush Bengre Leroy Dsilva	Ms Smitha George
16	Food Wastage Reduction Management	Anson D'souza Jayasurya Mahammad Jasim Mohammed Ashir	Mr Karthik K
17	Deep-Fake Detection	Calvin S D'Souza G Sunil Harsh Pawaskar Milton Rodrigues	Ms Smitha V George
18	GIS Based Agricultural Land Optimisation	Adithya S Bhat Alister Leroy Gomes Krithi G Rao Shreyan Jain	Dr Sridevi Saralaya
19	Machine Learning Solutions to Heart Diseases	Royal Pinto Sandeep K Valesh Levin Mathias Winslet Walter Dcunha	Ms Sunitha Guruprasad

20	AI based Covid19 Patient Monitoring System	Saloni Fiona Fernandes	Ms Lavina Jean DSilva
		Sharrel Ancita Castelino	
		Vinaya A Shetty	
		Divyashree V	
21	An Efficient Application for Finding Missing Person using AI	Shambhavi	Dr Ashwin TS
		Sharmila Gond	
		Yogesh Vyas	
		Sowmya S	
22	Campus Placement Asserter and Admit Predictor for Higher Education Colleges	Vinsten Leon Dsouza	Ms Eden Sequeira
		Wilton Santhosh Dsouza	
		Winston Pais	
		Rishal	
23	RealBox- Fake News Detector	Navyashree	Dr Shreenath Acharya
		Pooja K S	
		Prateeksha Radhakrishna Rai	
		Sonal Riyana Dsouza	
24	Cervical Cancer Detection	Anusha Mathew	Ms Sunitha Guruprasad
		Chaithra K S	
		Taara V	
		Ridhinya O R	
25	Autotutor to Monitor the Novice Basketball Players using Computer Vision	Anchita Pereira	Dr Ashwin T S
		Deepthi	
		Kratika Kishor Kochrekar	
		Prashnitha	
26	An Application to Digitize Land Records	Panchami Dilip Nayak	Ms Anusha M M
		Rishabh Hegde	
		Saiprasad Rao	
		Sukshith	

27	Handwritten Text Recognition and Conversion using Deep Learning Techniques	Pavana	Dr Shreenath Acharya
		Rovina Reshma Dsouza	
		Sheethal R	
		Sweedol Ashica Pereira	
28	I2R - Image to Receipe Converter	Pramita	Ms Nisha Roche
		Pranav Kamath B	
		Rajath G Rao	
		Vinayak Udupa A	
29	Blockchain based Supply Tracking with Pay-on Delivery using Smart Contract	Pearl A Alfanso	Ms Evita Coelho
		Rachel Gwynath Mendonsa	
		Samson Naman M	
		Treesa Maria Antony	
30	Event Management using Augmented Reality	Ashish Sunny	Ms Nisha Roche
		Sheetal More	
		Vanessa Rene Pereira	
		Zohra Reem	
31	Multimodal Human Computer Interaction	Mohammad Ridhun	Dr Kavitha K Mahesh
		Rayan Smith Lewis	
		Shane Christopher Misquith	
		Sushanth Poojary	
32	AI-CAM	Ozeeta Albuquerque	Ms Lavina Jean D'Silva
		Shreevatsa	
		Solomon Mitra	
		Deeksha	
33	Image Retrieval using Feature Extraction	Nikitha Nagwan	Ms Supreetha R
		Nishmitha Shetty	
		Renisha Ferrao	
		Deepa Toppo	
34	Identification of Diabetic Retinopathy	Nigel Dominic Miranda	Ms Sona Mundody
		Reshma Priya Crasta	
		Dalvy Laison Ferrao	
		Nishanth B N	

Academic Toppers for Odd semester 2020-21

Second Year

Adithya K Shetty
(1st Place)

Sharan Kumar
(1st Place)

Samriddhi Umanath Shetty
(2nd Place)

K Divya Pai
(3rd Place)

Third Year

Simonne Letetia Pinto
(1st Place)

Laureen M Fernandes
(2nd Place)

Dhanya K
(3rd Place)

Final Year

Cleona Ginelle Concesso
(1st Place)

Hazel Shefali John
(2nd Place)

Sheethal R
(3rd Place)

INDUSTRY INTERNSHIPS 2020-21

Sl. No	Company Name	Company sector	Start Date	End Date	No Of Students
1	A1 Logics	Front Desk Management	01-June	30-June	1
2	Accolade Tech Solutions	Image Processing and Machine Learning	01-July	03-August	2
3	Accolade Tech Solutions	Image Processing and Machine Learning	20-July	20-August	1
4	Accolade Tech Solutions	Image Processing and Machine Learning	02-July	03-September	5
5	Accolade Tech Solutions	Image Processing and Machine Learning	07-July	07-September	1
6	Agimus technologies	AI & ML	09-May	30-June	2
7	Agimus technologies	AI & ML	13-July	20-July	3
8	Ardelis Technologies	Networking	14-Aug-20	14-Aug-21	6
9	Ardelis Technologies	Networking	21-Aug	06-Oct	2
10	e-Brain Softech Pvt Ltd	Mobile Application	06-June	19-July	8
11	e-Brain Softech Pvt Ltd	Mobile Application	18-July	16-Aug	8
12	Blazer Technologies	Mobile Application	07-June	07-Aug	1
13	Eamvey Technologies Private Limited	Machine Learning	08-April	08-June	2
14	GetBoarded Technologies	Backend Developer	01-Dec	28-Feb	2
15	Health Amaze		01-June	31-Aug	1
16	Innovation Creation Solution	Machine Learning	20-Oct	20-Nov	1
17	Innovation Creation Solution	Machine Learning	01-June	30-June	1
18	Innovation Creation Solution	Machine Learning	11-Nov	12-Dec	1
19	Knowledge Solutions India	Machine Learning	05-June	17-July	1

