Instrumentation Engineering

Newsletter 2020-2021

Vision statement of Department

To be recognized as leading contributor in imparting technical education and research in Instrumentation & Control engineering for development of the society.

Mission statement of Department

1. To deliver knowledge of Instrumentation and Control Engineering by strengthening involvement of Research institutions and industries in academics
2. To build conducive environment for advanced learning through participation of faculty and students in collaborative research, consultancy projects, student exchange programs and internships
3. To develop competent Engineers with entrepreneurial skills to address socio-economic needs.

Program Educational Objectives (PEO)

The Graduates would demonstrate

1. Core competency in Instrumentation and Control Engineering to cater to the industry and research needs.
2. Multi-disciplinary skills, team spirit and leadership qualities with professional ethics, to excel in professional career and/or higher studies.
3. Preparedness to learn and apply contemporary technologies for addressing impending challenges for the benefit of organization/society.
4. Knowledge of recommended standards and practices to design and implement automation solutions.

PEO – Mission Mapping

	M1	M2	M3
PEO1	3	2	2
PEO2	2	3	2
PEO3	2	3	3
PEO4	2	3	3

Program Specific Outcomes (PSOs)

Graduates shall have the ability to:

1. Evaluate the performance of suitable sensors / Process components/ Electronic / Electrical components for building complete automation system.
2. Analyze real-world engineering problems in the area of Instrumentation and Control.
3. Design or Develop measurement / electronic / embedded and control system with computational algorithms to provide practical solutions to multidisciplinary engineering problems.

Program Outcomes

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

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

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

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

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

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

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

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

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

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

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

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

Department Activities

1. Research Projects and Consultancy

Sr .No	Achievements	Number
1.	Ongoing Funded Research Projects	1
2.	Ongoing Consultancy Projects	3

2. Expert Talks organized in the Department

1. Audit course on Project engineering management and Batch Process Control conducted byexperts from Emerson Export Engineering Center, Pune in AY 20-21 Sem 2

2. A session on **Cryptography and its applications** was arranged for all the Third Year students on **Friday, 7th May 2021.** The expert for the session was Mr. AjitHatti, Founder, Director, PureID.

3. A session on IOT and its applications in industry was arranged for all the Third Year students on **Monday, 17th May 2021.** The expert for the session was Dr. Ajay Deshmukh, Director of BhaskaryacharyaPratishthan Pune.

4. A session on Carrier opportunities in Instrumentation and Control engineering in industry was arranged for all the Third Year students on **Tuesday, 18th May 2021.** The expert for the session was Dr. Ajay Deshmukh, Director of BhaskaryacharyaPratishthan Pune.

5. Expert session on AR-VR arranged for Third Year students on **Friday, 28th May 2021** by experts from Ethosh digital Technology.

3. Semester Internships for AY20-21

Sr. No.	Name of Student	Name of Company

1	AHMED HADAR ABDULQADER ALMASAABI	ElectronetEquipments Private Limited
2	AJAY S	Expleo
3	AJMERA ADITYA SANJAY	SBEM Pvt Ltd Pune
4	ANAYA AVINASH PAWAR	MerkleSokrati
5	ASHTEKAR CHAITANYA VINAYAK	Gervigreind Data Science Private Limited
6	BASOLE PARTH AMOD	Endress+Hauser to change
7	BELEKAR ANAMAY MAHESH	iobot Technologies India Pvt. Ltd., Pune.
8	BHALKAR SUDARSHAN BHAGWAN	Nell InfotechPvt.Ltd, Bavdhan,Pune
9	BHAVE PURVESH LALIT	Alta Tecnologia Solutions Pvt. Ltd.
10	CHANDAN SHRIKANT PANDURANG	BR Instrumentation & Controls
11	CHANNA SOHAM SHIVPRAKASH	Scorpy tech
12	CHAVAN NIKHIL SHARAD	Yun Solutions LLP
13	CHAVAN YASH BHANUDAS	ProductHub
14	CHUDGAR SARTHAK MILIND	Tusker Materials Handling Pvt Ltd
15	DABHADE KUNAL SUNIL	Appoint To Mee (A2mee)
16	DALVI AMEYA VIJAY	AutoIntell Services
17	DANI CHINMAY DILIP	Yun Solutions LLP
18	DESHMUKH KAPIL HANUMANTRAO	Cognizant
19	DESHPANDE PRANNAY VIJAY	Alta Tecnologia Solutions Pvt. Ltd.
20	DESHPANDE VARAD NILESH	Concord technologies
21	DONGARE PRAJWAL ASHOK	SBEM Pvt Ltd Pune
22	DRAVID YASH SACHIN	Yun Solutions LLP
23	DURAGKAR TANMAY PRITIN	Endress+Hauser
24	EKADE RISHIKESH ANAND	Autointell services

