

DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING (EST.1972)

L. D. COLLEGE OF ENGINEERING (EST. 1948) AHMEDABAD

EDITION 4.0

JAN '20 - JUNE '20



Inside this issue:

Principal message	1
HOD message, Kaizen 2k20	2-3
Innovative projects, Placement 2020	4-5
Main Events	6-7
ISA LDCE inauguration, Students' achievements	8-9
Webinars	10-11
Industrial visit, Expert talk and Publication	12-13
Students' achievements and Projects	14-17
Students' creativity, Faculty research area	18-19
Alumni Profile	20

DEPARTMENT OF IC ENGINEERING NEWS LETTER

PRINCIPAL MESSAGE

Dear Students and Faculty Members,



L. D. College of Engineering is reputed as one of the institutes in the state where students as well as faculty members are given the best platform to perform. The remarkable talent and hard work of all, has resulted in getting accreditation of BE in Civil, Electrical and Mechanical Engineering. The Department of Instrumentation and Control Engineering is also applied for NBA for this year. I congratulate and appreciate the efforts of all involved in the process. The main focus of our institute in the coming days is going to be on Research and Innovation. SSIP funds can be utilized optimally to create PoCs with high industrial or social value. Patent

and publication of the best projects, research and consultancy will be given priority. We will be conducting advanced and futuristic technology trainings and workshops by National and International experts. Simultaneously our students and faculties have been engaged very well in social, cultural and sports domains too. Kaizen 2k20 was held on online platform this year. Also many webinars were done by alumni and industry person for boosting the knowledge of students. Projects under SSIP were reviewed on online platforms,. I wish all will continue to work enthusiastically for achieving high standards of our beloved institute.

Dr. R.K. Gajjar , Principal, LDCE.

VISION AND MISSION OF INSTITUTE

Vision : To contribute for sustainable development of nation through achieving excellence in technical education and research while facilitating transformation of students into responsible citizens and competent professionals.

Mission :

- To impart affordable and quality education in order to meet the needs of industries and achieve excellence in teaching-learning process.
- To create a conducive research ambience that drives innovation and nurtures research oriented scholars and outstanding professionals .
- To collaborate with other academic & research institutes as well as industries in order to strengthen education and multidisciplinary research.
- To promote equitable and harmonious growth of students, academicians, staff, society and industries, thereby becoming a center of excellence in technical education.
- To practice and encourage high standards of professional ethics, transparency and accountability

EDITORIAL



Season's Greetings..!!! It is indeed a pleasure for me to write an editorial for Department of Instrumentation and control engineering newsletter. Department is achieving milestone of success day by day under able leadership of Dr. R.K. Gajjar – Principal, LDCE, dedicated and committed team of IC Engineering faculties. The major events in the current issue of news letter are kaizen 2k20, project fair of final year students, placements, Events, GATE qualifier, student's awards and creative work by students. At department we also encourage to take student at filed visit which help them to correlate their theoretical knowledge with real time experiments. The Department is facilitated with highly qualified and committed faculty members and they are upgrading their knowledge by attending various training. Their untiring efforts make students to win various awards in technical and non technical competition.

Department students are also actively participating and winning at various technical events, I congratulate to students those won at smart Gujarat industrial hackathon, Bharmal Buarhanuddin and Mayank Patel for receiving ISA International scholarship, all 30 students who got selected in various companies in this year. Students are also showing extra ordinary creativity in pencil sketch, sports, embroideries, photography and I am sure that reader enjoys and appreciates their art and crafts.

Placement season is also started Our placement records has always being very impressive, with the large number of students being placed year after year in highly reputed core companies and public sector units. Our alumni hold senior positions in industries as well as in academic institutions, both in India and abroad.

My message to students is “Never be afraid to try something new. Remember, amateurs built the Ark, professionals built the Titanic” We should never assume we are not capable of achieving GREATNESS because WE ARE! Every one of us is capable of achieving more than our limits. Thank You

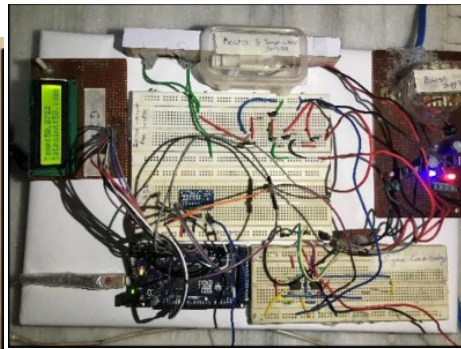
Dr. Manish Thakker
Professor, Head
Department of Instrumentation & Control Engineering

DEPARTMENT VISION AND MISSION

Vision: Provide quality education and research environment for preparing competent Instrumentation and Control engineers to meet the technological challenges of industries and the society.

Mission:


- To impart quality education in the field of industrial automation to match the needs of industries.
- To encourage multi disciplinary research and innovative projects.
- To cultivate technocrats and entrepreneurs with professional skills and ethics.




INNOVATIVE PROJECTS OF KAIZEN 2K20

STUDENT NAME	TITLE	GUIDE NAME
PRANAY, KENIL, JAINISH	SMART ID – CARD	Prof. VINOD PATEL
KHUSHBOO , CHANDAN	SMART WEARABLE DEVICE	Prof. MANISHA PATEL
SANJAY, JENISH, VISHAL, BHOWMIK	DENSITY METER	Prof. LALIT PATEL
MEET, NIRAV, JEIMIN	MULTICHANNEL TEMP. MEASUREMENT AND CONTROL USING PID CONTROL	Dr. RAKESH PATEL
BHAVIK, DHAVAL, DHURV	ROBOTIC ASSISTANT	Prof. VINOD PATEL

“I slept and I dreamed that life is all joy. I woke and I saw that life is all service. I served and I saw that service is joy.”



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INSTRUMENTATION AND CONTROL ENGINEERING DEPARTMENT



SMART WEARABLE DEVICE- "SAATHI"

Kapoor Khushboo Kapil, Lunia Chandan Dilip
Guided By: Prof. Manisha Patel

ABSTRACT:

Travelling for blind people, old people, and differently abled can be a very difficult task. In today's time, with so much traffic on roads, it can be difficult for them to cross roads, reach their destination, that too hassle-free. Also, another problem involves people commuting on two wheelers, if they don't know the route it becomes very difficult for them to take out their phone and check the route every time and then. This can also cause accidents. For this, we have designed a solution that can work for this category of civilians as well. Smart wearable device (miniature smart shoes) that can solve the problems stated above. It will guide them with their route and notify when the destination is reached. Secondly, for two-wheeler drivers, they can set their destination on maps and when they start the shoe's vibration will guide them through their route. For e.g. when we have to go left/right, the shoe on the left/right leg will vibrate. This will solve their problem of stopping every time and checking the maps.