20	Knowledge Solutions India	Machine Learning	15-June	17-July	5
21	Knowledge Solutions India	Machine Learning	07-June	17-Aug	22
22	Pratian Innovation Campus	Toxic Comment Classification	05-Aug	18-Sept	1
23	Prinston Smart Engineers	Machine Learning	10-Aug	20-Sept	1
24	Prinston Smart Engineers	Machine Learning	01-Mar	15-April	1
25	Remark skill company	Machine Learning	17-Aug	28-Sept	2
26	Remark skill company	Machine Learning	01-July	03-Aug	1
27	SmartBridge Educational Services Private Limited	Machine Learning	20-July	20-Aug	1
28	SmartBridge Educational Services Private Limited	Machine Learning	04-May	30-May	1
29	SmartBridge Educational Services Private Limited	Machine Learning	01-June	28-June	4
30	Tata Consultancy Services	Application Devt	15-Mar	04-June	1
31	Tata Consultancy Services	Application Devt	01-July	23-Sept	1
32	Tech-Graylogix Pvt Ltd	IOT	04-Mar	03-April	1
33	TechCiti technologies Pvt Ltd	Machine Learning	07-Sept	19-Oct	1
34	TechnoTriumph IT Innovative Solutions	Blockchain Technology	04-June	04-July	1
35	Verzeo Edutech Private Limited	Machine Learning	01-July	01-Aug	16
36	Verzeo Edutech Private Limited	Machine Learning	01-Aug	01-Oct	1
37	Vitavara Technologies	Web Devt	04-July	03-Aug	2
38	WorldSys Technologies	Web Devt	08-July	20-Sept	1

PLACEMENTS

Campus Placement Details for the Year 2020-2021 :

Sl. No	NAME	COMPANY PLACED
1	Adithya S Bhat	iOPEX
2	Alister Gomes	Novigo Solutions
		Wipro Talent Next
3	Ananya G	SLK Software
4	Abigail Janice Tauro	Cognizant
		LTI
		TCS
5	Adimaya Pai	LTI
		TCS
6	Ajay M Kamath	Cognizant
		LTI
		TCS
7	Akshatha K	TCS
8	Aldrick Christon Rasquinha	TCS
9	Allan Noel Dsouza	LTI
		TCS
10	Alonie Jane Crasta	Maventic
		VMWare
11	Alvita Lasly Pinto	SLK Software
12	Andrea May Fernandes	LTI
		VMWare
13	Anisha Viola Menezes	iOPEX
14	Aronstun Ralph Dsouza	LTI
15	Ashlesh B R Kadambalithaya	Global ESoftSys
16	Blaze Brayan Dsouza	Technologics Global
17	Bryan Dominic Caldeira	LTI
		NTT Data
18	Calvin Salvador Dsouza	TCS
19	Carol Dsouza	Cohesity
		LTI
		TCS
20	Chaithali S Suvarna	LTI
21	Chandana Mn	TCS
22	Cleona Ginelle Concesso	LTI
23	Deep	TCS

24	Dhanush Bengre	Global ESoftSys
25	Dinesh	7Edge
		SAP
26	Divya Cheryl Moras	Infosys
27	G Sunil	LTI
		TCS Codevita
28	Ganavi N	TCS
29	Harsh Digambar Pawaskar	Cognizant
		Infosys
		LTI
		Robosoft Technologies
30	Harshitha B A	Robosoft Technologies
31	Hazel Shefali John	Cognizant
		Infosys
		LTI
		SAP
		Societe General
		TCS
		Wipro Talent Next
32	Isha Bekal	Accenture
		SLK Software
33	Jahnavi P S	Planet Spark
		Qspiders
34	Jayasurya	Cognizant
		HashedIn
		Infosys
		LTI
		Robosoft Technologies
		TCS
		Wipro Talent Next
35	Jothsna Maria Dsouza	7Edge
		TCS
36	Joyline Menezes	Infosys
		TCS
		WinWire Technologies
37	Adarsh Rao	CodeCaft Technologies
38	Kavitha J. Rao	LTI

39	Kavya U	Cognizant
		Infosys
		LTI
		TCS
		TCS Codvita
40	Kripashree M S	Cognizant
		Novigo Solutions
		TCS
41	Lavita Preethi Mathias	LTI
		TCS
42	Leroy Franza Dsilva	Novigo Solutions
		Wipro Talent Next
43	Marrel Keith Pinto	Qspiders
44	Maryam Suhana	LTI
45	Melisha Dsouza	Infosys
		TCS
46	Melroy Dsouza	7Edge
		Infosys
		LTI
		TCS
47	Milton Rodrigues	7Edge
48	Milyn Gareth Dsilva	CodeCaft Technologies
49	Mohammed Ridhun	VMWare
50	Navyashree	SLK Software
		TCS
51	Nikitha Nagwan	LTI
52	Nishmitha Shetty	Accenture
		TCS
53	Panchami Dilip Nayak	Hexaware
		TCS
		VMWare
54	Pooja K S	Semnox
55	Pramitha	Global ESoftSys
56	Pranav Kamath B	Cognizant
		LTI
		SAP
		Wipro Talent Next
57	Rachel Gwynath Mendonsa	TCS