25	FAVARE AKSHADA ATMARAM	Curiosity Innovations
26	GAWAI HEMANT RAMCHANDRA	Scorpy tech
27	GUJRATHI MOHNISH YOGESH	Multiquadrant Industrial Controls (I)Pvt Ltd
28	HAPSENKAR DHANASHREE SATISH	TechPort Solutions Pvt Ltd
29	HARDE MONALI GITARAM	Curiosity Innovations
30	IGHE ANIKET ANIL	COTMAC ELECTRONICS PVT.LTD
31	JADHAV RAHUL MADAN	DNP System
32	JOHNATHAN AARON FERNANDES	Bayanat Airports Engineering & Supplies
33	KALEKAR BHAVESH BHASKAR	The Bombay Dyeing Mfg co ltd
34	KALYANI KAILAS JAWARE	Devise Electronics
35	KASHIKAR RUSHIKESH RAVINDRA	Autointell services
36	KASTURE CHANDRASHEKHAR SHYAMRAO	Concord Technologies
37	KETKAR PRATHMESH ANAND	Yun Solutions LLP
38	KHALED HASHALA ALI HASHALA AL MASAABI	ElectronetEquipments Private Limited Tiny Industrial Estate
39	KHAN SUHEB	Sunuvo Tech Systems LLP
40	KHANDVIKAR SHARVARI SUNIL	Cognizant
41	KILCHE SUHAS BHAGWAT	TechPort Solutions Pvt Ltd
42	KOLNURE KARAN SOPAN	TechPort Solutions Pvt Ltd
43	KOTWAL NIKITA DATTATRAY	Cybrlytics Technology (OPC) Pvt Ltd
44	MOHARIL AMBARISH SUNIL	IISER Bhopal (Central Governemnt Institute)
45	NAGARGOJE SURAJ KAMALAKAR	SBEM Pvt Ltd Pune
46	NAKE ANIKET RAMCHANDRA	Rashtriya Chemicals & Fertilizers Ltd.

47	NARODE SIDDHANT MAHESHKUMAR	Ethosh Digital Pvt. Ltd.
48	NIRUKHEKAR NIKHIL NAMDEV	Olon API india private limited
49	PATIL ANIKET UTTAM	Abhishek Enterprises
50	PATIL JAYDEEP VIJAYSINH	Ballapur Graphic Paper Products Ltd. Unit:- Bhigwan
51	PATIL SATYAJEET RAMESH	SGM Automation (I) Pvt .Ltd.
52	PATIL SAYALI ANILRAO	Gabriel India Ltd
53	PHARATE DNYANESH SAMBHAJI	Artee Flow Controls Private Limited
54	RAJWADE CHINMAY VINAY	Infiiot Technologies PVT. LTD.
55	SALVI KAJAL ASHOK	Curiosity Innovations
56	SARDESHMUKH PRATHAMESH SUDHIR	Cognizant
57	SHIRKE DEEPAK MILIN	Yun Solutions LLP
58	SHIRKE SHARVARI BALKRISHNA	Excel Enclosures
59	SONAWANE DISHANT SANJAY	Tata Technologies
60	TAMBE PRAFULL ANIL	Privi Organics Limited
61	UNNITHAN GAURI SANJAYKUMARAN	Cybrlytics Technology (OPC) Pvt Ltd
62	VIDWANS SIDDHANT RAJEEV	Integral Process Control India Pvt Ltd
63	WAGHMODE ASHISH DASHRATH	Olon API india private limited
64	WAIL MOHAMMED TAHER AHMED MAHDI	Just Engineering Technologies LLP
65	VANJARI SHWETA RAMCHANDRA	Thyssenkrupp Industries India Pvt Ltd
66	UGHADE PRANAV LALIT	Global Source Technology
67	DABETWAR RUSHIKESH WAMAN	JFE engineering India Pvt LTD
68	HUSSEN SALEH AHMED HASHALA	ElectronetEquipments Private Limited Tiny Industrial Estate