OPERATION OF PROJECT:

The first depiction of the project is as shown in the picture. Here we have used a voice recognition module that is synced with the Google Maps application and hence when a command is read by the module it sends the Arduino the respective signal. Arduino then reads the received signal and transmits it to both the motor vibrators. The motor vibrators further communicate this to a respective servo as well as the Arduino. Finally, when the signal reaches the servo vibrators, they check the conditions and instruct the motor to vibrate accordingly in the pre-defined vibration patterns. NFC tags can be applied on a wrist or hand or phone or any object, the person using the device has with them. Whenever we bring a phone near the tag which has been already trained, the phone will perform the function. For example, to play music one just needs to bring phone closer to the tag that is trained for music app and music will play just bringing phone in contact.

NFC stands for near field communication. It is a short-range wireless technology. This has got a long antenna and when it is brought in contact with the phone which has got another antenna, electromagnetic induction is generated. Through this data transfer can take place. Although the data speed is very slow, this has got a very long life. This hand can be very useful to elderly people, physically challenged people and also for women and children. Elderly people who don't know much about how to operate a smart phone, in case of an emergency, can just bring the phone close to the hand and an emergency call will be made to an all-ready saved emergency contact. Women and children can also use this for safety purposes in case they face danger.

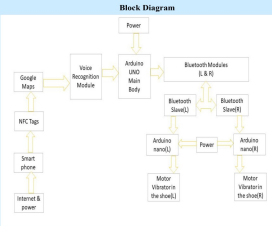
The project aims in getting a solution for the mentioned possibilities and help the mankind in every possible way. The shoes vibrate as per the instruction given by the Google Assistant and works on the basis of different patterns of vibrations. For e.g. when assistant asks to turn right the right sole vibrates for 5 seconds with a delay of 2 seconds twice and same for the turn left command etc. Also, the smart tag which we already programmed with a possible task like calling an emergency number or when any one in need uses the tag with their smartphone which is NFC certified will be directed to the number easily and they can make a call for help in that situation.

Handle free navigation without phone in hands. Easy to wear and compact. Comfortable while driving. Emergency Features for old aged people, women, children and specially-abled.


COMPONENTS:

- Arduino NANO
- Bluetooth Modules
- Motor Vibrators
- Voice recognition module
- Batteries
- Arduino cable
- NFC tags
- Jumpers Wires
- A 4 Band A/W Mini B Cables

Block Diagram



PHYSICAL IMAGE



FUTURE SCOPE & APPLICATION

The design can be considered by shoes or sole manufacturers as well as can also be embedded in the foot pads of 2 wheelers or four wheelers. The following prototype can be used by civilians of any age and gender along with the specially-challenged people in their day to day lives. Under occupations category, drivers, delivery boys, V-loggers, joggers or fitness enthusiasts, cyclists etc can utilise the following design.

ACKNOWLEDGMENT:

We express our gratitude to **PROF. DR. M. T. THAKKER** the head of department of Instrumentation and Control for his constant encouragement, co-operation and support and also giving the knowledge he has about our project for making it better.

We would like to express our deepest sense of gratitude and sincere thanks to our Project guide **PROF. MANISHA PATEL**, for her support and timely co-operation and helping us by giving the useful advises for making the project far better than we thought.

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2. "www.doughbaker.com" for Preparation Check Report.
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4. "www.instructables.com" for the hardware details.
5. "www.instructables.com" for the hardware details.
6. "www.instructables.com" for the different design and technology.
7. "www.wikipedia.com" for the information of the device's parts.
8. "www.youtube.com" for viewing applications in our prototype.

Smart Wearable Device- "SAATHI"

Guided by **Prof. M. C. Patel** Students : **Khushboo Kapoor**
Chandan Lunia

ABSTRACT

Travelling for blind people, old people, and differently abled can be a very difficult task. In today's time, with so much traffic on roads, it can be difficult for them to cross roads, reach their destination, that too hassle-free. Also, another problem involves people commuting on two wheelers, if they don't know the route it becomes very difficult for them to take out their phone and check the route every now and then. This can also cause accidents. For this, we have designed a solution that can work for this category of civilians as well. Smart wearable device includes smart shoes that can solve the problems stated above. It will guide them with their route and notify when the destination is reached. Secondly, for two-wheeler drivers, they can set their destination on maps and when they start the shoe's vibration will guide them through their route. For e.g. when we have to go left/ right), the shoe on the left (right) leg will vibrate. This will solve their problem of stopping every time and checking the maps.


Hard Work + Dreams + Dedication = SUCCESS

Smart Greenhouse over IOT platform

Guided by **Prof. Divyesh Raninga** Students : **Abhishek Gadhetariya**
Darshan Antala
Sagar Kanani

ABSTRACT


Nowadays, the controlling systems are adapting and implementing irrigation in order to meet people requirement. The main reason behind this deficiency is that estimating required irrigation amount is a complex process and need consideration of several significant factors. This project proposes an efficient automatic controlling system based on computing various changes, namely temperature, humidity, soil moisture, light intensity necessary in green house using wireless sensor network.



GUJARAT TECHNOLOGICAL UNIVERSITY
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INSTRUMENTATION & CONTROL ENGINEERING DEPARTMENT
SMART GREENHOUSE OVER IOT PLATFORM

Prepared By:-
ABHISHEK GADHETHARIYA (160280117012), DARSHAN ANTALA (160280117002), SAGAR KANANI (160280117016)

Guided By:-
Prof. DIVYESH V. RANINGA



ABSTRACT

Nowadays, the controlling systems are adapting and implementing irrigation in order to meet people requirement. The main reason behind this deficiency is that estimating required irrigation amount is a complex process and need consideration of several significant factors. This project proposes an efficient automatic controlling system based on computing various changes, namely temperature, humidity, soil moisture, light intensity necessary in green house using wireless sensor network.

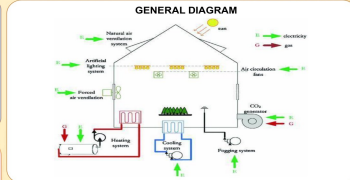
COMPONENTS

- Acrylic fibre sheet
- Temperature sensor (DHT11)
- Humidity sensor (DHT11)
- Soil Moisture sensor (YL-69)
- Node MCU ESP8266
- Water pump
- Actuators (Fans, LEDs etc.)
- PVC pipe
- Power supply

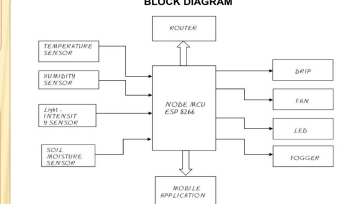
OPERATION OF PROJECT

The proposed system uses the concept of Internet of Things. IOT comprises of physical objects, controller, sensors, actuators and internet. The proposed system consists of microcontroller ESP8266, various sensors such as temperature sensors, humidity sensors, light sensors and windows application for controlling green house and parameters inside green house. It helps in monitoring the digitalized parameters of various sensors and verifies them with predefined threshold values. In case, any unfavorable situation arises, it then takes the required control operation. And there are various sensors as mentioned above for controlling the parameters inside the greenhouse. And when sensors reach a threshold it will send the signal to the microcontroller and required action will be taken. When temperature rises above a certain level, NODE MCU will trigger relay attached to the cooler and bring the temperature down. In case the air moisture falls below the set value, similar mechanism will be triggered and the small water droplets will maintain the relative humidity (RH). Glass greenhouse structure can hold the heat during night time, that prevents the leaves from frost bite in cold winter night in some cold and dry areas.