58	Rajath G Rao	Cognizant
		Infosys
		Robosoft Technologies
		TCS
59	Rayan Smith Leiws	TCS
60	Renisha Ferrao	Infosys
		LTI
61	Saloni Fiona Fernandes	Infosys
		LTI
		TCS
62	Samson Naman M	Cognizant
		Infosys
		LTI
63	Shane Christopher Misquith	LTI
		TCS
		Wipro Talent Next
64	Sheetal Veevek More	TCS
65	Sheethal R	Accenture
		Cognizant
		Infosys
		TCS
66	Solomon Mithra	Novigo Solutions
		Wipro Talent Next
67	Sweedol Ashica Pereira	Semnox
68	Valesh Levin Mathias	Infosys
		SAP
		TCS
69	Vanessa Rene Pereira	Infosys
70	Vinaya A Shetty	TCS
71	Vinayak Udupa A	Cognizant
		LTI
72	Vinsten Leon D'Souza	LTI
		TCS
73	Wilton Santhosh Dsouza	SAP
74	Zohra Reem	LTI
		Novigo Solutions
75	Winslet Walter Dcunha	LTI
76	Winston Sebastian Pais	HashedIn
		Infosys Hackwithinfy
		LTI

TECHNICAL ARTICLES

Handwritten Text Recognition and Conversion using Deep Learning Techniques

By : Pavana, Rovina Reshma Dsouza, Sheethal R, Sweedol Ashica Pereira, Dr Shreenath Acharya

Abstract :

The existing mechanisms are found to be ineffective for recognition of the handwritten text. The proposed work aims at development of an user friendly interface to recognize the handwritten text from the image documents. It involves image analysis for paragraph segmentation, text line detection and noise removal, recognition of the digits, alphabets and special symbols. Convolution Neural Network (CNN) is utilized for the computations related to the word classifications. Word segmentation is carried out using word recognition algorithms and the result is stored in the text file formats. The obtained results show that the proposed mechanism is able to achieve lesser than 10% error rates for various types of handwritten text inputs.

Architectural Diagram :

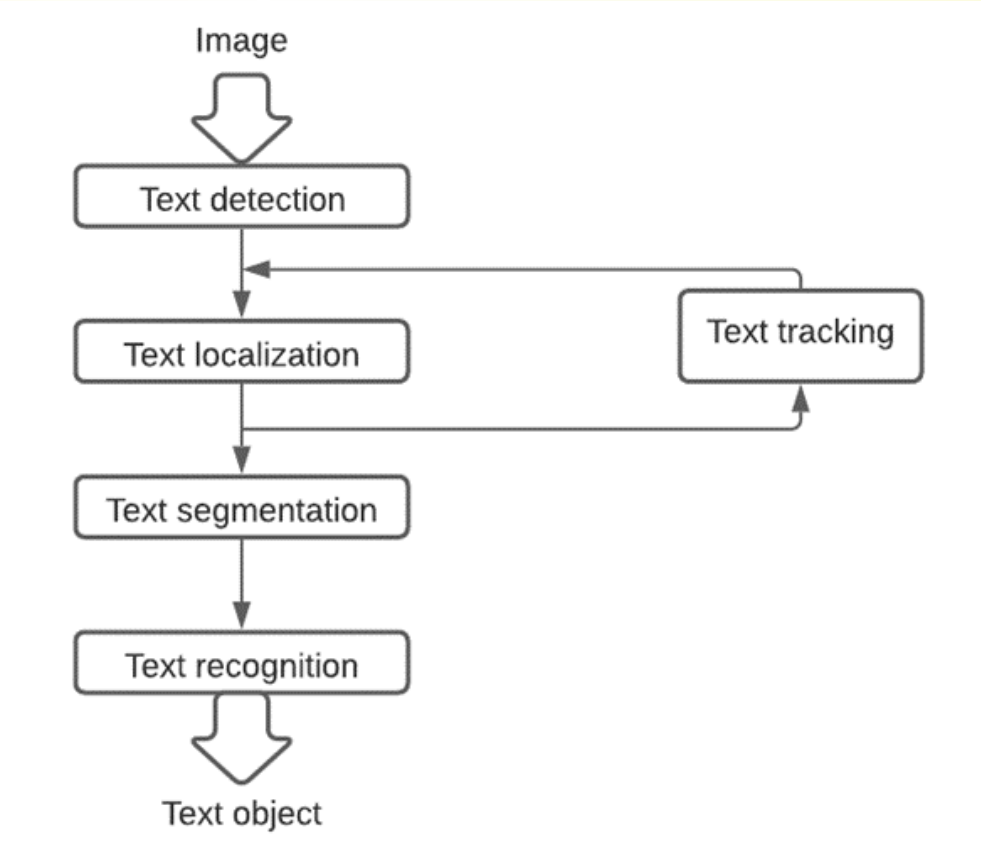


Fig. 1: Architecture Diagram

The first process after taking the image as input is finding out the exact position of the image from where the handwritten text begins. Text Localization identifies bounding boxes for text paragraph. This process continues, when paragraphs are found on checking for further paragraphs by the Text Tracking process.Text Segmentation process detects bounding boxes for the words in the detected paragraphs which were segmented earlier. The handwritten text is line-wise processed for the purpose of conversion. The final text that is generated is stored in a text file, and is also displayed to the user via the graphical user interface.