69	AHMAD ABDULLAH SALEH AL FAKIR	ElectronetEquipments Private Limited Tiny Industrial Estate
70	EBRAHIM SAMEH ABBAS ABDULHAMEED	Just Engineering Technologies LLP
71	ShrutiMilindLimaye	Frontal turnkey solutions private limited

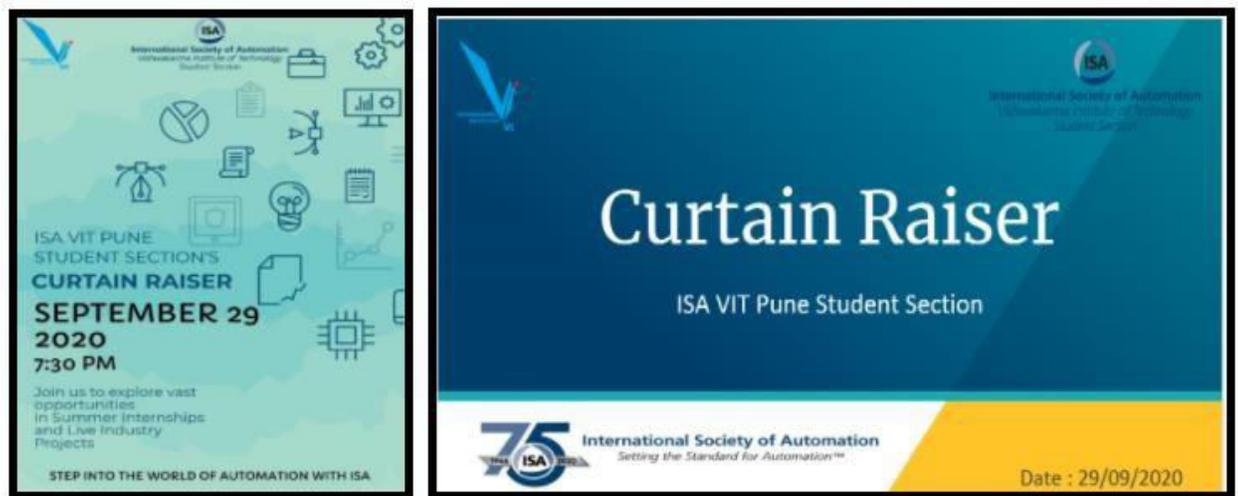## 4. Professional Body International Society for Automation (ISA) Activity

1. Summer InternshipProgram

As the academic year 2019-2020 came to an end, ISA VIT Student Section announced **Summer Internship Program** wherein many interesting summer internship opportunities were offered to the students of Instrumentation Department.

Some of the companies and industries that hired students for the same were Vitronics Controls Pune, Bi-Embedly Technologies LLP Pune, and others situated in Pune city. There were also some internships based on work from home basis. There were opportunities ranging from 2 month-based to 6 month-based internships. Many students actively participated in this summer internship program and benefitted through the same.
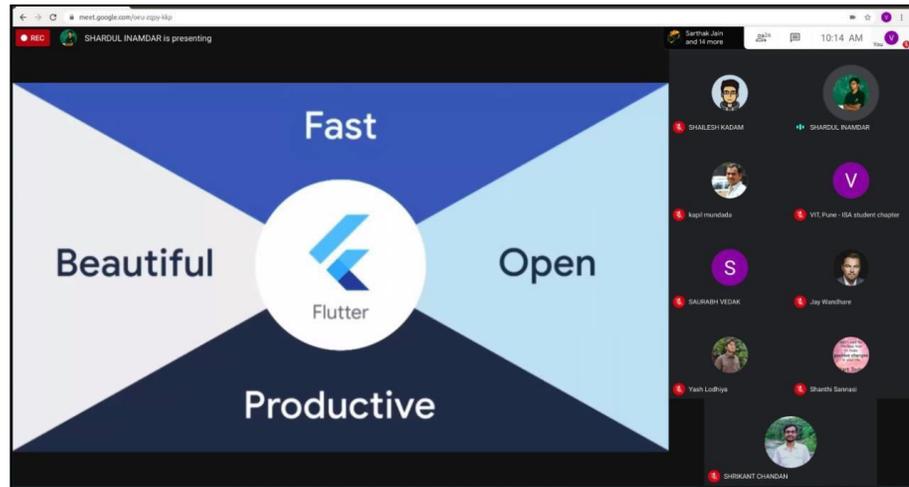
2. Curtain Raiser-ZerothEvent