GENERAL DIAGRAM



BLOCK DIAGRAM



FUTURE SCOPE

The growing need for smart farming owing to the tremendously rising population is one of the key factors that is expected to supplement the growth of the global smart greenhouse market in the next few years. In addition, the growing popularity for rooftop farming and technological developments are anticipated to encourage the growth of the overall market in the near future. The emergence of vertical farming in urban areas and the growing awareness among consumers regarding the benefits of adopting smart greenhouse are projected to accelerate the market's growth. Improves the yield of the crop. Reduces the transportation cost. Improves the accuracy of the parameters that the crop requires.

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- Alausa Dile W.S., KeshinKazeemKazeem, "Microcontroller Based Green House Control System", The International Journal of Engineering And Science (IJES), Volume 2, Issue 11, Pages129-135, 2013.


ROBOTIC ARM

Guided by Dr.
M. T. Thakker


Students : Mohit Patel
Parth Sanepara
Priyan Shah

ABSTRACT

Ships use fuel, oils, sludge, sewage, water and other fluids, which are stored in tanks. When stored in tanks, these fluids tend to stick inside the tanks forming layers of semi-solid substance. Moreover, many impurities of these fluids settle down and stick to the surface of the tanks. Tanks like these are almost inaccessible due to ribs, pipes and cables. Realizing that people actually need to go into them to carry out inspection work was what motivated me to develop the robotic arm. The proposed robot will clean the water tank without much effort. However, a human part is needed to take the robot to the location of the tank and to place the robot inside the tank. Once placed in the tank, the robot cleans the tank autonomously and the user can take out the robot after the completion of the process. The robot takes care of the operations like cleaning, brushing, sucking etc.



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INSTRUMENTATION & CONTROL ENGINEERING DEPARTMENT



ROBOTIC ARM

PROJECT BY: MOHIT PATEL (160280117041) PARTH SANEPARA (160280117048) PRIYAN SHAH (160280117051) GUIDED BY: DR. MANISH THAKKER

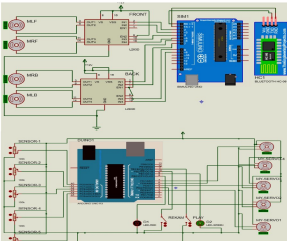
ABSTRACT:

Ships use fuel, oils, sludge, sewage, water and other fluids, which are stored in tanks. When stored in tanks, these fluids tend to stick inside the tanks forming layers of semi-solid substance. Moreover, many impurities of these fluids settle down and stick to the surface of the tanks. Tanks like these are almost inaccessible due to ribs, pipes and cables. Realizing that people actually need to go into them to carry out inspection work was what motivated me to develop the robotic arm. The proposed robot will clean the water tank without much effort. However, a human part is needed to take the robot to the location of the tank and to place the robot inside the tank. Once placed in the tank, the robot cleans the tank autonomously and the user can take out the robot after the completion of the process. The robot takes care of the operations like cleaning, brushing, sucking etc.

COMPONENTS:

- NEMA 17
- MG996R
- HX711 Bluetooth module
- Li Po battery
- Arduino board
- UV sensors
- Centrifugal pump
- IR sensor
- Thermal sensor
- Water jet
- Body structure
- Scrubber mechanism
- Suction pipe

CIRCUIT DIAGRAM:



DIMENSIONS:

CAR BASE (l*pb)	450*300
BASE PLATE-1 (l*pb)	450*300
BASE PLATE-2 (l*pb)	450*300
BASE ARM (l)	450
MIDDLE ARM (l)	350
SCRUBBER ARM(l)	180
LIFTING ASSEMBLY	45
SLIDING CHANNER(l*pb)	450*15

(all dimensions are in mm)

CONCLUSION:

- After a detailed study, it is concluded that there is hardly a complete autonomous robot suitable for cleaning ship tanks. This work could be the solution to that problem. Our future work would be to develop a robot with more sustainability and for inspection of Tanks also.

FUTURE IMPLEMENTATION:


- Have planning to increase height of arm as per requirement of cleaning tank.
- Use a motor to measure amount of fuel gases.
- The system design will be improved based on prototype results.
- Further simulations will be conducted to assess the situations.
- Making universal mountings for scrubber mechanism so that scrubber size can be changed manually depending upon the requirement.

References:

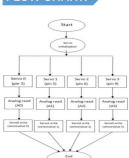
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- Patel, S. and Patel, P. "Design and Implementation of a Cleaning Robot Using Arduino Uno". Proceedings of the 2015 IEEE International Conference on Information Science and Technology.

PROJECT DESIGN:

Our proposed robot will have an Arduino controller, high-pressure water pump, suction pump, ultrasonic sensors and battery inside the robotic body and robotic arm on the top of its body. Wireless drive of robot using Bluetooth or any other communication. Scrubber, water jet, detergent sprayer etc. to clean the walls. Vertical motion of scrubber, water jet and detergent sprayer. 90-degree motion of water jet. For cleaning of tank floor scrubber is provided at bottom. Wiper and mini collector at the bottom to collect the slag. A camera and UV sensors are placed on the arm for non-destructive inspection of walls. IR sensors used for detection of obstacles and ease of control.




FLOW CHART:




RESULT:

- A hardware prototype has been developed with the idea of cleaning ship tanks and making the process easy, fast and comfortable and using android mobile application for giving commands.
- The prototype allowed to conduct simulations under real conditions, however it revealed that further simulations with more mechanisms and tank are needed to confirm the trends.

