

# Prof. (Dr.) Chetankumar Patel

Professor & Head



## PROFILE SUMMARY

An innovative and lifelong learner with a profound passion for enhancing educational experiences. Holder of 16+ patents in product design, author of 65+ research papers, and leader of 30+ funded projects totaling 31+ Lakhs (INR) in grant funding. A self-motivated individual equipped with a PhD and dual master's degrees. Committed to collaborative teaching and recognized for fostering strong leadership. Bringing over 22 years of expertise in Higher Education Institutions (HEIs) coupled with pioneering research in teaching pedagogy.

## EDUCATION

- **PhD in Mechanical Engineering**  
RK University\*, Rajkot (Gujarat), India, August 2017
- **Master of Engineering (Mechanical – Machine Design)**  
Gujarat Technological University, Ahmedabad (Gujarat), India, May 2012,
  - CPI 8.87 / Percentage: 83.7 %
- **Master of Computer Applications (MCA)**  
Indira Gandhi National Open University (IGNOU), Delhi, India, September 2009,
  - Percentage: 61%
- **Bachelor of Engineering (Mechanical)**  
Shantilal Shah Engineering College, Bhavnagar University, Bhavnagar (Gujarat), India, July 1999,
  - Percentage: 62.5%

## EXPERIENCE

**TOTAL ACADEMIC EXPERIENCE: 22 Years**

**TOTAL INDUSTRY EXPERIENCE: 2 Years**

### | PROFESSOR & HEAD

*Mechanical Engineering Department, RK University, Rajkot (Gujarat), India  
September 1, 2020 – Present (2 Year 10 Months)*

- Crafted immersive learning experiences across diverse subjects.
- Developed instructional designs for ongoing courses.
- Collaboratively established a Board of Studies, leveraging industry professionals, academics, and alumni.
- Spearheaded research advancements as Research Coordinator, propelling academic growth.

## CONTACT

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"Akshardham", 1 Milapnagar,  
Behind Padmanabh Tower,  
Near Panchayat Chowk,  
University Road,  
Rajkot (Gujarat), India

**LinkedIn:**

[www.linkedin.com/in/chetanmpatel/](http://www.linkedin.com/in/chetanmpatel/)

## SOFT SKILLS

Design Thinking

Collaboration & Adaptability

Strong Work Ethics

Lifelong Learner

## HARD SKILLS

Creo, AutoCAD(2D/3D)

LMS Tools

Mendeley

Image, Audio/Video editing

## ACTIVITIES/INTEREST

Spiritual Practice

Exploring New Places

Meeting New People

Yoga & Meditation

**\*RK University is NAAC Accredited University ranked in top 200 by NIRF, MHRD, Govt. of India (2021 & 2022).**

- Oversaw accreditation processes, including NAAC and NIRF evaluations.
- Executed multiple research projects, securing fellowships up to Rs. 1 lakh.
- Contributed as a valued member of PhD monitoring committees across various Universities.
- Provided personalized counselling and mentorship for PhD, PG, and UG students.
- Nurtured innovative startups through incubation, securing grants for diverse projects.
- Founded "TEJAS," a dedicated group for accelerated learners, offering tailored guidance and counseling.

### | ASSOCIATE PROFESSOR & HEAD

*Mechanical Engineering Department, RK University, Rajkot (Gujarat), India*

*June 28, 2019 – August 31, 2020 (1 Year 2 Months)*

- Orchestrated and led various departmental functions including accreditation, grant management, consultancy projects, syllabus design, teaching methodologies, training programs, placement activities, and admissions.
- Crafted progressive curricula, integrating Project Based Learning and pioneering assessments for subjects such as Product Design, Product Development, and CPI (Creativity, Problem Solving, and Innovation).
- Organized specialized sessions with experts to foster entrepreneurial and competitive acumen.
- Provided comprehensive training and motivation for faculty members.
- Held weekly forums with students and faculty to facilitate cross-cultural integration.
- Coordinated and conducted diverse YOGA activities at the university level.

### | ASSOCIATE PROFESSOR

*Mechanical Engineering Department, RK University, Rajkot (Gujarat), India*

*(Dec. 15, 2017 to June 27, 2019) : 1 Year 6 Months*

- Applied inventive assessment techniques to Computer-Aided Design courses. Employed activity-based and case-based learning for Computer Integrated Manufacturing. Implemented enhanced lab practices, utilizing LMS tools like CANVAS for Theory of Machines and Kinematics of Machines.
- Led workshops on AutoCAD 2018 and Creo, bridging industry relevance for both staff and students.
- Pioneered a Product Design Club, fostering skill development and a proactive mindset among participants.
- Directed the Discipline Committee at the university level, upholding standards and values.
- Engaged as a crucial member of the Board of Studies, steering NIRF initiatives at the college level. Headed student-related affairs.
- Coordinated and supervised NAAC activities within the department.
- Initiated a pilot study, forming the ambitious student group "TEJAS" to fulfil the 12 attributes mandated by the Washington Accord.

### | ASSISTANT PROFESSOR

*Mechanical Engineering Department, RK University, Rajkot (Gujarat), India*

*(June 14, 2008, to Dec. 14, 2017) : 9 years 6 Months*

- Contributed as a member of the Audit team for quality monitoring of laboratory and teaching at the university level. Additionally, served as the Departmental Research Coordinator.
- Acted as the Convener for a national-level technical event named Technoplanet, aimed at fostering technological enhancement among students.
- Managed the CAD/CAM laboratory, overseeing server, user, security, and license management.
- Conducted a range of Industry/User-defined projects and seminars for undergraduate students.
- Developed lab manuals for various subjects in alignment with industry case studies.
- Organized motivational and spiritual sessions for students.

- Implemented diverse teaching-learning methodologies such as OBE (Outcome-Based Education), Bloom's Taxonomy, Project-Based Learning, and Motivation-based Learning.
- Utilized Learning Management System (LMS) tools like Canvas and Edmodo to facilitate the use of learning resources.
- Led extension activities focused on rural development.

### | LECTURER

*Mechanical Engineering Department V.V.P. Engineering College, Rajkot (Gujarat), India  
(Jan. 4, 2008, to June 13, 2008) : 5 Months*

- Active participant in the Student Help Desk for the course "Elements of Mechanical Engineering."
- Vigilantly contributed to achieving the All-Up Target, ensuring zero student failures.

