

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

LIVEWIRE

VOLUME XVIII
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SIDDAGANGA INSTITUTE OF TECHNOLOGY

(An Autonomous Institution Affiliated to V.T.U., Belagavi Approved by AICTE, New Delhi,
Accredited by NAAC with 'A' grade & ISO 9001:2015 Certified)

BH H Road, Tumkur-572103, Karnataka, INDIA

Department of Electrical and Electronics Engineering

VISION

**TO BE THE PREMIER CENTRE FOR EDUCATION AND RESEARCH IN
ELECTRICAL AND ELECTRONICS ENGINEERING AND TO PRODUCE
GLOBALLY COMPETENT ENGINEERS WITH ETHICAL VALUES**

MISSION

**M-1: DEVELOP AS A CENTRE OF EXCELLENCE FOR ELECTRICAL AND
ELECTRONICS ENGINEERING EDUCATION BY PROVIDING THE
STATE-OF-THE-ART INFRASTRUCTURE, INDUSTRY RELEVANT CURRICULUM
AND EFFECTIVE TEACHING LEARNING PROCESS.**

**M-2: CONTRIBUTE TO THE DEVELOPMENT OF NATION BY PURSUING
RESEARCH AND DEVELOPMENT IN THE THRUST AREAS OF ELECTRICAL
AND ELECTRONICS ENGINEERING SUCH AS POWER SYSTEMS, ELECTRICAL
MACHINES, POWER ELECTRONICS AND RENEWABLE ENERGY SYSTEMS.**

**M-3: ENABLE GRADUATES TO BE PROFESSIONALLY COMPETENT WITH
STRONG ETHICAL VALUES.**

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FROM THE EDITOR'S DESK

Dear Readers,

वद्विय ददातविनियं वनियाद् यातपित्रताम् ।

पत्रतवात् धनमापनोत्पिनात् धर्मं ततः सुखम्॥

Hitopadesha

"Knowledge is the first important step to attain a joyful state in life and the sole goal of human life is to be in that blissful state of mind for as long as possible while spending the minimum most."

Indian civilization has placed great importance on knowledge. It's vast collection of intellectuals, the world's largest collection of manuscripts, textbooks in so many areas of knowledge, thinkers and a certified tradition of schools. In Srimad Bhagvad Gita, Sri Krishna tells Arjuna that knowledge is his great purifier and liberator. The Indian tradition of knowledge, from the vedas (Upanishads) to Sri Aurobindo, is as old as the flow of the Ganges and is uninterrupted and central to all research.

Introducing the 18th edition of LIVE WIRE, which is full of vim and vigour, and euphoric.

Electrical Science has come a long way through the ups and downs of history, from the generation of "Vidyuth" in Ancient India to the development of electricity in the modern day. Electrical-related technologies and discoveries have surely made our lives easier, more effective, and thus considerably increased the precision of our knowledge. We have attempted to give the information of a few current technological developments through this volume of our zine. We are confident enough that it will pique your interest.

LIVE WIRE has evolved significantly over the last few years, from a four-page magazine to a fully fledged booklet. To continue the legacy our seniors have passed onto us, it fills us with colossal gratification to reap the fruits of months of assiduous strive, in the form of a magazine.

We acknowledge our faculty coordinator, Dr. H. S. Sridhar, whose unheard of assist and steerage has made it feasible for us to recognise this version of our magazine. We additionally specify our gratitude in the direction of our fellow pals who've enriched our magazine with their fascinating articles and support. We are grateful to our department for guiding us through all the difficulties that we discovered throughout the process.

Enlightened your intellect with the knowledge of God. With enlightened intelligence, control the unruly spirit, overcome the sea of hurdles and reach the ultimate realm. Thank us later, this is the way out of lethargy, inertia and ignorance!

Hope the magazine thrives in the years to come!

- Pallavi S

From The Administrator's Desk

Director's Message



I am happy to know that, the Department of Electrical and Electronics Engineering is publishing its departmental magazine 'LIVEWIRE'. It is good to see our students showing their literary skills through their contribution to the magazine. The magazine has been successful in giving an interesting angle to their technical ideas. My hearty congratulations to the team 'LIVEWIRE' for bringing out a useful magazine.

Dr. M.N.Channabasappa

CEO's Message



I am delighted to know that the Department of Electrical and Electronics is publishing its departmental magazine 'LIVEWIRE'. This magazine provides a platform for students to showcase their talents. I appreciate the commendable efforts put in by the faculty and students of Electrical and Electronics Engineering Department in publishing 'LIVEWIRE'. My hearty congratulations to team 'LIVEWIRE' for bringing out such a vibrant magazine.

Dr. Shivakumaraiah

Principal's Message



The magazine 'LIVEWIRE', published by the Electrical & Electronics Department, is designed with a lot of effort by our students and faculty members. It is very heartening to see the articles related to technological advancement and innovations in the energy sector. The magazine also records achievements and various activities of the department. This also provides the students a platform to hone their technical and communication skills and an opportunity to build teamwork.

My best wishes to all the students and faculty members of the department of Electrical and Electronics Engineering.

Dr. S.V. Dinesh

From HOD's Desk

Our institution has the distinction of being known as one of the pioneers in the field of engineering education and has been accredited with NBA, grade A by NAAC and ISO 9001:2015 certification. Our department aims to remain at the forefront of learning, teaching and research. We strive hard to promote academy excellence and are committed to create an ambience for promotion of innovation and research. We seek to be renowned for our distinctive curriculum emphasizing on learning-teaching-learning, learning-based education, research culture and ethical values.

I take this opportunity to thank the students of the editorial board of "Livewire", a technical magazine. As a Head of the Department, I provide academic leadership to maintain the academic standards. With our distinct student centred teaching-learning methodology, our students will be able to face challenges of life with our holistic approach in teaching and learning, encouraging students to indulge in extra curricular activities to shape them as problem solvers of tomorrow. All this efforts are followed ambitiously to develop the overall personality of the students so as to equip themselves with a modern and sensitive outlook to face the challenges of the competitive world. Our experienced faculty are the strong pillars of the department whose focus is to empower a diverse community of students to nurture the capabilities, transform the lives and find success through high quality teaching and learning. Department also encourage students engaging with industry and community to make the world a better place through the creation, sharing and use of new knowledge.

Wishing all the best for the students of our branch for their future endeavours.



FROM THE COORDINATOR'S DESK



Dr. H.S. Sridhar,
Assistant Professor,
Faculty Coordinator, Team LIVEWIRE,
Department of E&E Engineering

I am happy that the Department of Electrical and Electronics Engineering is bringing out a newsletter "LIVEWIRE". The "LIVEWIRE" magazine will help to showcase the activities that are happening in the field of electrical engineering and also in the campus. It also helps in building up team work, which is very much needed today in the world of competition. "LIVEWIRE" would definitely create an impact in the minds of readers, by way of providing larger visibility and dimension in the field of electrical engineering. We want it to be entertaining and informative, but above all, useful. Inside, you'll find a mixture of news, features and regular columns, wide range of electrical engineering topics. It is a matter of great pleasure for me to go through the wonderful contributions made by the students. This magazine is intended to bring out the hidden literary talents in the students. It is my pleasure to congratulate the team that has taken the initiative for producing this magazine. I hope that everyone would continue to give their full efforts to keep the momentum and continue to enhance the standards of the magazine.