Hard Work + Dreams + Dedication = SUCCESS



GUJARAT TECHNOLOGICAL UNIVERSITY
L. D. COLLEGE OF ENGINEERING
INSTRUMENTATION AND CONTROL ENGINEERING DEPARTMENT



DENSITY METER

Sanjay Jinjala 160280117016, Jenishkumar Kalathiya 160280117017
Vishal Parmar 160280117033, Vivekjyoti Bhowmik 160280117064
Guided By: Prof. Lalit S. Patel

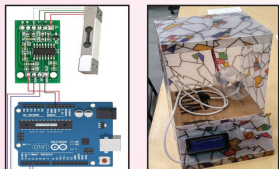
ABSTRACT:

In most chemical, pharmaceutical and plastic plants and industries density measurement plays vital role in monitoring and controlling process parameters and our prototype is meant for that's only. Our prototype is special one as it measures both solid & liquid densities in a single unified device. The market price of this existing products are quite costly but we come up with very economical price tag. And we are concern about the portability of the product so we make it small and easily portable one. In order to make it economical we used a transducer (hx711), load cell as sensor, arduino and some other low cost equipments.

OPERATION OF PROJECT :

A solid ball of known mass and volume is immersed in a liquid whose density is to be measured. According to Archimedes principle, the weight of solid ball decreases proportional to the amount of liquid displaced by it. The mass of the object submerged equals the mass of the liquid displaced. And the volume of this liquid is equal to volume of solid ball. A load cell is connected to this arrangement such that it detects and calibrates the weight loss in terms of voltage (mv). Analog to digital converter converts the analog voltage signal into digital voltage signal, which is then represented in the form of digits by display. In this way we can measure the density of any unknown liquid by calibrating the weight loss in terms of voltage. same way its work for solid where density of liquid is measured so weight loss represent density of solid.

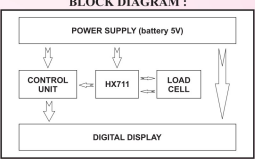
HARDWARE :



COMPONENTS:

- Sensor - Load cell
- Equipment body
- Circuit board
- Battery
- Display
- Wiring

BLOCK DIAGRAM :



FUTURE SCOPE & APPLICATION :

- Density measurements are frequently used for this purpose, especially in the pharmaceutical, chemical, petrochemical as well as the food and beverage industry. They allow the manufacturer to analyse raw materials, semi-finished and finished products as well as the manufacturing steps in terms of a number of factors.
- Density can be used to identify substances, to determine their quality or purity and to measure their concentration in binary or quasi-binary mixtures. Substance conversions and reaction dynamics can also be inferred from it. In combination with other methods such as refractometry that measures the refractive index of substances, the density measurement allows you to make precise statements about the quality of each step of the production process.

Acknowledgment:

- We express our gratitude to DR. M. T. THAKKER the head of department of Instrumentation and Control for his constant encouragement, co-operation and support and also giving the knowledge he have about our project for making it better.
- we would like to express our deepest sense of gratitude and sincere thanks to our Project guide PROF. LALIT S. PATEL sir for his support and timely co-operation and helping us by giving the useful advices for making the project far better than we thought.

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DENSITY METER

Guided by prof.
L. S. Patel

Students : Sanjay Jinjala
Jenishkumar Kalathiya
Vishal Parmar
Vivekjyoti Bhowmik

ABSTRACT

In most chemical, pharmaceutical and plastic plants and industries density measurement plays vital role in monitoring and controlling process parameters and our prototype is meant for that's only. Our prototype is special one as it measures both solid & liquid densities in a single unified device. The market price of this existing products are quite costly but we come up with very economical price tag. And we are concern about the portability of the product so we make it small and easily portable one. In order to make it economical we used a transducer (hx711), load cell as sensor, arduino UNO and some other low cost equipment.

INSTRUMENTATION & CONTROL ENGG.- PLACEMENT 2020		
Sr. No	Name of Students	Company
1	VAGHASIYA MEET KIRITBHAI	RELIANCE
2	LUNIA CHANDAN DILIP	RELIANCE
3	NIHAR DHOKAI	RELIANCE
4	MANIPUZHA PRITHVIRAJ S.	RELIANCE
5	PATEL MOHIT	RELIANCE
6	BINITA GAJJAR	E-INFOCHIPS
7	BHALIYA JAIMIN VINUBHAI	ACCENTURE
8	GADHETHARIYA ABHISHEK U.	ACCENTURE
9	KALATHIYA JENISHKUMAR B.	ACCENTURE
10	KAPOOR KHUSHBOO KAPIL	ACCENTURE
11	LUNIA CHANDAN DILIP	ACCENTURE
12	PALKHIWALA SHUBHAM D.	ACCENTURE
13	PARMAR MAYUR NATVARLAL	ACCENTURE
14	PATEL FENIL DILIPKUMAR	ACCENTURE
15	RATHOD DHRUV PARESHBHAI	ACCENTURE
16	SHAH SHIVAM MITESHKUMAR	ACCENTURE
17	KAPOOR KHUSHBOO KAPIL	TATA CONSULTANCY SERVICES
18	JINJALA SANJAYKUMAR DULABHAI	E-INFOCHIPS
19	KALATHIYA JENISHKUMAR B.	L&T TECHNOLOGY SERVICES
20	PALKHIWALA SHUBHAM D.	L&T TECHNOLOGY SERVICES
21	SHAH PRIYAN DHARMESHKUMAR	L&T TECHNOLOGY SERVICES
22	SOLANKI MALHARSINH A.	TORRENT POWER(SURAT)
23	PARMAR PRANAY NILESHKUMAR	FIVES COMBUSTION
24	PARMAR PRANAY NILESHKUMAR	COROMANDEL
25	PARMAR MAYUR NATVARLAL	GSPC
26	KAPOOR KHUSHBOO KAPIL	AIR PRODUCTS
27	NAYAN BHOLA	ADANI WILMAR
28	SONAGARA ANKITKUMAR UKABHAI	ADANI WILMAR
29	ROHAN RATHOD	ADANI WILMAR
30	GADHETHARIYA ABHISHEK U.	JK PAPER

“Practice kindness all day to everybody and you will realize you’re already in heaven now.”

SSIP HACKATHON 2019-20

Education Department Government of Gujarat has taken series of initiatives to design and develop innovation processes and ecosystem across its affiliated colleges and universities. At state level, Student Startup Innovation Policy(SSIP) is pioneering series of interventions and Gujarat Hackathon is an annual flagship program where young students can leverage their technical skills to solve real life challenges posed by various stakeholders.

Students from our department actively took part in the hackathon 2019-20 which was held at IITRAM,Ahmedabad. Students have successfully given solutions to challenges given through their innovative projects.



Mayank Patel, Anindya Dey Sarkar, Ajay Vegad, Harsh Patel and Vatsal Dudhat students of 6th semester participated in Smart Gujarat Hackathon mutually organized by SSIP and Government of Gujarat during 27-28 February, 2020 at IITRAM, Ahmedabad. They had successfully given a solution for problem statement titled by IOT based digital notice board using node MCU.

The main objective of this project is to develop an IOT based notice board using node MCU to be used by faculty in order to display the latest Notices and Announcements.