For the beginning of the new academic year 2020-2021, ISA VIT Pune student section hosted an online Curtain Raiser ceremony for opening of its club in Vishwakarma Institute of Technology on 29 September 2020. Google meet platform was used for the same. ISA aims to create better world through automation henceforth was the objective for launching this club in VIT. ISA club aims to offer numerous opportunities to the students from leading innovators, to share best practices and to drive the implementation of new products.

Theceremonyheldon29thSeptemberwitnessedagoodnumberofaudiencesona virtual platform. Almost 100 participants were present in this online session. The Chief guests for the event were Mr. VikasAnwekar, President of ISA Pune Section,Dhamankar Sir, Iyer Sir, and Bapat Sir. ISA even hosted a blog writing competition and the resultsfor thesamewereannouncedattheendofceremony.Moreover,thestudentsection'sAnnual calendarofeventsconsistingofalltheplannedeventsfortheyear2020-2021waslaunched on this veryoccasion.
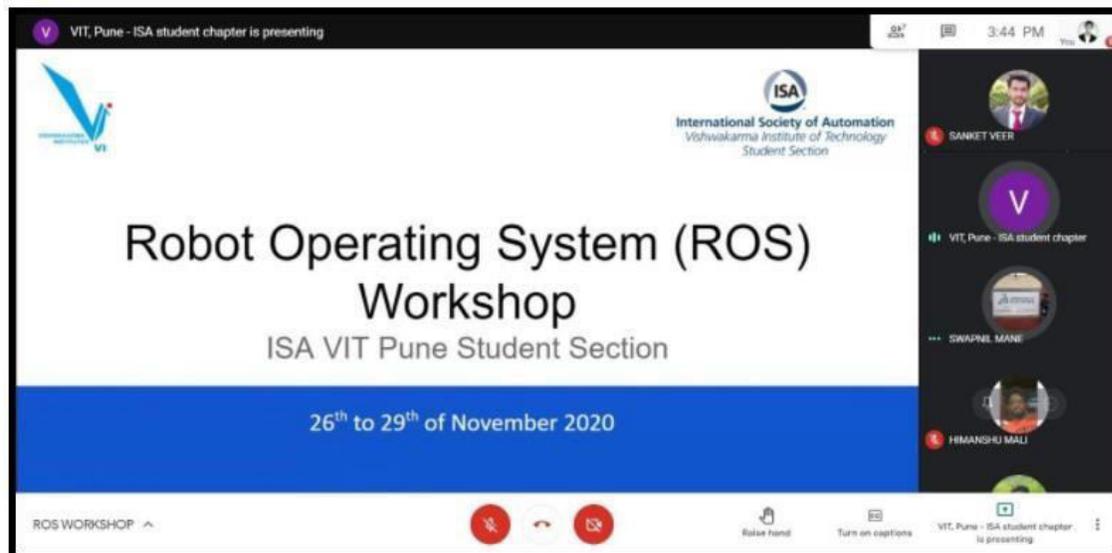
3. <u>Android App Development Workshop</u>

ISA VIT Pune student's Chapter hosted an online 4 – Days Android App Development workshop. Google meet platform was used for the same. The AAD workshop commenced on 15th October 2020. It was a 4-day event and was taught by three instructors-namely Shubham. More from who taught basics of php, javascript and API integration, ShardulInamdar who taught mainly Flutter software, and Mr. Vishal Katore who took over for the session of website and App launching.