### | DESIGN ENGINEER

*Innovative Mould Works, Rajkot (Gujarat), India  
(Jan. 11, 2007 to Jan. 3, 2008) : 12 Months*

- Crafted intricate moulds for Investment Casting and Plastic Parts.
- Engineered patterns for Sand Casting processes.
- Pioneered innovative product designs.
- Developed precision designs for Milling Fixtures.
- Executed projects involving Reverse Engineering.
- Proficiently utilized CAD tools such as Pro-Engineer Wildfire, AutoCAD, and I-deas.

### | ACADEMIC HEAD

*Shree Swaminarayan College of Computer Science, Bhavnagar (Gujarat), India  
(Jan. 1, 2005 to Jan. 10, 2007) : 2 Years*

- Spearheaded diverse academic initiatives aimed at elevating the teaching-learning experience.
- Directed the Students Placement and Industrial Liaison Cell, facilitating successful student placements.
- Managed and nurtured the Student's Guidance and Counseling Cell for comprehensive student development.
- Orchestrated and supervised an array of students' hand-holding activities.
- Guided and led college teams to excel in various intra-college competitions.
- Oversaw the smooth functioning of computer laboratories.
- Conducted motivational lectures to instill core values in students, fostering holistic growth.

### | LECTURER

*Shree Swaminarayan College of Computer Science, Bhavnagar (Gujarat), India  
(Jan. 15, 2001 to Dec. 31, 2004) : 4 Years*

- Taught subjects such as Mathematics, C-language, and Operations Research using a case-based learning methodology to both undergraduate (U.G.) and postgraduate (P.G.) students pursuing the computer application course.
- Assumed the role of a team leader for the college team during the Youth Festival and Annual Day Event.
- Served as a dedicated member of the Students' Guidance and Counseling Cell, offering valuable support to students.
- Worked as a member of students' guidance and counselling cell.

### | CENTRE HEAD – PART-TIME

*Shree Swaminarayan Gurukul Computer Centre, Bhavnagar (Gujarat), India  
(Jan. 15, 2001 to Jan. 10, 2007): 6 Years*

- Led training sessions on AutoCAD and Pro/Engineer, equipping students with vital design skills.

- Offered tailored training sessions to local corporate entities in Civil and Mechanical engineering domains.
- Delivered diverse engineering services specializing in CAD applications.
- Spearheaded computer fundamental courses catering to a diverse audience including children, college students, housewives, and senior citizens.
- Facilitated various computer fundamental courses for kids, college students, housewives and senior citizens.

## | FACULTY

*Vision 2020 (CAD training centre and Consultancy), Rajkot (Gujarat), India  
(May 15, 2000 to Jan. 13, 2001) : 8 Months*

- Spearheaded instruction as the primary faculty for AutoCAD and Auto LISP courses.
- Conducted training sessions for both corporate professionals and engineering students.
- Actively contributed to multiple Industrial CAD projects.

## | DESIGNER

*Jaivel Techno Service Pvt. Ltd, Rajkot (Gujarat), India  
(July 29, 1999 to Mar. 14, 2000) : 7 Months*

- Crafted mould designs utilizing I-deas NX software.
- Proficiently operated 3-axis milling machines.



## UTILITY PATENTS

1. Supplementary Seat for Public Transport with Retractable Hanging Support. Indian Patent Application 201921006650. Published March 2019 & Granted on June 2023.
2. Mechanically Operated Self-Stirring Container. Indian Patent Application 201921019035. Published May 2019.
3. A Single Unit Gas Cylinder with Partition. Indian Patent Application 201821044415. Published June 2019.
4. Multipurpose Tractor Trolley with Chaff Cutter and distribution Assembly. Indian Patent Application 202021024990. Published October 2021.
5. A Dragging Device for the Gas Cylinders. Indian Patent Application 202121044960. Published October 2021.
6. A Design and Development of Retractable Hanging Seat. Indian Patent Application 202121001209. Published July 2022.
7. A Spine Mobilization Device. Indian Patent Application IN 202221059481. Published on October 2022.
8. A Joint Ring for Extension Pipe in Irrigation System. Indian Patent Application IN 202221065844. Filed on November 2022.
9. A Breathing Retraining Device. Indian Patent Application IN 202321018886. Filed on March 2023.



## DESIGN REGISTRATIONS

1. Supplementary Seat for Public Transport with Retractable Hanging Support. Indian Patent Design No. 326481-001. Issued on January 2020.
2. Mechanically Operated Self-Stirring Container. Indian Patent Design No. 326482-001. Issued on August 2020.
3. A Single Unit Gas Cylinder with Partition. Indian Patent Design No. 326480-001. Issued on September 2020.
4. Mobile Stand. Indian Patent application Number 361786-001. Issued on April 2022.
5. Mobile Stand. Indian Patent application Number 361787-001. Issued on April 2022.
6. Spine Mobilizer. Indian Patent application Number 379188-001. Filed on February 2023.
7. Spine Mobilizer. Indian Patent application Number 379193-001. Filed on February 2023.



## PUBLICATION – SUMMARY

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No. Of Papers Published with International Journals	: 23
No. Of Papers Published with International Conferences	: 38
No. Of Papers Published with National Journals	: 01
No. Of Papers Published with National Conferences	: 03
Total number of papers published	: 65

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## PUBLICATION – INTERNATIONAL JOURNAL