Bhatt kirtan , Jatush Dave , Nilay Dave pinakpani Saha and Parth Dave students of 4th semester participated in SMART GUJARAT HACKATHON . Problem Statement of HACKATHON selected by them was Underground cable fault detector which is problem of SARJAN INDUSTRIES.In HACKATHON they developed prototype of their concept using Microcontroller , LCD display , uniformly distributed resistors arrangement act as a 3-Phase.They applied pre-programmed calculation in microcontroller to find equivalent length of faulty cable.The Project presented had satisfactory results to jury members by simulations. Team were also qualified for grand final and they will present their project in next round.

“Life is really generous to those who pursue their personal legend.”

LAKSHYA '20

Lakshya is the only National level Edu -Tech festival of L.D. College of Engineering which is organized by Club ROBOCON LDCE every year since 2014. Every year Lakshya comes up with unique theme and the main event is organized in accordance with the theme. This year the footfall was of around 14,000 students. Chandan Lunia (8th Sem, I.C.), Khushboo Kapoor(8th Sem, I.C.), Jinay Shah (6th Sem , I.C.) were one of the conveners of Lakshya 2020. Where as Utsav Doshi (4th Sem, I.C.) and Navneet Dubey (4th Sem , I.C.) were one of the Chief Organizers of Lakshya 2020. This year Lakshya came up with theme named, "Saamarthya" - Redefining Standards of Engineering and "Technowlegdement" - Acknowledging Engineering, being the main event of the Lakshya - 2020. The theme of Lakshya 2020, aimed to highlight the fundamental purpose of engineering, that is creating technologies for a better lifestyle. We wanted to ingrain the ideology that present technology is there to help every sector of the community, irrespective of their social or economic status. The main event was graced by the dignitaries like Mr. Sunny Vaghela (times men of the year 2018, founder and CEO of tech defense lab),Mr. Archit Somani(national champion of world economic forum, founder and ceo of tracomo), Mr. bipin dama (Founder and CEO of Saras 3D incorporated).



“Don't keep your dreams in your eyes, they may fall as tears. Keep them in your heart so that every heartbeat may remind you to convert them into reality.”



With the great support of professors and hard work of students the inaugural program of ISA students' chapter was conducted in presence of Chief guest Mr. Jagdish Shukla, Guest of honour Mr. Vipul Patel (ISA Secretary), Prof. C.B.Bhatt, Mr. Madhukant Patel, Dr. Suryakant Gupta, Head of Instrumentation and Control department Dr. Manish Thakker , Professors of Instrumentation and Control Department and students from various department were present in this program. The inauguration ceremony started with prayer and lamp lighting. The guest were given welcome address by HOD Dr. Manish Thakker and honored with memento. Guests addressed various views and perspective of ISA to the audience. Mr. Jagdish Shukla gave formal introduction of ISA and its perspectives. Mr. Vipul Patel introduced students about its benefits in engineer's life. Prof C.B. Bhatt delivered a speech about automation and its relation to academics. Mr. Madhukant Patel enlighten students about current automation projects related to instrumentation and its opportunities. The most awaited talk of the session was Expert Talk on day to day application on Plasma by Dr. Suryakant Gupta. The students were active and answering the question asked by the guest. Students who attended seminar were given advantage for next workshop. The presence of this virtues minds guided students towards joining ISA and take its advantages like scholarships, internships, bi-monthly magazines, etc. They wished students for their better future. The program ended with vote of thanks by ISA students' chapter president Mr. Mayank Patel.

“No one is in control of your happiness but you; therefore, you have the power to change anything about yourself or your life that you want to change.”



Confederation of Indian Industry યંગ ઇન્ડિયન્સ દ્વારા 'ઇ ફ્યુચર' વિષય પર યુવા સમિતિનું આયોજન કરવામાં આવ્યું

‘ઇ ફ્યુચર’ વિષય પર ટોચની યુનિ.ઓના ૬૦૦થી વધુ વિદ્યાર્થીઓએ ભાગ લીધો

સિદ્ધિમાં Confederation of Indian Industry સીઆઈઆઈ યંગ ઇન્ડિયાના અમદાવાદ સેન્ટર દ્વારા 'ઇ ફ્યુચર' વિષય પર યુવા સમિતિનું આયોજન કરવામાં આવ્યું હતું. જેમાં કોર્પોરેટ અને શિક્ષણ જગતના અભિઓએ હાજરી આપી હતી. આ કાર્યક્રમમાં ગુણવત્તા યુનિવર્સિટી, શ્રીમતિ બિ.એસ. સુલ, એસવી પટેલ ઈન્સ્ટિટ્યૂટ ઓફ મેનેજમેન્ટ એન્ડ કોમ્પ્યુટર સ્ટડીઝ, એસકે ઈન્સ્ટિટ્યૂટ ઓફ મેનેજમેન્ટ, ઈન્ડસ યુનિવર્સિટી અને અમદાવાદની અન્ય ટોચની યુનિવર્સિટીઓના ૬૦૦થી વધુ વિદ્યાર્થીઓ આ કાર્યક્રમમાં હાજરી આપી હતી. આ સમિતિમાં ફ્યુચર ઓફ એજ્યુકેશન વિષય એટલે પાલી ટેકનિકના સ્થાપક અને એમ.ડી સંદીપ એન્જિનિયર, સીઆઈઆઈ ગુજરાત સ્ટેટ કાર્ડિન્સના ઈમ્પીએટ પાટલ ચેરમેન કમિટીના ચાઇન, ઈન્ડસ યુનિવર્સિટીના સીઓઓ સપીકા બંસારી તથા શ્રીમતિ બિ.એસ. સુલના ડિરેક્ટર ડ્રે.નોલા કાર્મોએ પેનલ સભ્યોમાં ભાગ લઈ આ વિષય અને યોગ્યતા ડીડી જુઓને વલિયમ સમને પરીચય કરાયા હતા. આ કાર્યક્રમમાં ભાગ લીધેલ તમામ વક્તાઓએ સવા સ્ટીલસેલ અને પદકરોને પહોંચી વળવા માટે સજજ ફ્યુચર ડેડી સેવા અનુરોધ કર્યો હતો. આ સેમિનારમાં હાજર રહેલા વિદ્યાર્થીઓને અમદાવાદના સ્ટાર્ટ અપ ટીકા સંસ્કૃતિ મુલ્યવાન માર્ગદર્શન હાંસલ થયું હતું. જે સ્ટાર્ટ-અપ ટીકા સંસ્કૃતિ વિદ્યાર્થીઓને સંબંધિત કર્યું હતું. આ સમિતિમાં જન સંસ્થા, મોબિલિટીનું ભાવી, વેબિન અને સોશિયલ મીડિયા વિષયે વિદ્યાર્થીઓ માટે ડિઝાઇન થિંકિંગ અને ફ્યુચર થિંકિંગ અને માસ્ટર ક્લાસ કરવામાં આવ્યો હતો. જેમાં વિદ્યાર્થીઓની અલગ અલગ ટીમે નિર્માણકારી પેનલ સમક્ષ રજૂઆતો કરી હતી. આ સમિતિના અને નિર્માણકારને પદક કરેલા વિજેતાઓનું બહુમાન કરવામાં આવ્યું હતું અને તેમને એવોર્ડ આપી સન્માનિત કરવામાં આવ્યાં.