FROM ALUMNI'S DESK

- Mr.Komal Raj N



I'm ecstatic to be able to send this letter to the magazine I had worked on for nearly three years. When I first started at SIT in 2016, I had no idea what I was getting myself into. I'd recently completed my 12th grade with accolades and, like everyone else, I wanted to get out of my comfort zone and see the world. This encouraged me to join the hostel. What an emotional ride that was!

Of course, the early days were full with uncertainty, and I'm sure everyone can relate to that. However, with wonderful friends and roommates around, everything became easier and more straightforward. I began to believe that if I surrounded myself with friends, I would be able to conquer anything in the world on any given day. We ate together, studied together, partied together, lived together, and shared the majority of our everyday lives. What more does one require to refer to friends as family? But, just as everything seemed to be going well, the pandemic struck, and it struck hard. It was just difficult to accept that we'd never be able to properly say our goodbyes to the family we had raised for over four years.

As the pandemic progressed, though, I realised that my friends were not the only family I had. I realised I had missed out on so much back home for those four years that it took me days to catch up (Despite the fact that I was only 60 kilometres from home. Hats off to my pals who had journeyed hundreds of kilometres to realise their goals).

And the most fascinating realisation for me was learning how I had grown another family who had given me so much without expecting anything in return. A family who was always there for me as a spirit guide through all of my highs and lows, guiding me through virtually everything. A family that has devoted all of its precious time and blessings to my and others advancement: The Lecturers! I just want to send a little word to the current students: Be as modest and nice as you can with these angels who only want your best interests at heart. Therein lies the key to your success.

I went on to complete my master's degree at the University of Western Ontario after graduating from SIT. During the epidemic, moving away from home to a totally new country was a difficult decision. Every day, on the other hand, has taught me something new. I'll remember and follow these lessons for the rest of my life. During these trying times, I received tremendous support from my parents, seniors, and lecturers. So, whenever you need assistance, don't be afraid to ask for it. You should be confident that your parents, lecturers and friends are all rooting for you on your path to success.

Although the path you choose may not be entirely evident in the beginning, things will begin to make sense soon. All you'd have to do is maintain your composure and believe in yourself. Always remember that it is the voyage, not the race, that motivates us. With a hint of a smile and confidence on your face, embrace all that life has to offer. With your hands in your pockets, you can't paint a picture of your life. So get ready and don't be afraid to take risks. To attain your goals, go above and beyond your current level of comfort.

Finally, I'd like to thank my parents and lecturers for shaping me into the person I am today. I'll sign off by sending you my best wishes for the future. I am convinced that everyone of you will lead a life that will inspire others in the future.

FROM TOPPER'S DESK

- Miss. Varshitha H V



You have to find what Sparks a light within you before illuminating to the world.

At the beginning we are like a conductor without a potential, inorder to conduct and light up the world we have to build the potential.

In the journey of 4 years electrical engineering at Siddaganga institute of technology, I learnt how to handle multiple things at a time, how effectively we can be prepared for the sudden chores.

Having extra curricular activities & trainings along with the academics help us to explore ourself in a better way.

Industrial training is one of the best practices that our department follows. I got an opportunity to work with industrial experts while I was in my 2nd year of engineering. It helped me a lot to gain practical knowledge and also to crack some core interviews.

Active participation in the IEEE events like paper presentation, hobby project etc motivated me to achieve more.

All the things you require to achieve your goals will be given to you by your institution, your task is just to plan how effectively you can utilize all those to reach your goal.

In a life to achieve something we have to have a goal and a guide. I am so lucky that I had many professors who helped me mould my career.

I want to thank our Ex-HOD V. Shivaprasad sir for his support throughout the 4 years of engineering. He made us to feel that "Networks" is not the toughest subject.

I want to thank our HOD Dr. Rashmi ma'am for her support throughout the course & during online classes.

I thank my major project guide B.S. Sridhara sir for his support who guided us & helped our team to think out of the box. Eventhough we were working virtually, his "To the point" guidance motivated us to complete our project successfully.

I thank my mini project guide Ms. Priya ma'am for her support who helped us a lot to debug our technical and non-technical issues that we came across during mini project.

I wanna thank all my professors for their continuous support.

Non-teaching staffs are extremely supportive, I want to thank non-teaching staffs of EEE department.

Finally, found a spark "Self-motivation" along with the proper guidance, which helped me to reach my goal.

It's your turn,
Find a spark which will light up your life as well the world and then work towards your goals.

FACE-TO-FACE with Mr.B.M.Madhu

A proper balance of multiple aspects of life is very important. It ensures a holistic development of human mind and body. A perfect blend of fundamental understanding and practical knowledge provides the best experience. This is the strong belief of one of our beloved professor Mr. B.M. Madhu. In the following interview with Live Wire, sir provides some precious advice for all, to achieve their goal and satisfy their aspirations.



INTERVIEWER: Sir, Kindly shed some light on your educational background and other fields of interest?

I completed my Bachelor of engineering from The National Institute of Engineering, Mysuru in Electrical and Electronics Engineering and Master of Technology from the VTU Research Centre, SJCE Mysuru in VLSI Design and Embedded Systems. My areas of interest are Embedded systems, Nanocomposites, and presently I am working on my research topic “Nanocomposite materials application to HTLS conductors”.

INTERVIEWER: According to you, what is the role of the teacher in a student's life?

The teacher's role in student life is to teach and guide them in the proper direction to explore and find the answer themselves. The faculty's objective in engineering is to see students inner capabilities and strengths and train them how to work and thrive in their chosen technical profession.

INTERVIEWER: What encouraged you to become a teacher?

My teachers were my inspiration, and I am passionate about teaching. In addition, the gurus I met during my education made me explore my abilities.

INTERVIEWER: As a student, we get motivation from various people. Do you have a role model?

My teachers are my motivators, and most importantly, what we have learned and experienced will always teach and motivate us. Sri Sri Shivakumara Swamigalu inspire us always to contribute more towards society.

INTERVIEWER: What changes do you feel in the students with the changing time?

As you get the knowledge, you should become humbler and be a good listener. Students need to observe and adopt the good things from their surroundings and the people they interact.

INTERVIEWER: How students can keep themselves motivated?

The main aim of education is to get knowledge, employment and, more importantly, be humane to others in difficult situations, make parents happy and contribute to the society. These should motivate the students every day and night.

INTERVIEWER: Is there anything you want to change with the educational system?

In India, the interaction between the student and current research and developments is too less. This gap needs to be bridged so that students will have a good interaction with the research people.

INTERVIEWER: At the end, what message would you like to give to our readers and students in the electrical department?