1. "Performance analysis of cabinet type solar dryer for ginger drying with & without thermal energy storage material" with Materialstoday: Proceedings, 2022, ISSN 2214-7853, <https://doi.org/10.1016/j.matpr.2022.11.280>
2. "Investigations of heat source models in transient thermal simulation of pulsed MIG welding of AA6061-T6 thin sheet" with IOP Conference Series: Materials Science and Engineering, Vol. 1146, Issue 1 (May 2021) 012015, ISSN:1757-8981, doi:10.1088/1757-899X/1146/1/012015.
3. "Progress in the arc plasma temperature measurement and its finite element analysis in pulsed MIG welding process" with Materials Today: Proceedings: ISSN 2214-7853(Elsevier), Volume 38, Part 5, 2021, Pages 2745-2750. <https://doi.org/10.1016/j.matpr.2020.08.680>
4. "Performance analysis of conventional triple basin solar still with evacuated heat pipes, corrugated sheets and storage materials" with Groundwater for Sustainable Development, Volume 11(2020); ISSN 2352-801X, <https://doi.org/10.1016/j.gsd.2020.100387>.
5. "Review Paper on Solar Dryer and its Performance Evaluation Criteria", with Mukht Shabd Journal, ISSN: 2347-3150, published in April 2020.
6. "Past, present and future of the active solar distillation system: a comprehensive review", with the International Journal of Ambient Energy, Pages 1074-1082 ISSN: 0143-0750 (Print) 2162-8246 (Online), DOI: 10.1080/01430750.2019.1684996, Published online on 11 Nov 2019.
7. "Measuring the effect of exposure to the grinding environment using pulmonary functions", with the International Journal of Condition Monitoring and Diagnostic Engineering Management (COMADEM), Volume 22 Number 4, ISSN 1363 -4681, Published online on 18 Nov 2019
8. "To Evaluate the Effect of Vehicle Aerodynamics on the Drive Layout of Vehicle" with the Trends in Machine Design, Volume 5, Issue 3(2018), ISSN: 2455-3352(Online).
9. "To Find a Clamping Force of Double-Sided Single Angle Expanding Collet Using ANSYS Mechanical" with the Trends in Machine Design, Volume 5, Issue 3(2018), ISSN: 2455-3352(Online).
10. "The Curvature Effect Consideration in Euler Beam Theory" with the International Journal of Mechanics and Design, Vol. 3, Issue 1(2017).
11. "Design, Analysis and Modification in Pattern Design Using the Combination of Aluminum and Acrylic Parts in Wooden Pattern" with the Journal of Experimental & Applied Mechanics (ISSN: 2230 – 9845), Volume 8, Issue 2(2017).
12. "Design and Analysis of Single Angle Expanding Collets" with the Journal of Experimental & Applied Mechanics (ISSN: 2230 – 9845), Volume 8, Issue 2(2017).
13. "Motivation Based Engineering Education – A case study at RK University", published with Journal of Engineering Education Transformations, Volume 30, Special Issue, 2017, DOI: 10.16920/jeet/2017/v0i0/111687, eISSN 2394-1707
14. "Deflection Analysis of Non Prismatic Beam with Trapezoidal Sectorial Section with Uniformly Perpendicular Loading Condition", published in the International Journal of Engineering Research in Africa (ISSN: 1663-4144) Vol. 26, pp 1-10, <https://doi.org/10.4028/www.scientific.net/JERA.26.1> by Trans Tech publications Ltd.



15. "Analytical determination of Deflection of Stepped Cantilever Rectangular Beam under Uniform load" published in the Journal of Experimental & Applied Mechanics (ISSN: 2230 – 9845), Volume 7 Issue 2(2016)1-8p.
16. "A Review on Software Simulation of Mechanical Structures Using FEA" – published in Trends in Mechanical Engineering & Technology. 2015; 5(3): 1-7p, ISSN: 2231-1793(online), ISSN: 2347-9965(print) Volume 5, Issue 3.
17. "Dynamic Balancing of Turning Fixture using Software Simulators-A Review" – published in Trends in Mechanical Engineering & Technology, Volume 5, Issue 2, 2015, Pages 39-41(ISSN: 2231-1793-online, ISSN: 2347-9965-print).
18. "A Critical review on CFD Analysis of centrifugal pump impeller" - published in International Journal of Advance Engineering and Research Development (IJAERD), Volume 1 Issue 6, June-2014. (ISSN 2348 – 4470).
19. "Tolerance Stack-up Analysis -A review" – published in International Journal of Advance Engineering and Research Development (IJAERD), Volume 1 Issue 5, May-2014. (ISSN 2348 – 4470).
20. "Design and Manufacturing of 8-cylinder hydraulic fixture for boring yoke on VMC – 1050" – Published in Procedia Technology Elsevier Journal, Volume 14, 2014, Pages 405–412(ISSN: 2212-0173).
21. "Design & Manufacturing with Modeling of Multicomponent- Single Hydraulic Fixture with 10 Cylinders & Expandable Uniforce Clamp for Machining Earthing Terminal Block on CNC- VMC 430" - published in ASME ECTC Journal Vol. 8, No. 1, October 2009.( ISBN 978-1-4507-9221-9).
22. "Design & Manufacturing with Modeling, Dynamic Balancing & Finite Element Analysis of Rotary Fixture for CNC Turning Center To Function as HMC" published in ASME ECTC Journal Vol. 8, No. 1, October 2009. ( ISBN 978-1-4507-9221-9).
23. "Design of 28 Operations, 4 Axis – 360° Indexing Milling Fixture for CNC" published in International Joint Journal of Recent Trends in Engineering May 2009 Vol. 1 (ISSN 1797-9617).



## PUBLICATION – INTERNATIONAL CONFERENCE

1. "Recent Scope of Ground Oil Expeller Machines for Small and Medium Scale Industries: A Review", with the International Conference on Science, Engineering and Technology (ICSET 2022 – Funded by AICTE) in collaboration with AIP|Publishing Scopus organized by School of Engineering, RK University, Rajkot(Gujarat), India, November 18 & 19, 2022, Conference Proceedings with ISBN: 978-81-959326-0-3
2. "Study of the thermal storage system with Solar Cooker", with the International Conference on Science, Engineering and Technology (ICSET 2022 – Funded by AICTE) in collaboration with AIP|Publishing Scopus organized by School of Engineering, RK University, Rajkot(Gujarat), India, November 18 & 19, 2022, Conference Proceedings with ISBN: 978-81-959326-0-3
3. "Facial Recognition System by Using Novel Artificial Intelligence System: A Survey", with the International Conference on Science, Engineering and Technology (ICSET 2022 – Funded by AICTE) in collaboration with AIP|Publishing Scopus organized by School of Engineering, RK University, Rajkot(Gujarat), India, November 18 & 19, 2022, Conference Proceedings with ISBN: 978-81-959326-0-3.
4. "Experimental Analysis of Triple Basin Solar Still with and without Use of Aluminium Heat Pipes", with the Second Virtual International Conference on Advanced Technologies and Research in Mechanical Engineering (VICATRME'22) organized by MEA Engineering College, Malappuram, Kerala, India, 24-26 May 2022.
5. "Study of effective parameter of sustainable solar cooker" with the International Conference on Emerging Trends & Contemporary Practices 2022 organized by Atmiya University in association with University of Miyazaki (Japan), Keck Graduate Institute (USA), Lincoln University College (Malaysia) & Hemchandracharya North Gujarat University (India). , India, 19-20 May, 2022.