જળ સંસ્કૃતિ, મોબિલિટીનું ભાવી, ગેમિંગ અને સોશિયલ મીડિયા વિષયે વિદ્યાર્થીઓ માટે ડિઝાઇન થિંકિંગ અને ફ્યુચર થિંકિંગ યંગે માસ્ટર ક્લાસ કરવામાં આવ્યાં

(THE FUTURE COMPETITION) GAURAV, HERAK, KUHDIP, JAINIL, PALLAV



(CHART MAKING COMPETITION)

OZA VISHESH



(POSTER MAKING COMPETITION)

ZARANA PAREKH

Don't bend; don't water it down; don't try to make it logical; don't edit your own soul according to the fashion. Rather, follow your most intense obsessions mercilessly."

WEBINAR ON BUILDING HABITS

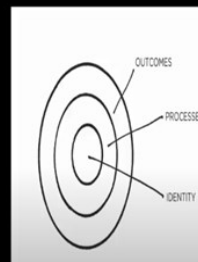
One should keep learning new things throughout his/her life but during this harsh situation due to COVID-19 pandemic, it is difficult for one to do so. Also development of good habits like reading is very important during this lockdown period. To help students for the same, ISA student section LDCE and instrumentation and control department, L.D. College of engineering organized webinar on BUILDING HABITS on Google Meet platform on 11th May, 2020.

Around 50 Students of our department and have taken benefit of this webinar. Along with the students, faculty advisor of ISA student section LDCE and head of the department Dr. Manish T. Thakker along with departmental faculties Prof. Harsh K. Shastri, Prof. Sampan N. Shah had also attended the webinar.

This webinar was presented by mind power trainer Mr. Jeet Trivedi, He won an international debate competition as well as holds 7 world records in blind fold categories. Mr. Jeet Trivedi had given a very good example to incorporate good habits in ones routine to achieve ones desire or goal by changing ones outcomes or by changing ones process or by changing ones identity SSIP is platform which provides students to develop their ability in entrepreneurship, there are lots of passionate students in our state who has pioneering ideas but couldn't convert their ideas into product due to lack of financial support thus SSIP is an organization which helps those students to carry forward their innovative ideas.

WHAT ARE GOOD HABITS?

HOW TO INCORPORATE IN OUR ROUTINE?



The first layer is changing your outcomes.

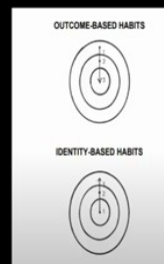
The second layer is changing your process.

The third and deepest layer is changing your identity.



THE SCIENCE OF HOW HABITS WORK

The process of building a habit can be divided into four simple steps: cue, craving, response, and reward. Breaking it down into these fundamental parts can help us understand what a habit is, how it works, and how to improve it.



GOAL

- Read a book.
- Run a marathon.
- Learn instrument.
- Reader.
- Runner.
- Musician.



“Conquer the angry one by not getting angry; conquer the wicked by goodness; conquer the stingy by generosity, and the liar by speaking the truth.”

WEBINAR ON EXPLOSION PROTECTION

Ensuring the safety of people, achieving a safe and fault-free production process, and having a clean working environment are important aims. And the way to achieve these aims is to be aware of how explosions occur wherever combustible materials, oxygen, and sources of ignition can come together, and how to avoid them. So to spread the knowledge regarding this topic, ISA student section LDCE and instrumentation and control department, L.D. College of engineering organized a webinar on Explosion Protection techniques and Intrinsic safety on 12th May, 2020.

Around 30 Students from 4th and 6th semester of IC dept. and various Professors had participated in this Webinar. The knowledge was delivered by Dileep Mani who is presently the Deputy Manager of Process Automation at Pepperl + Fuchs and has a working experience of more than 13 years. He is an electronics and communication engineer and has a vast knowledge regarding industries. He is highly skilled in Process automation, System Engineering and Process control.

Typical Industries Using IS Protection

- Chemical and petrochemical industry
- Offshore and shipbuilding industry
- Oil and gas industry
- Pharmaceutical industry
- Water and waste water industry
- Power Industry

Facts & Myths of Ex i Protected Field Device

- Only Ex i field device needs to install Ex i barrier
- Ex d field device does not need Ex i barrier
- Ex i field device without Ex i barrier have no protection (protection not complete)
- Ex i protected loop does not need armored cable, Ex d cable gland and Ex d box
- Entity parameters must match to ensure Ex i protection

Explosion Protection Techniques

Method: Segregation
Standards: IECEx: IEC 60079-18
ATEX: EN 60079-18

Encapsulation Protection Ex m

Resin → Eliminate oxidizer and hazardous atmosphere

Participants (39):

- sampanshan
- Sans
- Sanjeev Chauthan
- Sherya Vaibhav
- Urookishan
- input Patel
- vahat dodye

“Our biggest fear is not in expressing the truth but that we will be attacked or belittled because of our truth.”



L.D. College engineering Ahmedabad organized an important industry visit for Instrumentation & Control Engineering students on 6th February, 2020. The industry visit to Prima Automation India Pvt. Ltd. help the students understand the various practices involved in the functioning of the corporate sector. While getting familiar with the various practical situations and working methodology involved in the respective field, students can enhance their management and communication skills. The visit coordinated by Prof.Lalit Patel & Prof.Divyesh Raninga around 45 students were participated in visit. The company is involved in manufacturing quality panels and providing automation solution in the entire Gujarat State. The manufacturing plant, where the students visited has varied departments like Sales, Marketing, Engineering, Purchase, Accounts, Service, R&D, QC, and Electronics & InfoTech. students received a warm welcome from the HR manager.

Under their excellent supervision, our students gained immense practical knowledge related to the manufacturing of instrumentation, pharmaceutical control panels and compressor control panels, among others. They also learnt the technical specifications and working of machines like CNC Punching Machine, NC Type Shearing Machine, Protection Welding Machine, CNC Bending Machine, and CNC PU dispensing Unit. It was an informative and successful visit. Overall, the industry visit for students turned out to be an exciting trip. The motto of the industry visit was to make the students aware about the fabrication shop, painting shop, assembly shop and other departments like Engineering, Purchase, Accounts, Service, R & D, and Electronics. This was achieved since the student enjoyed the visit and most importantly gained hand on knowledge about the complete working methodology of any big manufacturing company.