Objectives :

- The aim of this project was to review the existing methods for handwritten text word recognition and implement one of them for a user friendly application which can recognize handwritten text from image documents.
- Perform image analysis for text line detection, text line extraction, recognition of digits, alphabets, and special symbols.
- Implement word segmentation and recognition using word recognition algorithms, template matching and structural analysis algorithms.
- Recognize the handwritten text and store it in text document format.

Obtained Outcomes :

- A simple user friendly application which can convert handwritten text present in image into digital text.
- Currently this model takes all the paragraphs together as one, for the purpose of segmentation and recognition.
- The average Character Error Rate was 8%, which was based on the accuracy of the model results.

Advantages :

- Physical documents and notes consisting of handwritten text are difficult to store and also to access in an efficient manner. It is also difficult to share such files with others. So, conversion of handwritten text to digital text is of great help.
- It is difficult to preserve handwritten notes because the ink often gets faded as time passes. A better way to get rid of these problems, is to digitize these notes with the computer font so that it will be readable always.
- Instead of manually re-typing the text, automated handwriting recognition can drastically cut down on the time required to transcribe large volumes of text.

Applications :

- Postal Office Automation: Recognition and conversion of the postal address can be automated using text conversion system, so that grouping of the posts can be carried out.
- Bank Automation: Easy recognition of the text written on forms, cheques, demand drafts can be done using automated text conversion system.

Multipurpose Drone for Rescue Services during Flooding Scenarios

By : Amal Tom, Deep Ghetia, K Adarsh Rao, Kurian Joseph, Dr Kavitha K Mahesh

Abstract :
In the Modern Era of fast-moving technology, and increasing wealth, lifestyle in developing countries, the number of people in an adequate wealth and living conditions has led to ever increasing demand for consumer products and needs. This has led to growth in number of industries especially in developing countries. There is exponential increase in effect to the environmental created by all these factors. Floods are made more likely by the more extreme weather patterns caused by long-term global climate change. Change in land cover—such as removal of vegetation—and climate change increase flood risk. Extreme floods can be triggered by intense precipitation, longer duration, close repetition of precipitations or a combination of these. When flooding inundates a home or community, it upends lives and introduces a litany of potential short- and long-term consequences. The most obvious include loss of life (floods cause more than 100 U.S. fatalities annually) and vast property damage. Repairing and replacing flood-damaged roads, bridges, utilities, and other public infrastructure cost FEMA an estimated $48.6 billion between 1998 and 2014.

Unmanned Aerial Vehicles (UAV) technology has recently been recognized as an efficient photogrammetry data acquisition platform to quickly deliver high-resolution imagery because of its cost-effectiveness, ability to fly at lower altitudes, and ability to enter a hazardous area.

But, real-time application for prediction of damages occurred from a flood has not been used appropriately. The proposed project “VTOL” has an effective use of live streaming of camera video and images data to produce inundation mapping and to assess flood hazards in near real-time. Flood maps can be prepared using data from satellites, aircraft, and Unmanned Aerial Vehicles. Several researchers studied flood risk assessment using satellite and aerial images for large-scale projects. The UAV technology can sufficiently generate faster and more accurate data at much lower costs for rapid flood assessment. Drone used in the project can effectively acquire high-resolution data for fast and accurate detection of inundated areas under complex urban landscapes as well as inaccessible areas due to hazardous environments as compared to other data acquisition approaches.

The proposed project uses CNN as image classification method for detecting water bodies and its surrounding area. CNNs have demonstrated excellent performance on various tasks including image classification, feature extraction, and segmentation. CNNs can learn features automatically from large datasets through the organization of multi-layers of neurons and have the ability to implement nonlinear decision functions. The application provides user with a web interface which can used to view video live streaming of drone during flood occurrence and help him/her to provide whereabouts by sending signals to the approaching drone during scouting mission. The application also provides user with emergency contact numbers to notify the authorities the conditions and necessary help

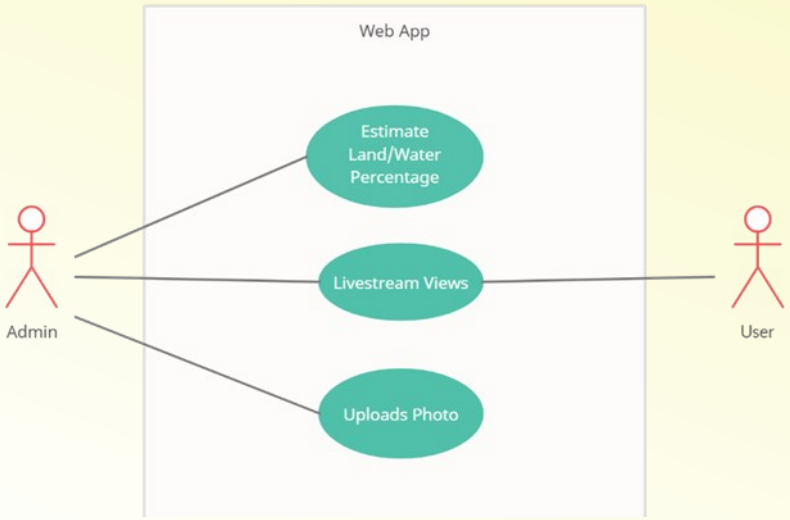
required for the survivors during critical times. The application can be used to alert the population on the water presence of the flood and measure the damages occurred to building and structures present in the scouted area by linking pictures from the live stream to the admin site which processes the images and provides output of percentages of damage occurred in them.