6. "Evaluation of Forced Vibrations on Tractor Drivers" with the International Conference on Engineering & Technology(PiCET-2022) organized by Faculty of Engineering & Technology, Parul University, India in association with Kennesaw State University, Georgia, US & ECE, Ecole d'Ingénieurs, Engineering School, Paris, 21-22 May, 2022.
7. "Recent Developments in Fixture Design: A Review" with the International Conference on Recent Advances in Materials, Manufacturing and Machine Learning (RAMMML-2022) organized by Department of Mechanical Engineering, Yeshwantrao Chavan College of Engineering, Nagpur, in association with The Institution of Engineers (Maharashtra State Centre and Nagpur Local Centre) held on 26th - 27th April 2022.
8. "A Review Study on Materials of Earth Air Heat Exchanger", with the GUJCOST sponsored 1st International Conference on Recent Progress in Material Science and Mechanical Engineering organized by Metallurgy Engineering Department, Government Engineering College, Gandhinagar, Gujarat, India, 28-29 May 2021.
9. "Different Techniques Used to Increase the Productivity of Active Solar Desalination System: A Review", with the International Conference on Recent Advances in Renewable Energy Sources RARES-2021 organized by Engineering College Banswara (Raj.), India, Feb 26-27, 2021. DOI: 10.2139/ssrn.4050864
10. "Supplementary Seat for Public Transport with Retractable Hanging Support" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
11. "Design and Development of Retractable hanging Seat" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
12. "Design and Development A Single Unit Gas Cylinder with Partition" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December, 2019.
13. "Design and Development of a Mechanically Operated Self-Stirring Container" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
14. "Solar Drying a Viable Tool for Safety of Agriculture Produce: A Review" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
15. "Development of Aluminium Based Metal Matrix Composites (MMCs) using Industrial and Agro Wastes as Reinforcement-A Review" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
16. "Design and Development of a River Cleaning Machine" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
17. "Health Risks Associated with the Grinding Process" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December 2019.
18. "Design of Gear Box for Shaper Machine" with the International Research Conference on Innovations, Start-ups and Investments (ICOSTART'19) organized by RK University, Rajkot (Gujarat), India, 16-17 December.
19. "Canvas LMS: A Social Learning Platform for Blended Learning Class in Higher Education @ RK University" with the International Conference on Capacity Building in Higher Education, Wrocław, Poland, 5-6 September 2019.

20. "Impact Model for Grinding Process in the Framework of Sustainable Manufacturing" with the 4th International Conference on Materials and Manufacturing Engineering (ICMME – 2019), organized by Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Kanchipuram, Tamilnadu, 21-22 March, 2019.
21. "A Review Paper on Solar Dryer Use for Drying Fruits, Vegetables and Other Food", at the International Conference on Scientific Revolution through Engineering & Technical Research (GTU ICON 2019), organized at GTU Chandkheda Campus, Ahmedabad, 16th March, 2019.
22. "Analytical Review On Performance Of Solar Distillation System" at the International Conference on International Conference on Advances in Power Generation from Renewable Energy Sources (APGRES 2019), organized at Government Engineering College, Banswara, 11-12 February, 2019.
23. "Problem Based Learning: An Experimental Study of Problem Based Learning with Problem Solving Assessment", at International Conference on Professional Development of Instructors in Higher Education & Training Institutions (IPDIH 2018), organized at Parul University, Vadodara, 12-13 December 2018.
24. "Motivation Based Engineering Education – A case study at RK University" with Fourth International Conference on Transformations in Engineering Education (ICTIEE 2017), held at RK University, Rajkot (Gujarat), India, 8-9 January 2017.
25. "Design and Manufacturing of Single sided expanding collet for Rotary VMC Fixture", at International Conference on Research & Entrepreneurship – 2016, organized by: RK University, Rajkot, 5-6 January 2016. (ISBN: 978-93-5254-061-7)
26. "Enhance Classroom Learning Using Innovative Teaching Learning Method for Theory of Mechanisms and Machines", at International Conference on Research & Entrepreneurship – 2016, organized by: RK University, Rajkot, 5-6 January 2016. (ISBN: 978-93-5254-061-7)
27. "Development of Analytical Method to Determine the Deflection of Tapered Cantilever Beam with Inclined Loading Condition Using Software Simulation" published in Proceedings of International Conference on ICT for Sustainable Development, Advances in Intelligent Systems and Computing by Springer Science Business Media Singapore 2016 DOI 10.1007/978-981-10-0135-2\_27.
28. "Analysis of Various Methods to improve Efficiency of Clamps in Fixtures", at 3rd Afro – Asian International Conference on Science, Engineering & Technology (AA-IC-SET-2015) at Government Engineering College, Bharuch, 27-28 March, 2015. 89-94 (ISBN: 9-780993-909238)
29. "Expandable workholding collet used in Fixture for Limiting Deformation – A review", at International Conference on Contemporary Issues in Engineering & Technology, Organized by: Merchant Engineering College, Mehsana, 19-21 March, 2014. (ISBN: 978-81-929261-0-0)
30. "Design and Manufacturing of 8-cylinder hydraulic fixture for boring yoke on VMC – 1050" – at International Conference on Innovations in Automation and Mechatronics Engineering 2014, Organized by G H Patel College of Engineering & Tech., Vallabh Vidyanagar, 7-8 March, 2014.
31. "Design and manufacturing of a modular fixture for HMC FH-1280" at International Conference on Information, Knowledge & Research in Engineering, Technology & Sciences-2012, held at G. K. Bharad Institute of Engineering, Rajkot, 24-25 March, 2012.
32. "Structural Design Optimization Of A Beam of A Rubber Compression Moulding Machine To Minimize Mass Using Ansys 13.0" at International Conference on Information, Knowledge & Research in Engineering, Technology & Sciences-2012, held at G. K. Bharad Institute of Engineering, Rajkot, 24-25 March, 2012.
33. "Simulation of a Rubber Compression Moulding Machine to Minimise Mass of Structure" at International Conference on Information, Knowledge & Research in Engineering, Technology & Sciences-2012, held at G. K. Bharad Institute of Engineering, Rajkot, 24-25 March, 2012.