“Conquer the angry one by not getting angry; conquer the wicked by goodness; conquer the stingy by generosity, and the liar by speaking the truth.”



A Seminar on Expert talk on 'PCOS: infertility and metabolism syndrome' was organized. Prof. Gaurang Shah, Head of Pharmaceutical D section, L. M. College of Pharmacy under the guidance of Head of Instrumentation and Control Department Dr. Manish Thakker. Seminar coordinated by Prof. Manish Patel - Women Development Cell Coordinator. Around 14 Female professors and 60 students from various department of college were invited to attend this seminar. Dr. Manish Thakkar, HOD (I.C) welcome and felicitate Dr. Gaurang Shah with a memento. Students were introduced and guided regarding PCOS by Dr. Gaurang shah. In this problem, there are hormonal changes in a female's body with an increased number of male hormones thus making difficulty in regular menstrual cycles and pregnancy. As this problem is usually avoided amongst females, he described the causes and symptom of these diseases. Students were asked to take care of this disease as effects for whole life or long time thus increasing the chances of stroke, heart attack etc. To prevent this regular and healthy diet is recommended. There was a question and answer session with the expert and student at the end. The session was really interactive and informative for girls students.



Dr. Ankit K Shah published a paper named 'An IEC 61131-3-Based PLC Timers Module Implemented on FPGA Platform'. It is matter of honor for Department for publication by faculty in such publication in highly reputed journal. Dr. Shah has published many papers throughout his carrier till now. He is alumni of this department and has done M. Tech in Systems and control from IIT- Bombay and has Completed Ph.D on 'Model based control of non-linear Hybrid Dynamical Systems' from Nirma University. Citation of paper as below.

Patel D.M., Shah A.K., Shukla Y.B. (2020) An IEC 61131-3-Based PLC Timers Module Implemented on FPGA Platform. In: Bindhu V., Chen J., Tavares J. (eds) International Conference on Communication, Computing and Electronics Systems. Lecture Notes in Electrical Engineering, vol 637. Springer, Singapore.

Print ISBN– 978-981-15-2611-4

Online ISBN – 978-981-15-2612-1

“Dreams can often become challenging but challenges are what we live for.”

UV DISINFECTION CHAMBER



Team Members :-

Milan Desai, Laxman Darji,

Bhawar Prajapati, Mayan Panchal

SSIP Supported NABL approved UV disinfection chamber designed which is used to sanitize where liquid sanitizers can not be used. Like electronic gadgets, Leather, vegetables etc. Here we used an uv-c lamp having 254 nm of wavelength which destroys the DNA structure of cells, bacteria, viruses, fungi, algae etc. In this chamber reduces the risk of infection, cost of traditional cleaning and disinfection, and most importantly acquires confidence and security in medical facilities.



Dave Parth was selected as the best cadet in the Sior Division of Army wing to represent Gujarat at RDC 2020. Cultural team: A selected team of 35 cadets perform cultural events during the visits.

Flag area briefer: during the VIP visits the briefers are required to give a crisp briefing on their flag area. He was on briefing during the visit of Chief of air staff, Air Chief Marshal RKS Bhadauria and delivered the briefing to Rajya Raksha Mantri Shripad Yesso Naik.

“Education is the most powerful weapon which can change the world.”



A March past is done in which a Contingent of all the states perform in front of the Prime Minister. The salute is taken by the Prime Minister personally. Every state selects 52 from amongst their 111 for this parade. Out of this 52, several are called 'markers' who are top performers and act as cue givers to others. Shaifali Singh was amongst the seven markers. The Gujarat State team finished 2nd overall in PM's rally.

A selected team of 35 Cadets perform cultural events, Shaifali Singh was amongst this team of 35 performed in front of Rajya Raksha Mantri Shri.Pad YessoNaik.



Best cadet was selected amongst the top 9 Cadets in Directorate amongst the NCC strength of about the 70,000. At the end of National level competed against selected ones of each state and finished overall as a bronze medalist at All India level. The medal was finally presented by Honora-

“Conquer the angry one by not getting angry; conquer the wicked by goodness; conquer the stingy by generosity, and the liar by speaking the truth.”

ISA PMCD SCHOLARSHIP

The Process Measurement and Control Division (also known as PMCD) is organized within the Automation and Technology Department of ISA. The primary goal of PMCD is to advance the interests and knowledge of its members. PMCD supports its nearly 6,000 members by operating Technical Committees, publishing an industry-specific newsletter and participating with other ISA divisions in technical symposia.

PMCD promotes a highly professional, responsible image of the process measurement and control industry through its various programs and helps its members to develop that image and to succeed in a highly competitive market.

ISA PMCD division every year provides scholarship of up to 1500 \$ to support students financially. Two members of ISA STUDENT SECTION LDCE got ISA PMCD scholarship of total worth 1050 \$.

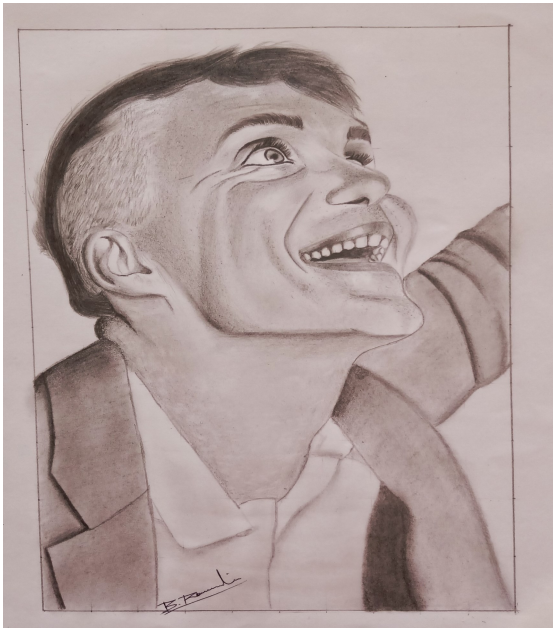


Patel Mayank
semester :6th IC Dept.
President, ISA STUDENT SECTION LDCE
Scholarship amount : 600 \$



Bharmal Buarhanuddin
semester :6th IC Dept.
Member, ISA STUDENT SECTION LDCE
Scholarship amount : 450 \$

“Conquer the angry one by not getting angry; conquer the wicked by goodness; conquer the stingy by generosity, and the liar by speaking the truth.”