There were 97 participants who registered for this workshop. All the participantswere engaged thoroughly through the whole workshop and were learning eagerly about app development.

Participants' feedback was really very good, and the event was very successful. Learningfromthemistakesofpasteventourteamdidagreatjobinthiseventandpromise to keep improving and present the better version of our team in every coming workshops and events of ISA VIT PUNE Studentsection.

4. Robot Operating System (ROS) Workshop

ISA VIT Pune student's Chapter hosted an online 4 – Days ROS workshop. Google meet platform was used for the same. The Robot Operating System workshop commenced on 26th

November 2020. It was a 4-day event and was taught by three instructors- namely Swapnil Mane from TY Instrumentation who taught basics of 3-D modeling, Mr. PranshuTople who taught mainly ROS basics and Gazebo, and Mr. PrateekNagras who took over for the Q and A session on the last day.

Though the participants in the workshop were completely new to this technology, they had a very nice experience and were interested throughout the workshop and enjoyed learning new things.

All the participants had their minds filled with treasure of knowledge showered upon by our instructors. Participation feedback was really very good, the event was very successful. Learning from the mistakes of past event our team did a great job in this event and promise to keep improving and present the better version of our team in every coming workshops and events of ISA VIT PUNE Student section.

5. Industry Projects offered by ISAACARD

ISA VIT Pune Student Section in collaboration with ACARD i.e., Automatic Controls and Robotics Division of ISA announced Industry projects for TY students and semester long Internships for Final year students under the FIEPER- Field Operator Robot project. Various projects were offered to students for a time period of August 2020 to December 2020. The project head for this program is Mr. AnandIyer and the Faculty advisor for the same is Prof. Kapil Mundada.

The projects were offered to students in the month of August itself. A total of 6 groups from TY Instrumentation department have participated in this industry project and 2 Final year students from Instrumentation department are a part of the 6-month long internship program under the same.

Regular monthly meetings were also held to keep a note of progress of each group participating in these projects. The groups are working on various topics like Automatic locomotion, object detection, gauge reading, flare detection, leakage detection, etc and are working their level best for optimum results.

6. ISA Scholarship Recipients

ISA VIT Pune Student Section is delighted to announce the recipients of the prestigious ISA Educational Foundation Scholarship 2021 as well as ISA Analysis Division Scholarship!

1. Anway Shirgaonkar ($2850)
2. ShivangiDeo ($2850)
3. ManasiJeste ($2000)
4. Parth Hasabnis ($2000)
5. ShalakaDeo ($2000)
6. YutikaChougule ($850)

5. Students Achievements

1. Festival of Future Hackathon conducted by PCMC in Feburary 2020. There were a total of 40 competing teams at grand finale.Participating students: VaishnaviJeurkar, Pratik Kale, AniketKhandelwal, MayureshInamdar, AnayDamle.Achievements: 2nd runner up and won Rs. 50000/-. Title of the project: SoS for women and senior citizens.

2. Smart India hackathon started from January 2020, grand finale conducted in December 2020, a total of 5 rounds were conducted before grand finale. Finale results still awaited.Participating students: MayureshInamdar, Pratik Kale, AnayDamle, AniketKhandelwal, VaishnaviJeurkar, Dhananjay Joshi. Achievement of student top 3 all over India among 122 participating teams.

3. Team Motoshield from Instrumentation Engineering Department won the Michelin Mobility Challenge. The theme of the challenge was focused on Innovation in the field of Automobile. The team received a cash prize of ₹ 1Lakh and an opportunity to present the prototype on the Michelin India RDI Platform. The following students from Third Year Instrumentation represented the team: Parth Hasabnis, ShalakaDEo, Anway Shirgaonkar, Aditya Pethe. The team was guided by Prof. Mrs. Archana Chaudhari.