Be Motivated and perform well.

Artificial Intelligence in Electrical Field

Soniya G J
VIII SEM

Electrical and computer engineers work at the forefront of technological advancement and innovation, contributing to the design, development, testing, and manufacturing processes for new generations of devices and equipment. The term “Artificial Intelligence” describes a wide variety of systems built to imitate how a human mind makes decisions and solves problems. Machine learning is a branch of artificial intelligence that gives computers the capability to learn without being explicitly programmed.

Applications of Artificial Intelligence and Machine Learning in Electrical Engineering:

1. Speed Control of motor: With the advancement of artificial intelligence applications, Neural net works have been used in the identification and control of linear and non-linear systems. The incorporation of feedforward in artificial neural networks is important for several reasons the dynamic properties of the system, and in practice, it may improve its performance. Using some datasets, you can train a model to control the speed of the motor in both forward and reverse rotation with regenerative braking.
 2. Smart Grid: Smart Grid means everything will be handled automatically whenever a fault occurs. Machine learning and artificial intelligence can enable the smart grid to make intelligent decisions and respond to sudden changes in customer demands, power outages, sudden drops and rises in renewable energy output, or any other
 3. Battery Management: The battery industry is growing dramatically, driven by the need for electric vehicles, consumer devices, and energy storage for renewable sources. Any approach that delivers improved battery technology sooner, or that aids safety and efficiency will attract significant interest. Machine learning (ML) is one such method.
 4. Home Automation: Home automation means making home appliances operate automatically. This means when anybody enters the room, the lights and fans get turned on automatically. Here the Machine learning methods can be used to make smart decisions on when to turn on the heater. When to open the door, when to turn on the TV, etc.
 5. Fault Detection: Faults in transmission lines and distribution lines are very common. Here Machine learning algorithms can help to find the spot where the fault has occurred.
 6. Solar Power Plant: Here the machine learning concept will help to generate maximum energy. This means that, by using ML methods, you can design a system that rotates the solar panel at 360 degrees to track the sun.
 7. Autonomous Vehicle: Tesla autonomous vehicle is made with machine learning and AI techniques. Here the car will drive by itself. Each hour, the Tesla models itself with the routes that are taken by the car. It uses various neural networks on the backend.
 8. Control Systems: Control systems are commonly used in industries. Here, machine learning can help industries to control devices very efficiently without any fault or damage to the system.
- Many more varied applications are being carried out in the electrical field by AI.

Source: <https://www.cselectricalandelectronics.com/machine-learning-applications-in-electrical-engineering/>

BEST MAJOR PROJECT

“FAULT DETECTION AND CLASSIFICATION IN POWER SYSTEM USING MACHINE LEARNING”

In recent era the need of electricity is increasing but generation and transmission capacity is not increasing at the same rate. The electrical power systems consist of many complex and dynamic elements, which are always prone to disturbance or an electrical fault. In this paper we emphasized on the classification of Power faults using machine learning along with artificial neural networks. Three models were considered, and all were analysed with different combinations of input so that the highest accuracy could be achieved. In order to determine the best model and the best combination of input the collected dataset was fed into classification learner app where the app trained the dataset for 24 machine learning models and the model with the highest accuracy is discussed below.

“MODELLING AND SIMULATION OF BULK PROPERTIES OF THE EPOXY HYBRID NANO COMPOSITES ”

This project deals with the equivalent circuit modelling of Epoxy-glass fibre reinforced composite and loaded with carbon nanotubes (CNTs), and graphene nanoplates (GNPs). The fabrication method is optimized in order to obtain a good dispersion even at low concentration, up to 3 wt.%. The presence of nanofillers increases the electrical properties of the nanocomposites. Furthermore, the electrochemical impedance spectroscopy (EIS) is used to obtain an electrical equivalent circuit (EEC). The EEC model is a remarkable evolution of the system. The nature of the interface between the filler and the matrix plays an important role, so that the choice of a proper matrix, or the use of nanofillers.

In order to improve the performance, two software packages, Z-60 and Z-View were used. The measurements were conducted in the frequency range of 100–107 Hz at room temperature. By measuring the amplitude and the phase shift of the resulting current, the real and imaginary components of the complex impedance can be calculated. The work aims to investigate the electrical properties of the nanocomposites as a function of nano MWCNT and nano graphene concentration in order to get a better understanding for the conduction mechanism and the microstructure of the nanocomposite.

Team Members :-

MANOJNA

ANAND KUMAR

PRATYAY AMRIT

NIKHIL

Team Members :-

DEVIKA L. H

DIVYA.S

SHASHIKALA.T.S

THEJASWINI.M

BEST MINI PROJECT

“SMART HELMET”

Nowadays most of the countries are enforcing their citizens to wear helmets while riding bikes and not to ride bikes when the person is under the influence of alcohol, but still rules are being violated. In order to overcome this problem " Accident Detection, Theft and Drive Protection using Intelligent Wireless Safety Helmet" is developed. It consists of an intelligent system embedded into the helmet and the vehicle. Helmet unit ensures that the rider is wearing a helmet and not under the influence of alcohol throughout the ride. It communicates with the vehicle unit to switch off the ignition system of the bike if the above condition is not met. Vehicle unit checks and intimates' accident through geometric coordinates via SMS. By using geometric coordinates. The location of the injured rider can be traced using a simple GPS tracking application. Also, this system provides theft protection as a helmet is also essential along with a key to start the vehicle.

“WIRELESS POWER TRANSMISSION FOR ELECTRIC VEHICLE ”

Electric vehicles are seen as an alternative option in response to the depletion of resources. In order to increase the use of EVs in daily life, practical and reliable methods to charge batteries of EVs are quite important, accordingly wireless power transfer (WPT) is considered as a solution to charge batteries. In this project, a prototype system of wireless charger which has 60 kHz operation frequency is designed and implemented. Plugin Electric Vehicles (PEV) are burdened by the need for cable and plug charger, galvanic isolation of the on-board electronics, bulk and cost of this charger and the large energy storage system (ESS) packs needed. But by using Wireless Charging system's Wireless charging opportunity. It Provides convenience to the customer, inherent electrical isolation, regulation done on grid side and reduces on-board ESS size using dynamic on-road charging. The main objective of our project is to design and develop an antenna system suitable for vehicles using resonant magnetic coupled wireless power transfer technology to electric vehicle charging systems. Application of WPT in EVs provides a clean, convenient and safe operation. At the core of the WPT systems are primary and secondary coils. These coils construct a loosely coupled system where the coupling coefficient is between 0.1-0.5. In order to transfer the rated power, both sides have to be tuned by resonant capacitors. The operating frequency is a key selection criterion for all applications and it especially affects the dimensions of the coils and the selection of the components for the power electronic circuit. A Resonant wireless transfer system for vehicle charging technology is designed.