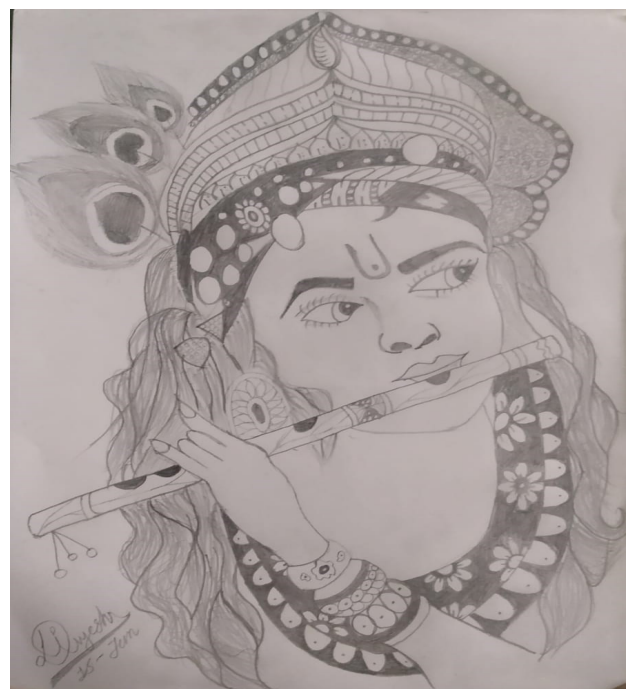
'Thomas Shelby'
By—Ronvelia Bhavik (4th Sem)



'Colourful Perception'
By—Janvi Dubal (6th Sem)



'अभिरुचि'
By— Parth Patni (2nd Sem)



'Lord Krishna'
By— Divyesh Bavarva(2nd Sem)

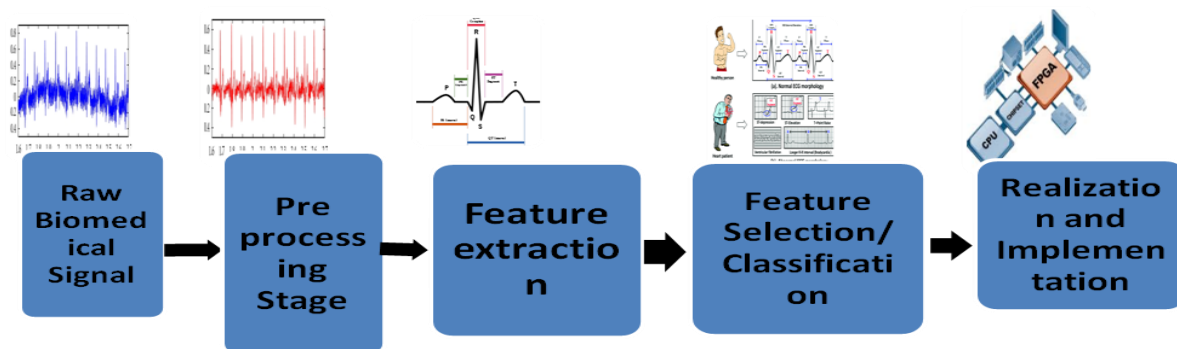
“The ideals which have always shone before me and filled me with joy are goodness, beauty, and truth.”

Enhanced design of Digital filter and its implementation on FPGA

-Prof.Vandana Patel, Dr. Ankit Shah

Abstract of Research Work—In signal processing, the function of a filter is to remove unwanted parts of the signal, such as random noise, or to extract useful parts of the signal, such as the components lying within a certain frequency range. A **digital filter** is a system that performs mathematical operations on a sampled, discrete — time signal to reduce or enhance certain aspects of that signal. Digital filters are basically classified into two classes FIR and IIR filters. IIR filters are efficient, they can provide a similar magnitude response for fewer coefficients or lower side lobes for the same number of coefficients as compared to FIR filter but has a nonlinear phase response, Whereas IIR filters provide less average delay compared to its equivalent FIR counterpart.

A **Field Programmable Gate Array** is an integrated or semiconductor device that can be programmed for different algorithms by the designer or customer after manufacturing. **DSP** is a highly demanding application domain in the present day technology wherein the demands for enhanced performance and reduced resource utilization have increased over the years. Recent advancements in FPGA design technology through the incorporation of DSP functional blocks along with the inherent FPGA features like high flexibility through reconfiguration, reusability, moderate cost and feature extension has resulted in FPGA(s) becoming the preferred platform for evaluating and implementing DSP.



The motivation for research is to enhance the design of digital filter in the various field such as communication, biomedical etc. where feature extraction /noise removal is still a challenging task. Availability of modern FPGA devices with high computational speed and flexibility attracts the user to optimize its parameter to achieve the desired performance.

We are what our thoughts have made us; so take care about what you think. Words are secondary. Thoughts live; they travel far.—Swami Vivekananda



Mr. Rohit Vohra
Managing Director and Senior Partner
Boston Consulting Group(BCG), Singapore
MBA(PGDM) – IIM Calcutta

Instrumentation and Control Engineering
L.D. College of Engineering, Ahmedabad

Rohit Vohra is a member of the leadership team at Boston Consulting Group's Industrial Goods and Operations practices. Since joining BCG in 2001, Rohit has worked extensively with organizations in the areas of strategy, transformation and business turnaround, operational excellence, manufacturing, supply chain, procurement, go to market, sales, and pricing.

His client engagements have spanned a wide range of industrial goods and consumer companies including sectors such as metals, mining, process industries, automotive, equipment fabrication, and durables, and fast-moving consumer goods. Rohit has especially deep experience in the metals and mining industry, working with numerous players in ferrous and nonferrous sectors on topics from market-entry strategy to plant transformation and from ocean freight management to sales and pricing.

Rohit's area of expertise include Business turnaround—profitability improvement, comprehensive cash release, etc, Operational excellence—manufacturing/plant transformation, Procurement and supply management—linkage with firm strategy, category sourcing strategies, sourcing organization and processes, design to cost, value delivery, Marketing excellence, including go to market, sales & distribution, pricing, Supply-chain management and logistics and Large capital project management.

Before joining BCG, Rohit worked as an engineer with one of the largest petrochemicals company. Rohit did his PGDM(MBA) from Indian Institute of Management Calcutta and holds an undergraduate degree in Instrumentation and Control Engineering from L.D. College of Engineering, Ahmedabad.

DEPARTMENT FACULTIES :

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PROF. U. V. SHAH, PROF. V. P. PATEL, PROF. R.C. PATEL - Associate Professor

PROF. M.C. PATEL, PROF. V.V. PATEL, PROF. A. K. SHAH, PROF. H. K. SHASTRI, PROF. L. S. PATEL, PROF. D. V. RANINGA, PROF. C. V. SHAH, PROF. K. R. JOSHI, PROF. U. G. SUHAGIA, PROF. N. A. KANANI,

STUDENTS EDITOR TEAM: DARSHAN SURTI, JANVI DUBAL, MAYANK PATEL,

BURHANUDDIN BHARMAL

—TEAM