4. Third year students Anway Shirgaonkar,Neeraj Sahasrabudhe, Prathamesh Sandikar, Tapan Sawant, Shahid Sayyad received best paper award titled **Identification and Classification of Industrial Elements using Artificial Intelligence and Image Processing Techniques** in 3rd IEEE International Conference On Emerging Smart Computing And Informatics 2021 (ESCI), March 2021

5. Second Year student PranavKushare won the Third prize in Hackmerced VI competition in Social Good Category organized by University of California MERCED

6. Final year students Nikita Kotwal,Anaya. Pawar, Gauri Unninithanreceived best paper award titled **COVID-19 detection using Chest X-ray**in International Conference on Smart Automation in Computer, Electrical, Electronics and Communication Engineering, April 2021.

7. Second Year students AdityRotithor and PurvaGharat are the national winners for the ELECTROTHON.

8. Second Year students Om Khairate secured second place in Music Track at PICK HACK 2021 organized by Missouri, S&T ACM HACK.

8. Final Year students YashDravid secured AIR 552 in GATE 2021 examination and is selected for M. Tech in Instrumentation and Applied Physics at IISC Banglore

9. Final Year students SharvariShirke selected at IIM Trichy

10. Third Year studnetsHrushikeshDesai ,SurajPadse, RohitChauresecured 2nd Rank in BIT TECHFEST -2021

11. Third Year students MayureshInamdar is winner of Smart India Hackathon hardware edition.

12. Third Year student RohitChuare secured all over3rd Rank in India in FSEV 2020.

13. Final Year student Chinmay Dani is winner of IICDC project competition by Texas Instruments

6. Faculty Achievements

1. **Patents Granted to Faculty in the Department**

Sr. No.	Title of the Patent	Status (Filed/ Awarded)	Authors	Country for filing	Date of filing	Date of Issue/ Award	Patent No
1	Smart Inner wearable device for Women/Child Safety with Automatic Location Tracking and Emergency Dialing Alert System	Filed, Published, Granted	Pramod Kanjalkar Rajendra Patel	India	24th Jan 2020	Sept 202	347206
2	System for Automatic Detection of Quality of Filter of Air Purifier	Filed, Published, Granted	Kanjalkar Pramod Archana Chaudhari	India	6th April 2020	Dec 2020	352770
3	Two Fold Authentication And Diagnostic System For Two Wheelers	Filed , Published, Granted	Archana Chaudhari Kanjalkar Pramod	India	18th Feb 2020	March 2021	360665

2. **Research Papers in Scopus Journals –**

Sr. No	Title of Publication	Name of the authors	Journal Name	Date of publication	ISSN/ISBN/DOI
1	A new controller for boost dc - dc converters based on a novel sliding surface	Sanjeev Kumar Pandey, S. L. Patil, Praveen V. Pol and S. B. Phadke	International Journal of Electronics	May 2020 Vol-101 Issue-10	https://doi.org/10.1080/00207217.2020.1755999
2	Comparison Of Machine Learning Algorithms For	Archana Chaudhari, Madhura Raste,	International Journal of Advanced Science and	June 2020 Vol-29 Issue-7	2005-4238 IJAST

		Technology			
	Cardiotocogram Data	Chinmay Paranjape, Hiten Doshi			
3	IoT based Augmented Reality Application for Diagnostic vehicle's condition using OBD-II Scanner	Chetan S. Patel, Jitendra A. Gaikwad	International Journal of Engineering Research & Technology (IJERT)	August 2020 Vol-9 Issue-8	2278-0181
4	Industrial Automation Robotic Arm governed by MPU9250 and potentiometer enclosure	Swapnil Mane, Mohini Lad, Manisha Mhetre	JOURNAL OF SEYBOLD REPORT	August 2020 Vol-15 Issue-8	ISSN NO: 1533-9211

3. Research Papers in Journal

Sr. No	Title of Publication	Name of the authors	Journal Name	Date & Vol.	ISSN
1	IOT BASED FUEL QUANTITY MEASUREMENT	Abhiraj Sutar, Manisha Mhetre	International Journal of Research Publication and Reviews	Dec 2020 Vol-1 Issue-8	ISSN 2582-7421
2	Comparison of Control Strategies for Robotic Arm Using Pole Placement A study of different pole placement approach	Archana Chaudhari, Reubin Jacob, Nikhil Sanga,Abhiraj Sutar, Vishal Waghmare	International Journal of Research and Analytical Reviews (IJRAR)	June 2020 Vol-7 Issue-2	2349-5138