Team Members :-

YASHAS.B

MADAN.S

ROHITH PRASAD.C.S

RAKSHIT.R.K

Team Members :-

ADARSH.K

CHAYA.H.J

RAKSHITHA.K.S

MANOJ.D

Departmental Report

Department of Electrical and Electronics Engineering has made a great achievement in terms of placement during the difficult times of COVID. Placement numbers are really attractive with a total number of offers 80 and 6 LPA average package for the academic year 2021-2022. Faculty and students have made good number of publications in International conferences and reputed journals. 18 number of conference papers and 6 number of journal papers were presented and published in this academic year. Department arranged 4 guest lectures in advanced field of Electrical and Electronics Engineering to make students aware about present technology. As a part of Industry and Institute interaction, department has signed 4 MOU's with Industries. Faculty Priya S. has secured Elite Gold in the course "System Design and Verilog" and Silver in "Design of Power Electronic Converters". Faculty Rajesh Uppar has secured Elite in "DC Microgrid and Control System". Students are encouraged to take up NPTEL courses.

Dr.Rashmi

Professor and Head
Department of E&EE
SIT, Tumakuru



PLACEMENT RECORDS



1

HCL

1

Stratogent

1



2



2

Netcracker

4



1



1

**ZenSar
TECHNOLOGIES**

1

ALSTOM

2

JSW

1

voonik.

1

PLACEMENT RECORDS

accenture > 4

AMADEUS 2

adani 2

acmegrade 2

LogMeIn® 1

DXC TECHNOLOGY 1

CGI 1

Deloitte. 1

EY 2

Cognizant® 6

BLUME global™ 2

Total no of offers :
42

ACHIEVEMENTS

TECHNICAL ACHIEVEMENT

- * Shashwat Srivastava, student of 8th semester EEE, secured 2nd place in Smart city challenge, held at IIT Madras.
- * Shashwat Srivastava, student of 8th semester EEE, secured 2nd place in phase shift, held at BMSCE, Bengaluru.
- * Shashwat Srivastava, Student of 8th semester EEE, secured 2nd place in Aavishkar IDEEAs, held at Siddaganga Institute Of Technology, Tumakuru.
- * Shashwat Srivastava, student of 8th semester EEE, secured 2nd place in Hackathon '20, held at NMIT.
- * Renushree G, student of 4th semester EEE, secured 2nd position in En-code conducted by Geeks for Geeks.
- * Adesh Sinha , student of 6th semester EEE, secured 2nd position in SIH(Smart India Hackathon) at Institute level .
- * Adesh Sinha ,student of 6th semester EEE, secured 1st position in CROSSROADS events in Robocor2019 ,held at Siddaganga institute of technology, Tumkuru.
- * Pallavi S and Monika D B, students of 8th semester EEE, secured 2nd place in poster presentation in Technisium 2019 for the poster titled "Dual Axis converter" , (under the guidance of K U Vinayaka), held at Siddaganga Institute Of Technology, Tumkuru.
- * Soniya G J, student of 8th semester EEE, participated in Free workshop of Corsit and secured 1st Place in Basic bots, held at Siddaganga Institute of technology, Tumakuru.
- * Anubhav panday and jinka vineela padmashali, students of 6th semester EEE, secured 1st price in IEEE PRESENTARIO 2021 for the titled" Artificial pancreas for Type B diabetes", held at Siddaganga Institute of Technology, Tumkuru.
- * Mansi Ramsinghani and Sakcham somvanshi, Students of 6th semester EEE, secured first place in Ideathon 2021, held at Siddaganga Institute of Technology, Tumkuru.
- * Yashas Beerendra and Shashwat Srivastava, students of 8th semester have attended IEEE conference and published the paper on “Artificial Intelligence and Smart Systems” held at JCT College of Engineering Coimbatore on 23 February 2021.

ACHIEVEMENTS

NON TECHNICAL ACHIEVEMENTS

- * Rahul Kumar and Kashish, students of IV semester EEE, participated in Halcyon'20 cultural event and secured II place in Street play, held at Siddaganga Institute of Technology, Tumakuru, on 27th February 2020.
- * Kashish, Shashwat Shrivastava and Saniya Kausar, students of IV semester EEE, participated in Halcyon'20 cultural event and secured II place in Skit, held at Siddaganga Institute of Technology, Tumakuru, on 28th February 2020.
- * Rahul Kumar, student of IV semester EEE, secured II place in Writo-fest in Scriptink, held at Siddaganga institute of technology, Tumakuru.
- * Harshdeep, student of IV semester EEE, participated in Halcyon'20 cultural event and secured I place in Mime, held at Siddaganga Institute of Technology, Tumakuru, on 29th February 2020.
- * Soniya G J, student of IV semester EEE, participated in Halcyon'20 cultural event and secured I st place in poetry, held at Siddaganga Institute of technology, Tumakuru.
- * Rahul Kumar , student of 8th Semester winner in mime at Siddaganga Institute of technology, Tumkuru.
- * Rahul Kumar, student of 8th Semester winner in mime at NMIT, Bangalore.

BIO-ROBOTICS

Shivani A
VI Semester

Bio-robotics is an interdisciplinary technology that mixes the fields of biomedical engineering, cybernetics, and robotics to expand new technology that combines biology with mechanical structures to expand greater green verbal exchange, modify genetic facts, and create machines that imitate organic structures.

Cybernetics makes a specialty of the verbal exchange and machine of residing organisms and machines that may be carried out and mixed with more than one field of examination inclusive of biology, mathematics, pc technology, engineering, and lots greater.

This subject falls below the department of bio robotics due to its mixed discipline of examining organic bodies and mechanical structures. Cybernetics is used in numerous fields to find out ideas about structures, variations of organisms, facts evaluation, and lots greater.

Bio robotics may be used as a tool for the protection of the first-class of human senses, the entire management of the anxious machine, activation of neuron circuits, recuperation of broken neuromotor functions, rehabilitation of vocal cords, and neuromotor machine management following devastating illnesses inclusive of Parkinson's and Alzheimer's. The purpose of the bio robotic machine is to degree the reaction parameters of someone in the front of a "smooth contact", made via way of means of his finger in the front of a button. It is now carried out in each day scientific pastime to diagnose the development of Parkinson's pathology.

DISEASE DETECTOR (DDX) is a transportable system which detects reaction time and psychophysical situations in everyday and first-rate environments.

It includes an easy joystick with some buttons, an LCD show, and an easy interface for the far-flung verbal exchange of prognosis.

The external effects require,

- The response to sounds,
 - A soft touch of a button,
 - By pronouncing a word,
 - The touch of the finger in front of a virtual reality drawing of the finger itself.
 - Fuzzy Logic is exploited in order to obtain an intelligent and reliable detector.
- Three basic parameters (reaction, speed and force) are required.

APPLICATIONS: -

- Experimental assessments were finished on problems affected by Parkinson's.
- Experimental assessments were finished on topics belonging to the sports activities discipline.
- Tests within the expert discipline: Ferrari Race.