34. "Design & development of 8 cylinder hydraulic fixture for VMC" at International Conference on Innovative Science and Engineering held at V.V.P.Engineering College, Rajkot, April 8-9, 2011.
35. "Applying Ergonomics to workstations of manufacturing industries: A review and practices," at International Conference on Innovative Science and Engineering held at V.V.P.Engineering College, Rajkot, April 8-9, 2011.
36. "Design & Manufacturing of 20-cylinder, automated clamping hydraulic fixture for machining connecting rod on VMC" at International Conference on Total Engineering, Analysis & Manufacturing Technologies, Team Tech 2008 held at Indian Institute of Science, Bangalore, 22 – 24 September 2008. (Awarded with "Best paper presentation award")
37. "Design & Manufacturing of 10 Operations boring fixture for machining connecting rod on VMC(APC)" at International Conference on Total Engineering, Analysis & Manufacturing Technologies, Team Tech 2008 held at Indian Institute of Science, Bangalore, 22 – 24 September 2008.



## PUBLICATION – NATIONAL JOURNAL

1. "CFD Analysis of Earth Air Heat Exchanger (EAHE) for Storage system", with Journal of the Maharaja Sayajirao University of Baroda (ISSN: 0025-0422), Volume-55 No. 4 2021.



## PUBLICATION – NATIONAL CONFERENCE

1. Experimental Method Of Hydrogen Testing To Prevent Hydrogen Assisted Cracking (HAC) During Submerged Arc Welding (Saw) Process at National Conference on Advancement and Futuristic Trends in Mechanical Engineering, held at Atmiya Institute of Technology, Rajkot(Gujarat), 20th November 2008.(Awarded with First Rank).
2. Design Of Fixture for Face Milling Of Support Plate On CNC at National Conference on Advancement and Futuristic Trends in Mechanical Engineering, held at Atmiya Institute of Technology, Rajkot (Gujarat), 20th November 2008.
3. Overview of Welding Processes for joining of Shape Memory Alloys (SMA) of National seminar on Advances in Materials and Processes held on 3-4th April 2001 by Metallurgical Engineering Department of M.S. University. (Poster Presentation).



## INTERNATIONAL TOUR/VISIT

Visited USA to attend ASME ECTC (American Society of Mechanical Engineers Early Career Technical conference) – 2009 held at the University of Alabama, Tuscaloosa, Alabama, during 2-3 October 2009. Also presented two research papers in this conference. Stayed in America for 20 days and visited various universities and places.



## AWARDS

1. Award of Excellence Research given by RK University on 24<sup>th</sup> March 2023.
2. Award of Excellence Research given by RK University on 24<sup>th</sup> March 2022.
3. Award of recognition for Research Projects given by RK University on 24<sup>th</sup> March 2022.
4. Best Paper in Category: "Enhance Classroom Learning Using Innovative Teaching Learning Method for Theory of Mechanisms and Machines", at International Conference on Research & Entrepreneurship – 2016, organized by: RK University, Rajkot, 5-6 January 2016. (ISBN: 978-93-5254-061-7) awarded
5. Stood at runner-up position for the Inspire Faculty Excellence Award contest held at INFOSYS, Pune under the category of Distinguished Facilitator among 30 teams from all over India in the year 2015.
6. Best paper presentation award: "Simulation Of A Rubber Compression Moulding Machine To Minimise Mass Of Structure" at International Conference on Information, Knowledge & Research in

Engineering, Technology & Sciences-2012, held at G. K. Bharad Institute of Engineering, Rajkot(Gujarat), India, 24-25 March, 2012.

7. Awarded with "First Rank": "Experimental Method Of Hydrogen Testing To Prevent Hydrogen Assisted Cracking (HAC) During Submerged Arc Welding (Saw) Process" at the National Conference on Advancement and Futuristic Trends in Mechanical Engineering, held at Atmiya Institute of Technology, Rajkot (Gujarat), India, 20th November 2008.
8. Best paper presentation award: Design & Manufacturing of 20-cylinder, automated clamping hydraulic fixture for machining connecting rod on VMC of International Conference on Total Engineering, Analysis & Manufacturing Technologies, Team Tech 2008 held at Indian Institute of Science, Bangalore, India, 22 – 24 September 2008.



## PROJECTS UNDERTAKEN (Key project details are given at the end of CV)

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- Total grants received are around 31 Lacks (INR) for 30+ projects which includes IPR, PoC and Startup grants.
- One of the startups under my supervision is given a startup grant of Rs. 17.4 Lacks (INR). I also got a fund of Rs. 75000/-(INR) as a Prototype grant for the same project.
- My PhD research is on the design of collet which was funded by the industry.
- My Master's Dissertation is on the design of modular fixtures which was also funded by the industry.
- 3 Candidates have completed their doctorate under guideship and 8 are underway.
- Also guided 13+ M. Tech Dissertations and 30+ U.G. projects.



## FELLOWSHIP

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- Received a research fellowship of Rs. 1 lakh to carry out various innovative projects from RK University in the year 2020-21.
- Received a fellowship of Rs. 10000/- for my role as Mentor of my PhD candidate, Senior laureate 2<sup>nd</sup> Runner-up Awardee for the research project on 11<sup>th</sup> January 2023 by Vikram A Sarabhai Community Science Centre and WAAH Foundation.