3	Operator certification using Face recognition system	Chetan S. Patel, Jitendra A. Gaikwad	Asian Journal of Convergence in Technology	March 2020 Vol-5 Issue-3	2350-1146
4	SMART INTEGRATED AND EMBEDDED SYSTEM FOR GOOD NIGHT VISIBILITY	Manisha Mhetre, Shrikant Chandan	Virtual International Award Conference on Multi-displinary research and Innovation	Nov 2020 Vol-5 Issue-3	978-81-948668-0-0
5	INTELLIGENT STREET LIGHT CONTROL SYSTEM	Harshad Navale, Mangesh Shinde, nagraj Alange, Parikshit Gokhale,Sanika Patankar	International Research Journal of Engineering and Technology	March 2021 Vol-8 Issue-3	2395-0056
6	A review of PID control, tuning methods and applications	Rakesh P Borase, DK Maghade,Shilpa Sondkar , SN Pawar	International Journal of Dynamics and Control	July 2021 Vol-8 Issue-3	

4. Research Papers in International Conference

Sr. No	Title of Publication	Name of the authors	Conference Name	Date
1	Experimental analysis of machine learning algorithms used in predictive maintenance	Neeraj Sahasrabuddhe, Kapil Mundada	3rd International Conference on Smart Systems and Inventive Technology, ICSSIT	Sept 2020
2	Computer aided Commercial case classifier using Artificial Intelligence algorithm	Mihir Kulkarni, Kapil Mundada	3rd International Conference on Smart Systems and Inventive Technology, ICSSIT	Sept 2020

3	Comparative Study of different adaptive control strategies in noise cancellation application	Amruta Madhukar Dabhade, Pramod Kanjalkar	4th International Conference on Electronics, Communication and Aerospace Technology	Nov 2020
4	Bike engine health monitoring using vibration	A. R. Shinde, Prof. Kapil Mundada	IEEE Pune section International conference, PuneCon 2020	Dec 2020
5	Multi-Digit Recognition using Image Processing and Neural Network	Anway Shirgaonkar,Neeraj Sahasrabudhe, Prathamesh Sandikar, Tapan Sawant, Shahid Sayyad, Archana Chaudhari	3rd IEEE International Conference On Emerging Smart Computing And Informatics 2021 (ESCI)	March 2021
6	Identification and Classification of Industrial Elements using Artificial Intelligence and Image Processing Techniques	Tanmay Mane, Girish Raut, Aditya Pethe, Indrajit Patil, Kapil Mundada	3rd IEEE International Conference On Emerging Smart Computing And Informatics 2021 (ESCI)	March 2021
7	COVID-19 detection using Chest X-ray	Archana Chaudhari, Nikita Kotwal,Anaya. Pawar, Gauri Unninithan	International Conference on Smart Automation in Computer, Electrical, Electronics and Communication Engineering	April 2021

5. Faculty Awards

1. Prof. Dr. Shilpa Sondkar received two VIT SHRI Awards on Foundation Day celebration on 12th Sept 2020 for Well Appraised Faculty and Faculty in the Role of Guardian.

2. Prof. Dr. Jayant Kulkarni received two VIT SHRI Awards on Foundation Day celebration on 12th Sept 2020 for Consultancy projects and Research Publications.

3. Prof. Dr. Praveen Pol received VIT SHRI Award on Foundation Day celebration on 12th Sept 2020 for Research Publication.

4. Prof. Jitendra Gaikwad received VIT SHRI Award on Foundation Day celebration on 12th Sept 2020 for Revenue Generation.

5. Prof. Kapil Mundada received two VIT SHRI Awards on Foundation Day celebration on 12th Sept 2020 for Well Appraised Faculty and Faculty in the Role of Guardian.

6. Prof. Anil Kadu received VIT SHRI Award on Foundation Day celebration on 12th Sept 2020 for Faculty in the Role of Guardian.

7. Prof. Archana Chaudhari received two VIT SHRI Awards on Foundation Day celebration on 12th Sept 2020 for Research Publication and Faculty in the Role of Guardian.