ADVANTAGES: -

- This tool may be very small and transportable.
- User-pleasant system: It is sort of a cell phone, with greater green diagnostic results.
- The cap potential to preserve the joystick with an unmarried hand is the essential thing of this machine.
- A person's nation of fitness can be examined each day.
- It additionally gives the cap potential of shifting prognosis via a far-flung verbal exchange interface for you to screen each day the nation of fitness of a patient.
- The machine is a smart system primarily based totally on smooth computing strategies.

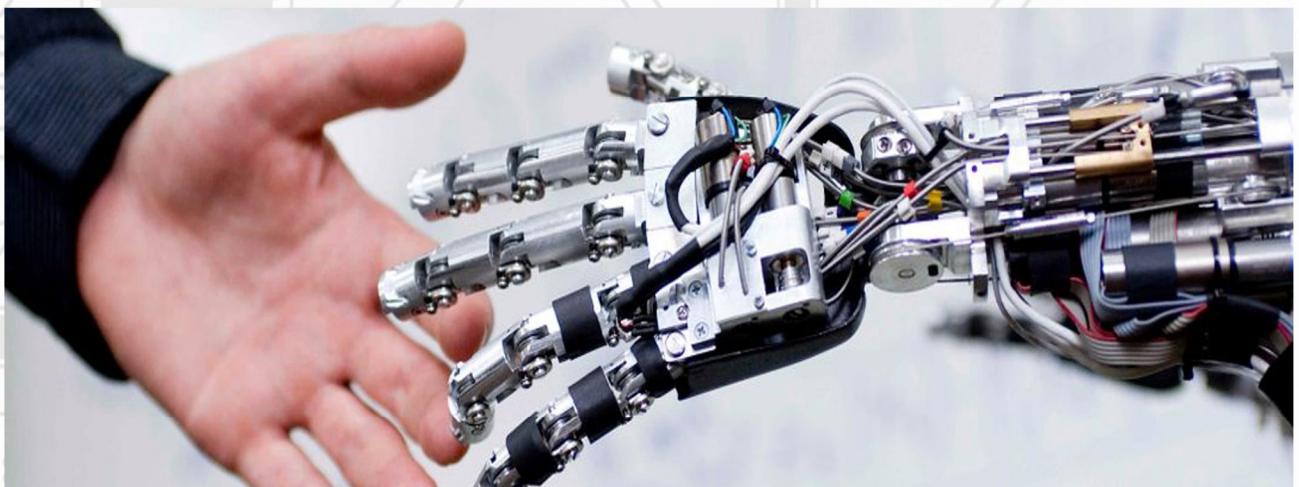
Its performance may be advanced thinking about greater examples for club feature calibration or, moreover, enhancing the reaction correctness via way of means of the usage of a self-getting to know the technique.

DISADVANTAGES: -

- The DDX manage machine includes a small board with an inner fuzzy logic. The primary drawback of such circuit-switched networks is that they may be now no longer capable of competently dealing with fantastically variable traffic.

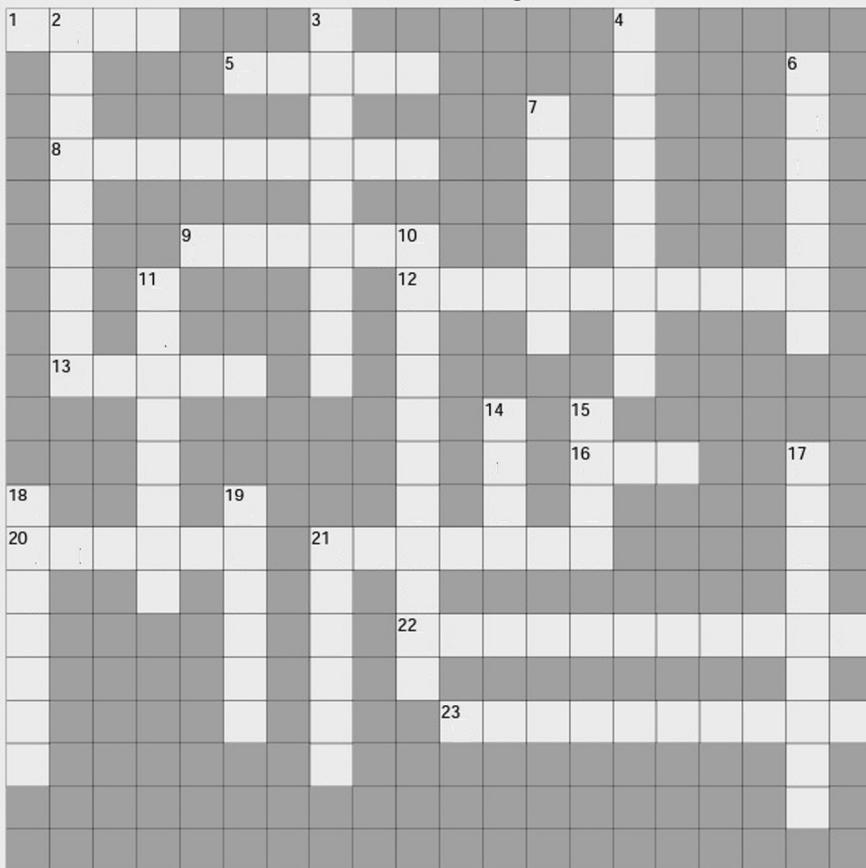
Daphne is a tool that lets in to achieve a quantitative and genuine degree of the neuromotor fitness circumstance of someone and it displays thoroughly the mental circumstance. The machine is a smart bio robotic machine primarily based totally on smooth computing strategies and, as such, its performance perhaps advanced thru prolonged feature calibration or via way of means of enhancing reaction correctness with self-getting to know strategies.

Source:<https://www.sookshmas.com/enote/43054-28793/public/Disease-Detection-Using-BioRobotics>