The proposed system provides the distressed population under flooding conditions the right amount of help to survive and successfully be rescued to a safer location in the right time. Using the system would be critical for authorities to save the survivors and provide relief to the personal and other property damages occurred in lesser amount of time by directing their efforts into effective direction.

The future work includes increasing drone mission duration via solar cell application and using thermal technology to detect survivors more effectively. Thermal cameras can detect human temperatures and help in finding human stuck in structures or between trees and shrubs. Adding the ability to process multiple images in a single instance can help in processing bulk images and calculating output for larger datasets.

Architectural Diagram :

An architectural diagram is a graphical depiction of a user's possible interactions with a system. An architectural diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. An architectural diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well.



The figure above depicts the architectural diagram of web app. The admin checks if the area in the image is filled with water or not. The user will be capable of performing the following tasks:

- Watch live stream using the interface.
- Login into the app using his credentials if he is an admin.
- Select photo to upload.
- Use ML processing to estimate land and water percentage.

Outcomes Obtained :

- The drone will locate the people stuck in the flood through the camera module present in the drone which will be streamed to the web application.
- The web application also has a feature where rescue services to the people can be provided as fast as possible since the phone no's of the rescue department will be provided in the web application. So that we can prioritize rescue operations to the affected people.
- The web application also has a feature to predict the amount of damage caused to the certain region by implementing fully convolutional neural network (U-Net) model that automatically detects the flooded areas from the images captured from the drone through the video transmission i.e., the top view taken from the drone.

Applications :

- In order to avoid big loses during a flood, both personal and material, it is necessary to take action for flood prevention, actions that are less costly and more efficient through the use of drones.
- This drone will identify the most affected people in flood situation and prioritize rescue operations to the affected people. There is an added advantage, as we include feature to alert nearby crews for rescue services.
- ML model will be used to detect the amount of damage occurred in the region through the images got from the live video transmission
- It can be used by people around the disaster affected area to prioritize evacuation and find possible routes to do so.

AI Based Covid-19 Patient Monitoring System

By : Saloni Fiona Fernandes, Sharrel Ancita Castelino, Vinaya A Shetty, Divyashree V, Lavina Jean

Abstract :

In today's world, Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered virus. There have been thousands of infections and deaths that have been caused by this disease. This pandemic has affected the living of all the human beings. It has severely affected the health of many. Today basically, there is no precise treatment for the ailment, and this calls for the need to prevent the disease from spreading.

As Covid-19 cases are increasing day by day it has been difficult for the health care staff to monitor the health of every patient. There is a high risk of the health care staff being infected too.

The proposed system uses different technologies like IoT, Machine Learning, Artificial Intelligence and concepts like facial expression recognition and voice conversion. The system makes use of CNN algorithm to classify the facial expression that has been captured. It makes use of python inbuilt voice recognition and conversion module for speech to text conversion. It also makes use of sensors such as Temperature sensor and Pulse sensor to monitor the health status of the patient. The results of all the above mentioned modules are displayed on Web and Android application.

Architectural diagram :