## PROFESSIONAL MEMBERSHIP

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1. Associate Member of IEI (The Institutions of Engineers, India), Kolkata
2. International Association of Engineers (IAENG), Member



## EDITORS/REVIEWERS

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- Reviewer in International Conference on Science, Engineering and Technology ICSET 2022(Funded by AICTE) in collaboration with AIP | Publishing, Scopus organized by RK University held on November 18 & 19, 2022.
- Member of Review Committee, of International Conference on Emerging Trends & Contemporary Practices 2022 organized by Atmiya University, Rajkot(Gujarat), India
- Reviewer for Jurnal Kejuruteraan (Journal of Engineering), IKM Press, Malaysia (An International Journal)
- Reviewer in the Online National Conference on "Documenting Innovation and Creativity in Engineering (DICE-2021)" Organized by PSIT college of Engineering, Kanpur
- Editor-in-Chief of the Journal of "Journal of Advancement in Machines" (An International Journal)
- Member of a Reviewer Board of the Splendid journals.
- Editorial Board Member in "American Journal of Mechanical and Industrial Engineering (AJMIE)(eISSN:2575-6060)

- Editor for Trends in Machine Design – STM PUBLICATION (eISSN: 2455-3352)
- Member of Editorial board – Nineteenth Annual Early Career Technical Conference, the University of Alabama, Birmingham ECTC 2019, November 2 - 3, 2019 - Birmingham, Alabama, USA
- Member of Editorial board – Eighteenth Annual Early Career Technical Conference, the University of Alabama, Birmingham ECTC 2018, November 3 - 4, 2018 - Birmingham, Alabama, USA
- Member of Review committee of ICTIEE (International Conference on Transformations in Engineering Education, Organized by IUCEE) and ICTIEE 2018
- Member of Editorial board – Seventeenth Annual Early Career Technical Conference, The University of Alabama, Birmingham ECTC 2017, November 3 - 4, 2017 - Birmingham, Alabama, USA
- Member of Editorial board – Sixteenth Annual Early Career Technical Conference, the University of Alabama, Birmingham ECTC 2016, November 5 - 6, 2016 - Birmingham, Alabama, USA
- Member of Review committee of IRE (Iconic Research And Engineering) Journals - International Peer-Reviewed Journal



## WEBINARS/TRAINING CONDUCTED

1. Delivered a webinar on “ICTIEE 2017 Paper: Motivation Based Engineering Education – A case study at RK University as IUCEE Virtual Academy to IUCEE consortium colleges on February 22, 2017.
2. Delivered a webinar on “Drawing so easy: AutoCAD for everyone” on July 27, 2015, under Infosys – Campus Connect Program in the network of connected Indian Institutes.
3. Delivered a webinar on “All about Sketcher Module: Creo 3.0” on Oct 6, 2015, under IUCEE Virtual Academy.
4. Delivered a webinar on “Mechanism Design using AutoCAD” under the Saurashtra Local Centre, Institution of Engineering (India) on January 11, 2021.
5. Delivered an online international workshop on “Product Design using AutoCAD 2020 and 3D printing” under the funding support from GUJCOST (Gujarat Council on Science & Technology) and DST (Department of Science & Technology, Government of Gujarat).



## WORKSHOPS/SEMINARS ATTENDED

1. National Seminar on Globalization Challenges – Threats & Opportunities for Indian Small Industries Sector (UGC sponsored) on Feb 22, 2003 with the duration of 1 Day at Bhavnagar University, Bhavnagar (Gujarat), India
2. State level workshop on Creativity and Innovations (UGC sponsored) during Feb 28-29, 2004 with the duration of 2 Days at Bhavnagar University, Bhavnagar (Gujarat), India
3. One day workshop on Patent Awareness on Sep 5, 2005 with the duration of 1 Day at Bhavnagar University, Bhavnagar (Gujarat), India
4. International Conference on Total Engineering, Analysis and Manufacturing Technologies during Sep 22-24, 2008 with the duration of 2 Days at IISc, Bangalore, India
5. A Short-Term Training Program on Advances in Manufacturing during Dec 29, 2008 - Jan 2, 2009 with the duration of 5 Days at SVNIT, Surat (Gujarat), India
6. A Short-Term Training Program on Mechanical Drawings Using CAD during Dec 7-11, 2009 with the duration of 5 Days at SVNIT, Surat (Gujarat), India
7. National Seminar on New product development on Mar 17, 2010 with the duration of 1 Day at CII, - L M Thapar Centre for Competitiveness for SMEs, Hotel Grand Regency, Rajkot (Gujarat), India