CROSSWORD

Electricity



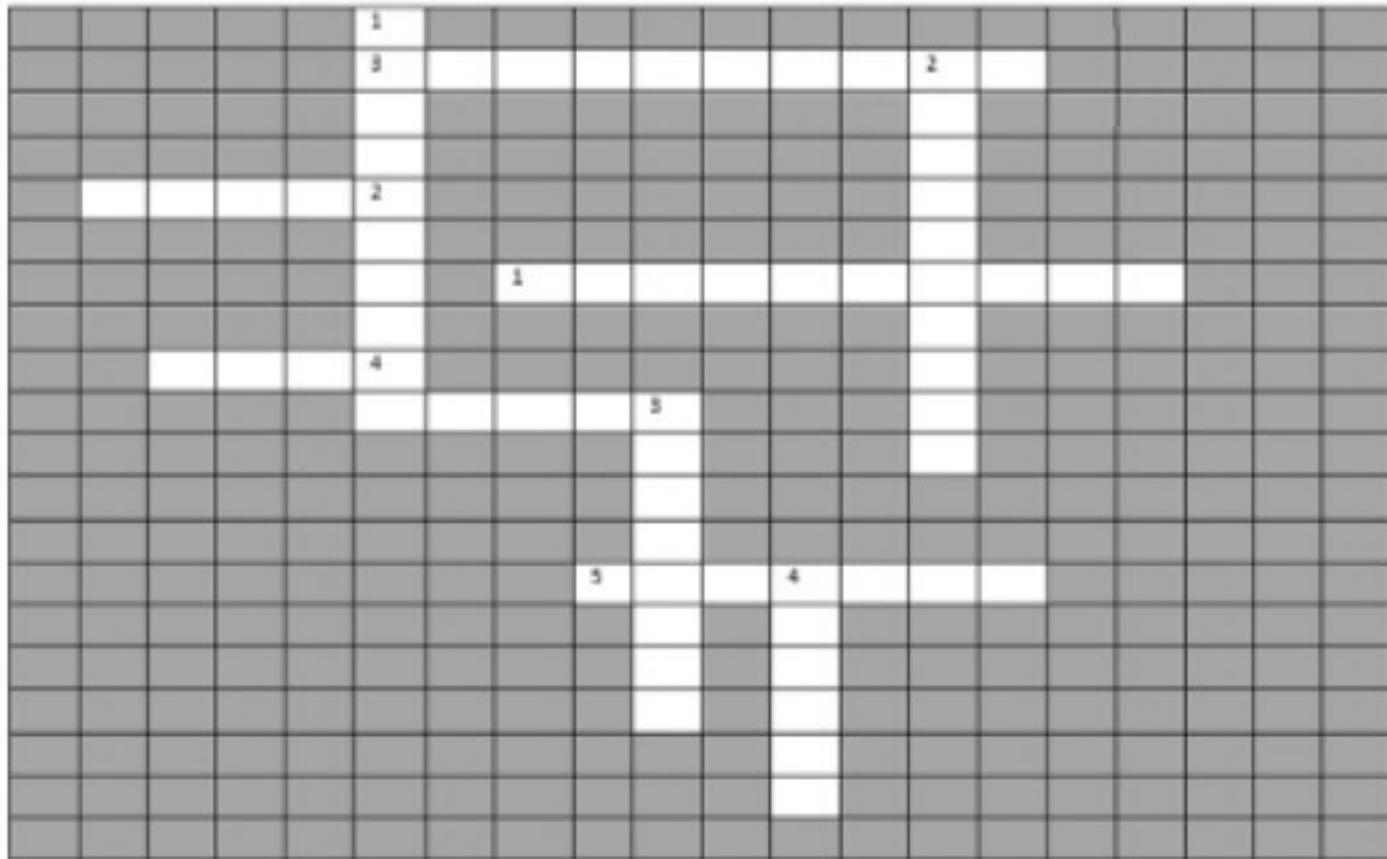
Across

1. Simple device that generates electricity.[4]
5. A screwdriver placed across two wires in a circuit creates a ____ circuit.[5]
8. Substance that allows electrons to pass through easily.[9]
9. DC stands for ____ Current.[6]
12. Voltage divided by current is the ____.[10]
13. Wire that discharges excess electricity to the earth.[5]
16. Unit of resistance.[3]
20. Unit of current.[6]
21. AC stands for Alternating ____.[7]
22. Solution in an electric cell.[11]
23. Making of electricity is called electricity ____.[10]

Down

2. The metal or graphite rod in an electric cell.[9]
3. Instrument for measuring potential difference or voltage.[9]
4. Substance that does not allow electrons to pass through.[9]
6. Instrument to measure current.[7]
7. Type of electricity produced by rubbing plastic on wool.[6]
10. Device that increases or decreases voltage.[11]
11. Household circuits are of this type.[8]
14. Protective device which "blows" if there is excess electricity in a house circuit.[4]
15. Unit of potential difference or voltage.[4]
17. Current electricity is a flow of ____ along a wire.[9]
18. A series of cells.[7]
19. Circuit where components are placed one after the other.[6]
21. Yellow metal used in electrical wires.[6]

CROSSWORD



DOWN

1. An imperial clan that rules the springs
Their might and skills command the rings
As old as time but gears of tomorrow
Not many Queens is their only sorrow
2. You see me every day and smile at me
I control the whole campus
3. The drunk owner of a bagger carrying crude.
Bombarded a compound wall,yeah that was rude.
Imagine how things turn out in a nuclear second.
If you guess this one, you really are a legend!!!
4. I am most important place for everyone
Everyone comes to me only when they have a wish
Who I am?

ACROSS

1. The game that is for the people we can dunk
and even if you can't , you can still be there to
watch it happen
2. You can find me as an island in the middle of the
college
A secret prophecy near me, with full knowledge and
You remember me when you are being assessed
and always there's been a bridge connecting
The island to the mainland that's most common
place visited by anyone
3. Like a tree with branches,my network runs wide
Being old and tough is our pride
Doping is legal in our habitation
Stop us before going to saturation
4. We are a newly engaged couple,just arrived.
One is a chatbot,engrossed with fame and pride.
The other mines data,python their master.
Don't remain puzzled,run your brains faster.!!
5. Think of salt,
Right to the point, people never bother.
More or less, certainly a disaster.
We hardly appear anywhere around.
But our deed has liberated the world.

NIOBIUM

Source: Niobium tech

S V Smrithi
II SEM

What is Niobium?

Niobium converts materials into wiser materials, allowing for the construction of greener buildings that contribute to cleaner energy and more sustainable mobility.

Why is Niobium used?

Niobium is a versatile material that improves material characteristics and provides value. When niobium is added to materials like steel, glass, and aluminum castings, it makes them smarter and helps to decrease environmental impact while also improving performance, safety, and value.

What role does Niobium play in promoting a more sustainable future?

Our technology is built on the foundation of sustainability. When compared to other materials, the manufacturing chain of niobium goods might have a 60-fold reduced environmental effect. Furthermore, because Niobium enhances material characteristics, it uses less material for end-product fabrication, enabling dematerialization and miniaturization, which results in fewer total emissions across the supply chain, from manufacturing to end-of-life. Niobium is also shaking up the energy industry by allowing for new ways to create, distribute, consume, and store energy. It's employed in a variety of products, including alloy steel and oxides, as well as industries including transportation, energy, and construction.

Find out how Niobium finds its application across the world.

Mobility: The world is changing quickly, and so is the way people move. In the transportation industry, niobium is used in new materials that drive innovation, performance, safety, and efficiency.

Structural: Niobium aids in the cost-effective resolution of complicated engineering issues and improves the efficiency of current projects. Design flexibility and reduced consumption are two benefits of using smarter structural materials.

Energy: Smart materials using niobium will have a significant influence on how we live our lives in areas such as clean energy, safety batteries, quick charging, and efficient storage solutions.



PAPER BATTERY

Keerthana.B.S
VI SEM

Worldwide, there are more than 15 billion batteries in use. Approximately 89% of the batteries are alkaline, or common family batteries. These batteries create issues during both manufacturing and disposal time, so an efficient paper battery was invented to overcome this problem. This battery is manufactured from 90% cellulose, and the thickness of the battery is much less than a sheet of printer paper (.025mm). Due to its composition and structural functions, the paper battery is not harmful and is fully recyclable. The main function of the battery is to convert chemical electricity into electrical strength.