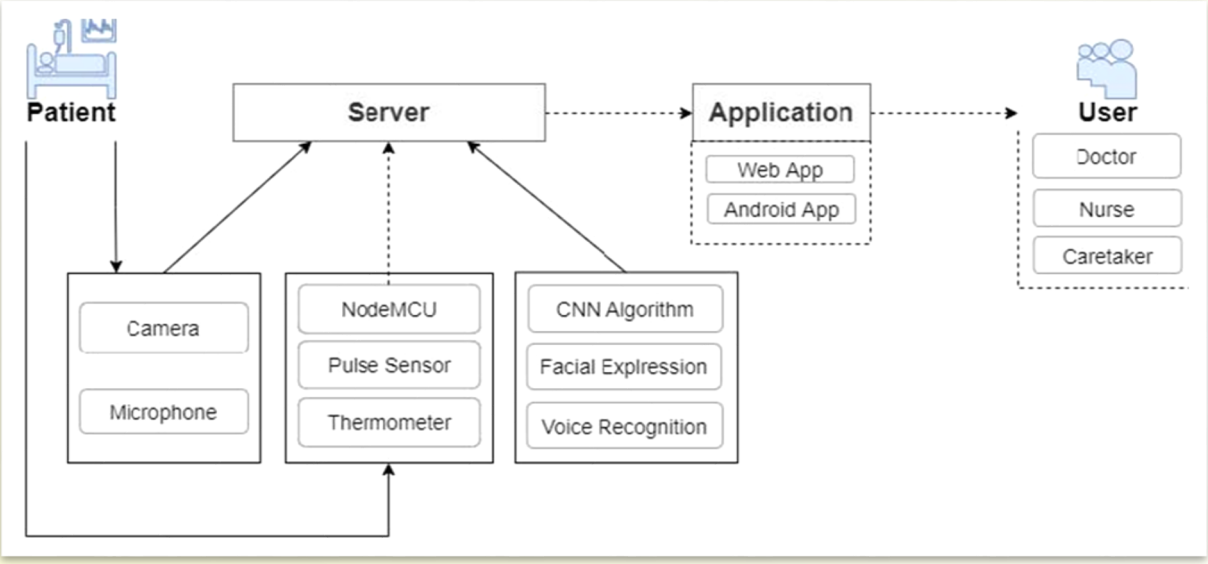


Figure 1: Architectural Diagram

The Figure 1 shows the Architecture Diagram of the proposed system. Here, the patient is kept under observation through the use of a camera and microphone. Sensors like Max 30102 Pulse oximeter sensor for pulse rate and ds18b20 for temperature check of the patient which is connected to Node MCU. These sensor values are being sent to the database.

When a patient is in critical condition and cannot express himself, the health status of the patient could be predicted through the facial expression recognition concept. The system makes use of the CNN algorithm for Facial Expression Recognition. Here, the image of the patient is being captured through the camera and further, the face is detected from the captured image using the Haar Cascade algorithm, and image pre-processing steps like grayscale conversion etc. are done. The pre-processed image is compared with the dataset and classification is done and thereby predicting the emotion.

In this project, the FER-2013 dataset is being used. It has 28709 train images and 7178 test images. The images are of size 48*48 pixels in grayscale. These images are being classified into 7 categories: 0-Angry, 1-Disgust, 2-Fear, 3-Happy, 4-Sad, 5-Surprise, 6-Neutral.

When a patient expresses himself through voice, the Voice to Text Conversion is performed. In this module, the voice of the patient is recorded through a microphone. The noise in the voice input such as a fan or A/C noise etc. is removed for further pre-processing. This pre-processed voice is then converted into text using the in-built Python library.

Objectives :

- To reduce the risk of health-care staff from being infected to the virus.
- To monitor the Covid-19 infected patients without actually being in contact with them.
- To analyze the facial expression and voice of the infected person when one is admitted in the hospital.
- To read the sensor values such as temperature and pulse rate to continuously monitor the health of the patient.
- Live monitoring of the patient is enabled to keep a track on each of their activities.

Obtained Outcome(s) :

- On completion of the proposed system, the facial expression recognition module gave an accuracy of 95%.
- The voice that was being detected was converted into text.
- The sensors that were used i.e., the pulse sensor and temperature sensor were fetching the values and displaying them continuously.
- The interface of the Android app where the classification of the facial expression, voice is converted into

Advantages :

- Useful to monitor the patients using remote health monitoring technology.
- Continuous monitor the patient's pulse rate and temperature.
- The data can be viewed at any time and at any place. It constantly fetches the sensor values from the patient and updates them in the database.
- The doctors and nurses will get an alert on phones if there is any variation in the patient’s health condition.

Applications :

- Facial expression recognition which classifies the emotions of the patient.
- Voice recognition which converts the voice of the patient into text.

Future Scope :

- Translation of speech to different languages which is now restricted to English language.
- Currently the system monitors the activities of a single patient. In order to monitor multiple patients simultaneously, more number of IoT devices could be used.

Automated Image Caption Generator For Visually Impaired People

By : Hazel Shefali John, Kavitha J Rao, Kavya U, Lavita Preethi Mathias, Dr Ashwin T S

Problem Statement :

To design and develop a deep learning architecture to generate image descriptions in smart home scenario.

Architectural Diagram :