8. A Short-Term Training Program on Finite Element Methods during Dec 26-30, 2011 with the duration of 5 Days at School of Engineering, R K University, Rajkot (Gujarat), India
9. A Basic Training on Ansys Tools (Structure) by Innovent Engineering Solutions Pvt. Ltd, Banglore during May 3-4, 2012 with the duration of 2 Days at R K University, Rajkot, (Gujarat), India
10. A training on Team Building (Building High-Performance Team) on June 4, 2012 with the duration of 1 Day at R K University, Rajkot, (Gujarat), India
11. 2 Week ISTE Workshop on Introduction to Research Methodologies Conducted by IIT, Bombay during June 25- July 4, 2012 with the duration of 10 Days at R K University, Rajkot, (Gujarat), India
12. ISTE workshop for Teachers on Aakash for education conducted by IIT, Bombay during Nov 10-11, 2012 with the duration of 2 Days at R K University, Rajkot, (Gujarat), India
13. IUCEE Mini Course on "Introduction to Finite Element Analysis" during Jan 23 – Mar 13, 2013 with the duration of 8 Days at Indo-US Collaboration for Engineering Education
14. ISTE Workshop on "Engineering Mechanics" during Nov 26 – Dec 6, 2013, with the duration of 10 Days at Indian Institute of Technology, Mumbai, India
15. Patent Clinic Workshop at ACPC Building, GTU, Ahmedabad during Jan 31 – Feb 1, 2014 with the duration of 2 Days at Gujarat Technological University, Gandhinagar (Gujarat), India
16. Learning Experience Design Workshop during Mar 10 – April 14, 2014 with the duration of Weekly at R K University, Rajkot, (Gujarat), India
17. Industrial Automation & Mechatronics during Dec 8-12, 2014 with the duration of 5 Days at Indian Institute of Technology, Delhi, India
18. FDSR's 1-day training program (Writing and Publishing Skills for Researchers) on Sep 26. 2015 with the duration of 1 Day at R K University, Rajkot, (Gujarat), India
19. International Conference on Research & Entrepreneur (ICRE-2016) during Jan 4-5, 2016 with the duration of 2 Days at R K University, Rajkot, (Gujarat), India
20. The Fourth International Conference on Transformations in Engineering Education (ICTIEE'17) jointly organized by Indo Universal Collaboration for Engineering Education (IUCEE) and RK University, Rajkot Jan 9-10, 2017 with the duration of 2 Days at R K University, Rajkot, (Gujarat), India
21. National Seminar on "World of Mathematical Modelling" during Apr 12-13, 2017 with the duration of 2 Days at University and Institute of Advanced Research, Gandhinagar (Gujarat), India
22. Happiness Program from Art of Living during Jun 27-30, 2017 with the duration of 4 Days at RK University, Rajkot, (Gujarat), India
23. A MOOC course on UX Design: From Concept to Wireframe during Dec 5-26, 2017 with the duration of Online at Online with EDX
24. Sahaj Samadhi Meditation Course from Art of Living during Jan 5-6, 2018 with the duration of 2 Days at Art Living Centre, Rajkot, (Gujarat), India
25. DSN course from Art of Living during Mar 29 – Apr 1, 2018 with the duration of 4 Days at Art Living Centre, Rajkot, (Gujarat), India
26. A Faculty Development Program on "Features of Faculty" on Apr 14, 2018 with the duration of 1 Day at BAPS Swaminarayan Mandir, Rajkot, (Gujarat), India
27. A MOOC course on Product Design in Autodesk Fusion 360 from Idea to Prototype on Apr 30, 2018 with the duration of 1 Day at Autodesk Education and Udemy.
28. A training program on diversity management in the workplace in the context of HEI during Jul 23-24, 2018 with the duration of 2 Days at Capacity Building Centre, RK University, Rajkot (Gujarat), India
29. 3d printing workshop-basics on Sep 30, 2018 with the duration of 1 Day at Sattardas Makerspace, Rajkot (Gujarat), India
30. A MOOC course on Patent Searching Using Free Web Resources on Nov 15, 2018 with the duration of 1 Day at Udemy
31. International conference on the professional development of instructors in higher education and training institutions during Dec 12-13, 2018 with the duration of 2 Days at Organized by

CABCIN Consortium Partners Coordinated by WUST, Poland at Parul University, Vadodara, (Gujarat), India

32. MOOC course on Product and Industrial Design 101 starting from Feb 6, 2019 with the duration of 2 Weeks at Udemy
33. Role of NAAC in Achieving Academic Excellence & Enhancing Global Competitiveness - A workshop during May 3-4, 2019 with the duration of 2 Days at RK University, Rajkot (Gujarat), India
34. National Symposium on Research Proposal Drafting & Funding Opportunities on Sep 14, 2019 with the duration of 1 Day at School of Science, RK University, Rajkot (Gujarat), India
35. Faculty Development Program on Multiple Strategies for Creativity, Problem Solving and Innovations during Nov 16-23, 2019 with the duration of 8 Days at Charotar University of Science and Technology, Changa (Gujarat), India
36. International Research Conference on Innovations, Startups, and investments during Dec 16-17, 2019 with the duration of 2 Days at RK University, Rajkot (Gujarat), India
37. Advance Meditation Program (Online) during Mar 27-29, 2020 with the duration of 3 Days at Art of Living, Bangalore, India
38. MOOC on learning online teaching during Jun 27- Jul 7, 2020 with the duration of 6 Weeks at UNSW Sydney (Coursera)
39. Making Interactive Video using Edpuzzle during Jul 27, 2020 with the duration of 1 Day at RK University, Rajkot (Gujarat), India
40. MOOC on New Product Development during Jul 13 – Aug 3, 2020 with the duration of 4 Weeks at Israel Institute of Technology (Coursera)
41. Introduction to Digital Manufacturing with Fusion 360 during Jul 13 – Jul 28, 2020 with the duration of 4 Weeks at Autodesk (Coursera)
42. MOOC on Design Thinking for Innovation during Aug 16 – Sep 7, 2020 with the duration of 5 Weeks at the University Of Virginia (Coursera)
43. Faculty Development Programme on “Design Thinking - A Primer” during Sep 21 – Oct 17, 2020 with the duration of 4 Weeks at the Indian Institute of Madras (NPTEL Online Certification)
44. MOOC on UX Design: From Concept to Prototype during Oct 15 – Nov 23, 2020 with the duration of 6 Weeks at the University of Michigan (Coursera)
45. STTP on “Advance of Materials Design, Machining and Characterization (AMDMC-2020)” during Nov 21-26, 2020 with the duration of 6 Days at the Department of Production Engineering, Veer Surendra Sai University of Technology, Burla
46. Curriculum Design Workshop based on ABC Curriculum Design Framework during Dec 12, 2020 with the duration of 1 Day at RK University, Rajkot (Gujarat), India
47. Patent Workshop - Turnip Innovation Festival 2021 (Online) during Jan 22-23, 2021 with the duration of 2 Days at Turnip Innovations Pvt. Ltd, Mumbai, India
48. MOOC on Design Thinking and Global Startup during Jan 1 – Feb 13, 2021 with the duration of 2 Weeks at Korea Advanced Institute of Science and Technology (Coursera)
49. 5 Day Innovation Series on Patent Search and Filing during Feb 16 - 20, 2021 with the duration of 5 Days at Andhra University and Turnip Innovations
50. International Conference on Recent Advances in Renewable Energy Sources RARES-2021 during Feb 26-27, 2021 with the duration of 2 Days at Engineering College Banswara (Raj.), India
51. Online session on Drive high quality and fast extraction of critical information from Patents with Reaxys at Elsevier on Wednesday 02 June, 2021.
52. Online program on “Enlightenment Program on Intellectual Property Rights” during 14<sup>th</sup> & 21<sup>st</sup> August 2021 organized by RK University under Student Startup Innovation Policy and i-Hub.
53. An insight Meet & Expo – Startup Innocave with Industries Commissionerate, Govt. of Gujarat during Oct 1, 2021 with the duration of 1 Day at RK University Campus, Rajkot (Gujarat), India.
54. One day event on “Startup on Sustainability” organized by Startup Gujarat Cell, Industries Commissionerate, Govt. of Gujarat during Dec. 10, 2021 with the duration of 1 Day at International Automobile Centre of Excellence, Gandhinagar (Gujarat), India