What's a paper battery?

A paper battery is an ultra-skinny, bendy, strong storage tool that can be used both as a battery and as an excellent capacitor. It is a combination of two materials: first off, nanotube, which is a cylindrical fabric made of carbon; and secondly, nanocomposite paper, which is a hybrid electricity storage device made of cellulose. Single-walled carbon nanotubes are single-walled carbon nanotubes, double-walled carbon nanotubes, triple-walled carbon nanotubes, and multi-walled carbon nanotubes.

Paper Battery=Paper (Cellulose)+Carbon Nanotubes



Paper battery properties are in particular attributed to the properties of their elements, such as carbon nanotubes and cellulose. The properties of carbon nanotubes are the width to length ratio (which is 1:107) and high-tensile strength (which is greater than steel), low mass density and high packing density. Lightness, flexibility, low resistance, Electrical conductivity, and thickness are typically about 0.5 to 0.7mm. The properties of cellulose encompass excessive-tensile power, biocompatibility, suitable absorption capacity, top-notch porosity, reusable, recyclability, and non-poisonous.

What's the principle or working of a paper battery?

A traditional battery or rechargeable battery includes some separate additives that produce electrons through a chemical reaction between the steel and the electrolyte of the battery. The paper battery works when the paper is dipped in the ion-primarily based liquid solution; further, a chemical reaction takes place between the electrodes and liquid. The electrons move from the cathode to the anode to generate electricity. The paper electrode stores energy while recharging within 10 seconds because the ions flow through the skinny electrode very quickly. The first-class method to increase the output of the battery is to stack multiple paper batteries one upon another.

What's the application of paper batteries?

Paper batteries are used in the medical field, which includes making pacemakers for the coronary heart, artificial tissues, drug delivery structures, cosmetics, and biosensors.

Paper batteries are mainly used in digital gadgets, which include cell telephones, laptop batteries, calculators, virtual cameras, and also in wireless communication gadgets like mouse, Bluetooth, keyboards, speakers, and headsets.

Source:<https://www.edgefx.in/paper-battery-working-and-construction/>

BLUE EYES TECHNOLOGY

Shivani A
VI Semester

Blue Eyes Technology:-

Imagine yourself in a world where humans interact with computers. You are sitting in front of your personal computer that can listen, talk, or even scream aloud. It can gather information about you and interact with you through special techniques like facial recognition, speech recognition, etc. It can even understand your emotions at the touch of the mouse. It verifies your identity, feels your presence, and starts interacting with you.

Human cognition depends primarily on the ability to perceive, interpret, and integrate audio-visuals and sensoring information. Adding extraordinary perceptual abilities to computers would enable computers to work together with human beings as intimate partners.

The **BLUE EYES** technology aims at creating computational machines that have perceptual and sensory abilities like those of human beings. It uses a non-obtrusive sensing method, employing most modern video cameras and microphones to identify the user's actions through the use of imparted sensory abilities. The machine can understand what a user wants, where he is looking, and even realize his physical or emotional status.

The blue eyes system monitors the status of the operator's visual attention through measurement of saccadic activity. The system checks parameters like Rate of heartbeat and blood oxygenation against abnormal and triggers user-defined alarms. Blue Eyes system consists of a mobile measuring device and a central analytical system. The mobile device is integrated with a Bluetooth module providing the wireless interface between sensors worn by the operator and the central unit. ID cards assigned to each of the operators and adequate user profiles on the central unit side provide necessary data personalization so the system consists of,

- Mobile measuring device (DAU).
- Central System Unit (CSU)

Bluetooth technology provides means for creating a personal area network linking the operators and central systems.

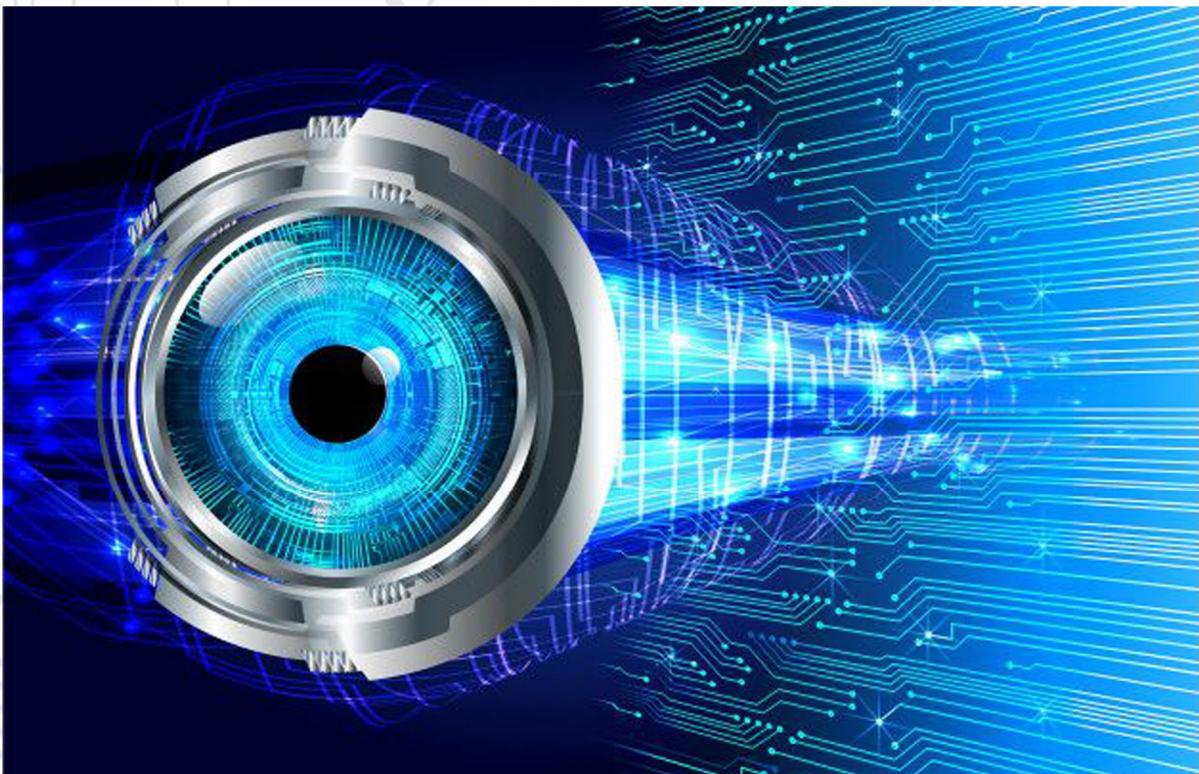
The Data Acquisition Unit is a mobile part of the Blue eyes system. Its main task is to fetch the physiological data from the sensor and send it to the central system to be processed. To accomplish the task the device must manage wireless Bluetooth connections (connection establishment, authentication, and termination). Personal ID cards and PIN codes provide the operator's authorization. Communication with the operator is carried on using a simple 5-key keyboard, a small LCD, and a beeper. When an exceptional situation is detected the device uses them to notify the operator. Voice data is transferred using a small headset, interfaced to the DAU with standard mini-jack plugs.