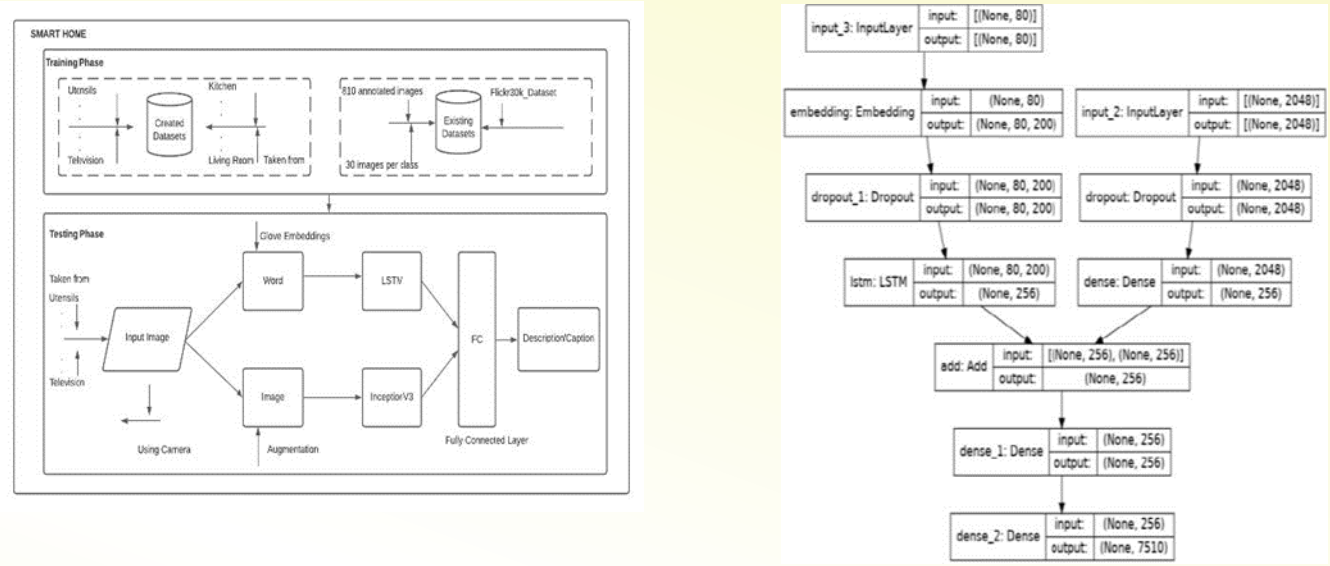


Fig 1: a) Architectural Diagram b) Visual representation of the Final Model

In our proposed research we have made use of the Flickr30k dataset, along with the dataset that we created considering the home scenario. The home dataset is augmented using the data augmentation techniques. The project is packed with deep learning neural networks; namely, Convolutional Neural Network (CNN) and Long Short-Term Memory (LSTM). CNN, is used as an image feature extraction algorithm for object detection. It creates features which are encoded into vector space, which is then given to the decoder. LSTM processes data passing on information as it propagates forward. The output from the two layers is then concatenated and fed into a Fully Connected (FC) Layer which ultimately generates a meaningful description for the given image. The caption generated is read aloud using Text-To-Speech thesis tools using Google Text to Speech Synthesizer where it is converted to audio using a computer-generated voice.

Objectives of the Project :

- Creating and benchmarking the dataset for image caption description generation.
- Propose a deep learning model for word embedding and caption generation.
- Propose an image classification model for image-to-text encoder.
- Propose a deep learning architecture for image description generation using word embeddings and image classifier.

Obtained Outcomes :

Results were good although some exceptions were observed. Common objects and regular scenarios were identified and captioned accurately however pictures with multiple objects or with rare, uncommon objects and complicated scenarios were misinterpreted by the model.

Fig 2: a) Image of a gas stove with different utensils on it
b) Image with a bed, a coffee table and a couch

In figure 2a, we can notice that all the objects in the image are identified accurately, and generated caption is well descriptive. But the image in figure 2b, has not been captioned accurately by the model. The image has a couch, a bed and lamp, a bedside table, and many more objects but the model was only able to identify the bed and the table correctly.
Overall bleu-4 score obtained using Greedy Search was 58.9 and using Beam Search was 61.3.

Advantages :

- Since most of the existing solutions focus on image captioning in an open environment, we attempt to advance the state-of-the-art by combining the existing caption dataset with the created dataset confined to the home environment.
- The project aims at detecting and identifying various objects captured in an image, as well as the relationships between them.

Conclusion :

Developed model is successful in achieving comparable to state-of-the-art performance and generates descriptive captions that can immensely improve the lives of visually impaired people in the home scenario.

SIGNOUT 2021

The department of Computer Science and Engineering organized a department farewell Signout 2021 to the final year students on 14 August 2021 at 2.00PM. Dr Rio Dsouza principal SJEC was the chief guest. Rev Fr Wilfred Prakash Dsouza and Rev .Fr Alwyn Richard Dsouza were the

guest of honor. Dr Sridevi Saralaya , HOD of CSE Department wished the outgoing students well for their future and raised the Toast.

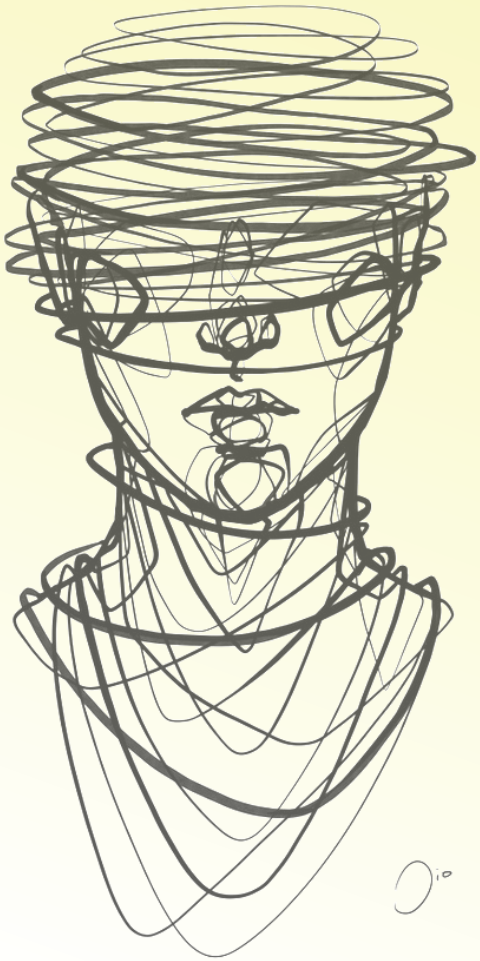
Ms Nikitha Nagwan, Ms Andrea and Mr Leroy DSilva , Replied to the toast. 94 final year students participated the event. Prizes were distributed to the students who excelled in sports and studies. The Best outgoing student was selected based on the unanimous votes of the faculty members of the CSE department as Mr Mohammed Ridhun. Prizes were also

distributed for the best Final year project, best mini project in Computer Graphics and Web Technology.