Central System Unit hardware is the second peer of the wireless connection. The box contains a Bluetooth module (based on ROK101008) and a PCM codec for voice data transmission. The module is interfaced to a PC using a parallel, serial, and USB cable. The audio data is accessible through standard mini-jack sockets. To program the operator's ID cards we developed a simple programming device. The programmer is interfaced to a PC using serial and PS/2 (power source) ports. Inside, there is an Atmel 89C2051 microcontroller, which handles UART transmission and I2C EEPROM (ID card) programming.

Blue Eyes software's main task is to look after working operators' physiological conditions. To assure instant reaction to the operators' conditions change the software, performs real-time buffering of the incoming data, real-time physiological data analysis, and alarm triggering. The Blue Eyes software comprises several functional modules. System core facilitates the transfers flow between other system modules. The System Core fundamentals are single-producer-multi-consumer thread-safe queues. Any number of consumers can register to receive the data supplied by a producer. Every single consumer can register at any number of producers, receiving therefore different types of data. Naturally, every consumer may be a producer for other consumers..

The BLUE EYES technology ensures a convenient way of simplifying life by providing more delicate and user-friendly facilities in computing devices.

SOURCE:<http://dspace.cusat.ac.in/xmlui/bitstream/handle/123456789/2221/BLUE%20EYES%20TECHNOLOGY.pdf?sequence=1>



The Technological revolution in Industrial Automation using PLC and SCADA

Divyashree V P
VI Semester

The technologies used to monitor industrial facilities that process water, wastewater, oil, and gas are complex and important. Without the right technology, these industries will not be able to provide the basic services that people rely on for normal life. SCADA and PLC are two of the most important technologies in modern industry. While some may seem to think the two are competitive, the fact remains that these different technologies work together to provide critical services.

PLC

PLC stands for Programmable Logic Controller. A programmable logic controller for sensor monitoring is installed. Thus, machines represent data collection, receiving critical information about processes, and entering systems. To this end, the PLC will also perform basic interventions, triggering outputs when the parameters programmed in the system are met. A PLC is a versatile device that can withstand harsh environments, with advanced programming and real-time usage options.

PLCs in particular control some of the most complex processes in industrial facilities. They are often used to monitor running machines and engines. To provide more functionality, the API is easy to program. Furthermore, these devices are scalable. This means they can be adapted to a wide range of requirements depending on the operations involved. PLC controllers were developed as improvements to relays and timers commonly found in industrial machines. Modern APIs provide more monitoring complexity and become more dynamic in the information provided.

SCADA

SCADA stands for Supervisory Control and Data Acquisition. SCADA is the monitoring software used in these industries. As software, it helps to control hardware and track data collected from all remote locations. SCADA software communicates with computers, graphical user interfaces, sensors, and network data to provide a process overview. In this case, management teams in these industries rely on SCADA to track progress throughout the facility and make operational adjustments.

Since SCADA is a central system, it is usually installed on the computer in the factory monitoring center. SCADA, along with many other systems, provides the necessary data. It acts as an interface to collect various plant data for evaluation. Based on this information, the operator can make the necessary changes through the SCADA interface to control the flow and operation of the workpiece in the factory.

Source:www.researchgate.net

मलाल है

मलाल है, जिन्हें हमने बांटा था,
वो खुद में ही बटे बैठे हैं।
एक कोने में दबे बैठे हैं,
हमसे ही रुठे बैठे हैं।

मलाल है, जब उन्हें हमारी जरूरत थी,
हम साथ न थे,
उनके हाथ मदद के लिए आए,
और हम अपने ही नक़ाब में थे।

मलाल है, कि अपने ही भाई
विपदा में हो रहे हलाल थे।
तब भी संसद में रोज उठ रहे बवाल थे,
सिर्फ उठ रहे सवाल थे,
“सब सो रहे फिलहाल थे।“
“सब सो रहे फिलहाल थे।“

एक दिन ऐसा आएगा कि,
वो हमसे ही बट जायेंगे,
भारत की नक्शे से अपने ही हट जाएंगे।

हर साल बाढ़ की आग में
जूझता है असम,
हाथ पर हाथ धरे रह जाते हैं हम,
और रह जाता
“सिर्फ मलाल है।“
“सिर्फ मलाल है।“

राहुल कुमार

बेबसी

देश अभी बंद पड़ा है, कोई आएगा न जाएगा,
हम तुमको खाना देंगे तुमको यही रखा जाएगा,
देशहति के खातरि क्या तुमसे इतना नहीं हो पाएगा?

हम तो समझ गए हैं साहेब तीन दिन से भूखे हैं
खाने को कुछ मिला नहीं है बच्चे के हल्क सूखे हैं
बच्चा मेरा तड़प रहा है बच्चे को समझा दो ना।
मेरा गांव बहुत दूर है मुझको घर पहुंचा दो ना।

ट्रेन तो चली है साहेब पर हमारी लाशों पर
तुम राजनीतिकर रहे हो गनिती के चंद बसों पर
भूखे गर्मी में मर रहे हैं दखिाई नहीं देता क्या?
बच्चा मां को जगा रहा है सुनाई नहीं देता क्या?
उस बच्चे की सोई मां को तुम आ कर जगा दो ना।
मेरा गांव बहुत दूर है मुझको घर पहुंचा दो ना।

पंछियों को पर से परवाज़ करते देखना
एक बच्ची की मजबूरी को शान समझ कर देखना
साईकलि तो दे दी साहेब मजबूरी भी पूछए
उसके पांव के जख्मों से घर की दूरी पूछए
उस पति के दलि पर क्या गुजरी उन जख्मों को सहला दो ना।
मेरा गांव बहुत दूर है मुझको घर पहुंचा दो ना।

सोहराब खान

TEAM TECHNOCRATS

Technocrats the technical club of Siddaganga Institute of Technology, Tumakuru. A technical place where aspiring technology enthusiasts work together to explore and share their ideas. Started with the passion to build projects. The team is working towards the development of newly evolving science and technology. Students who are passionate towards growing technology collaborate together. We create projects that will be helpful to our society. Finding the problem in the society and solving them by using the Advancing Technology. Exploring the futuristic automations, electro hybrid systems. Applying the theoretical knowledge to practical world for get the hands on experience.

The basic Motto of the team is to encourage the students to innovate, create and design the projects, Enhancing it for the betterment of the product. With the tagline of “Create Sustain & Enhance”.

ELECTRIC BICYCLE

Electric bicycle is the project done by this team. In Electric bicycle the driving force is due to electrical energy. Electric bicycles are pollution less and eco-friendly. Battery here we used may take 4-5 hours to charge completely.



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