Ms Nisha Roche, Coodinator of Cipher Association, proposed the vote of thanks. The event witnessed fun filled games and cultural performances by the pre final year students

MY CHAOTIC MIND

My little world of chaos,
Memories and miseries.
Eruption of emotions
And unsolved mysteries.
With fountains of tears
And my scars as roads,
A headache for thunder
Due to sorrowful storms.
Every second is a thought.
Some deep, some insane.
Every moment goes by
Like a dead man's game.
It rains in seasons
On thorns like trees.
But somewhere in here
There are flowers beneath.
Flowers of fragrance
By few teardrops as rain.
Hope as sunshine,
That outgrows all pain.
It's a world of understanding,
Of yearning and fear
My little world of chaos
A cosmos, so dear.



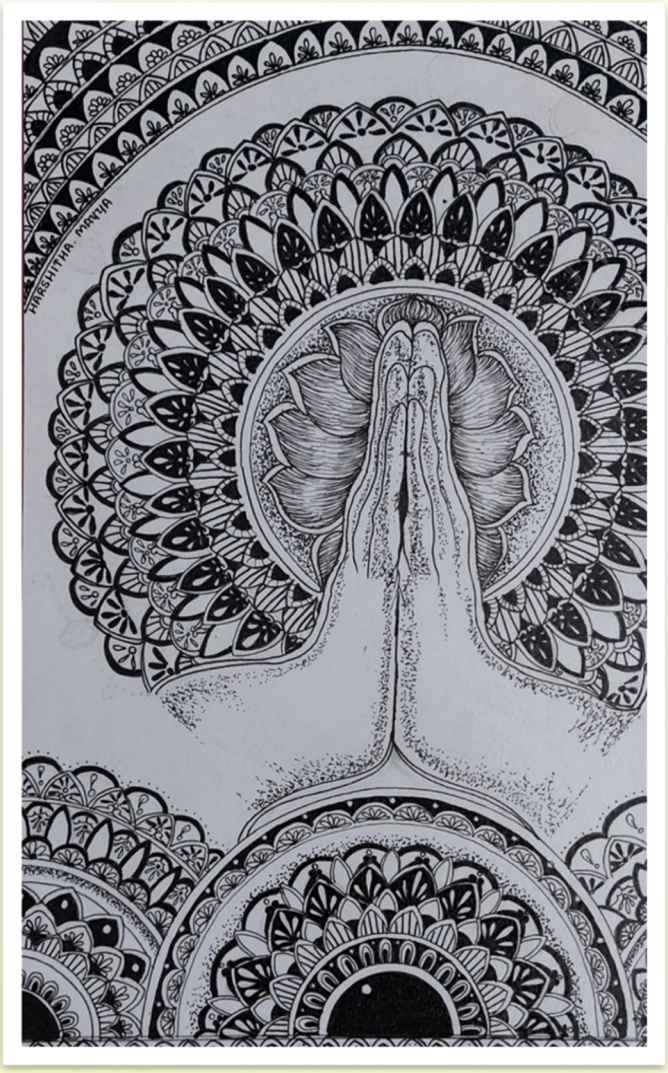
Aleema PK, IV A CSE

Units of Computer Memory Measurement

1 Bit = Binary Digit
8 Bits = 1 Byte
1024 Bytes = 1 KB (Kilo Byte)
1024 KB = 1 MB (Mega Byte)
1024 MB = 1 GB (Giga Byte)
1024 GB = 1 TB (Terra Byte)
1024 TB = 1 PB (Peta Byte)
1024 PB = 1 EB (Exa Byte)
1024 EB = 1 ZB (Zetta Byte)
1024 ZB = 1 YB (Yotta Byte)
1024 YB = 1 TB (Bronto Byte)
1024 Brontobyte = 1 (Geop Byte)
Geop Byte is the Highest Memory

By Ankitha Rai, IVCS A Section

Art Corner



ALUMNI MESSAGE

Four memorable years that I spent at SJEC have been enjoyable and immensely rewarding. The Computer Science department has great faculty and incredible opportunities, both of which helped me discover and foster my love for Information Technology .I am forever grateful! Without a doubt, choosing to study Computer Science at SJEC has been one of the best decisions I ever made.

To my juniors, I would say, focus is key. Identify your interests and be passionate. Learn what it takes to get there and evolve into the best version of yourself. Engage in technical clubs, associations and seize every opportunity that comes your way. Put yourself out there, this is your time – make the most of it.

- Crystal Fay D'Souza,
Class of 2020

ST JOSEPH ENGINEERING COLLEGE

AN AUTONOMOUS INSTITUTION

Affiliated to VTU, Belagavi | Recognised by the AICTE, New Delhi | Accredited by NAAC with A+ Grade
B.E. (CSE, ECE, EEE, ME, CIV) & MBA Accredited by NBA, New Delhi

Vamanjoor, Mangaluru - 575 028, Karnataka, India
Ph; 91-824-2868100 / 2263753 / 54 / 55 / 56 | FAX: 91-824-2263751
E-mail: sjec@sjec.ac.in | Website: www.sjec.ac.in