55. Sinumerik 808D Advance turning controller side programming & operating training workshop at RK University with the support of Siemens on Jan. 1, 2022.
56. One day program on “Vigyan Bhairav Part I” conducted by Sri Sri Ravishankar organized by Art of Living Foundation on March 11, 2023 at Rajkot.
57. GD&T WEB tutor online learning program in Geometric dimensioning & Tolerancing during Mar 2, 2022 – Apr 2, 2022 with the duration of 30 Days at Symphony Technologies, India
58. Hands-on workshop on smart classroom management organized by RK University with collaboration of European Union Erasmus+ project and TEAL 2.0 on May 7, 2022 with the duration of 1 Day at RK University Campus, Rajkot (Gujarat), India.
59. Webinar on Automation 101 for Admission Leaders by ExtraaEdge Technology Solutions held on November 17, 2022
60. IP Awareness/Training program under National Intellectual Property Awareness Mission jointly organized by Intellectual Property Office, Ministry of Commerce & Industry and Ministry of Education’s Innovation Cell, India on January 07, 2023 at RK University, Rajkot
61. Workshop on Innovations and Best Practices for Quality Research by RK University on January 21, 2023 at RK University, Rajkot
62. Four day workshop of an Art of Living Volunteer Training Program(VTP) held by Art of Living Foundation Rajkot during 24-25 June, 2023 and 1-2 July, 2023.



## EXTENSION ACTIVITIES

- Coordination YOGA activities and training for University Staff and Students.
- Conducting Spiritual Development Center for Youth & Kids
- Conducting Shibir/Retreat for kids and Youth.
- Conducting rural extension activities.



## PERSONAL DETAILS

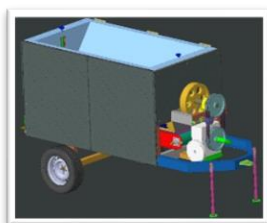
- Date of birth : 28th June 1978
- Nationality : Indian
- Gender & Marital Status : Male & Married
- Languages known : Gujarati, Hindi, English



## KEY PROJECTS



Mentoring a startup project named “Floating Vessel with Cutter Mechanism for Water Hyacinth” (August 2020 – Marth 2022), where a cutter was developed that cuts Water Hyacinth within the water, 80% cheaper& 2 times faster than the existing cutter. Received a grant of INR 17.4 Lacks as a startup grant from the Industrial Commissionerate, Government of Gujarat, India. I also received a PoC grant of INR 75000 to make a prototype and an IPR grant of INR 25000 to file a patent for this innovation. The final product is under municipal corporation.



Lead designer for a startup project named “Multipurpose Tractor Trolley with Chaff Cutter and Distribution” (April 2020 – till date). This is a customized tractor trolley with a built-in chaff cutter. Solves a major problem of collecting, cutting & distributing forage. Saving 75% of the time and 70% of the cost. Received PoC grant of INR 98800 and IPR grant of INR 50000 from SSIP, Government of Gujarat, India. We are applying for a startup grant for this project. This innovation is patented with Indian Patent Office.





Lead designer for a project named "Two-way rotating type butter making machine." (August 2021 – June 2022). This machine produces butter with the help of two ways rotating of the stirrer. This is the ancient Indian way of producing butter which preserves the original smell, test, and quality in comparison to conventional machines. We have received a grant of INR 1.5 lacks for making a prototype from SSIP, the Government of Gujarat.



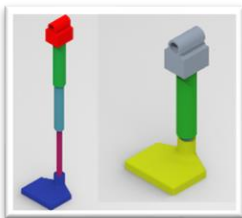
Designer for a project named "Handheld device to mobilize the spine". (May 2022 – April 2022). This is an interdisciplinary project. This device is used by the physiotherapist to mobilize the human spine. No other such device exist in the market. We have so far published one utility patent and filed two design registries for this innovation. The product has been commercialized and is available in the market to purchase. SSIP grant of Rs. 20000/- is received for prototype making.



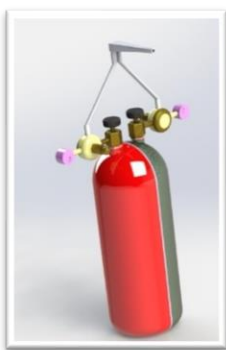
Lead designer for a project named "Mechanically Operated Self-Stirring Container". (August 2018 - May 2019). The present invention relates to a mechanically operated self-stirring container for mixing beverages efficiently using one hand and without using any electrical power which mainly comprises of extension to stir, internal gear, stirrer, large gear and small gear and base. This innovation is patented(published) with Indian Patent Office using IPR grant of INR 25000. Received PoC grant of INR 10000 from SSIP, Govt. of Gujarat



Designer for a project named "Low-cost mobile stands for tabletop". (February 2022 – till date). These mobile stands are simple, easy to manufacture and occupy less space and best fit for gifts and company marketing. Two designs are registered with Indian Patent Office. Manufacturing is under process.



Lead designer for a project named "Supplementary Seat for Public Transport with Retractable Hanging Support". (January 2018 – March 2019). This is a retractable chair with a telescopic design which is hanging in the public transport as auxiliary seats in the walkways. Pull and seat while using. Push while not using. This innovation is patented (Granted) with Indian Patent Office. Received IPR grant of INR 25000 from SSIP, Govt. of Gujarat



Mentor for a project named "A Single Unit Gas Cylinder with Partition". (August 2018 - May 2019). The present invention relates to a single unit of a gas cylinder having two separate independent gas chambers for two different gases, wherein two independent gas chambers are separated by a middle partition. The application of the above is Gas welding, where to separate gas cylinders – Oxygen and Acetylene are used. The present invention proposes having one gas cylinder with two partitions in it. This innovation is patented(published) with the Indian patent office using an IPR grant of INR 25000 from SSIP, Govt. of Gujarat



Mentor for a project named "A Design and Development of Retractable Hanging Seat". (June 2020 – January 2021). The present invention relates to designing and developing a retractable hanging seat. More particularly relates to the retractable supplementary hanging seat for public transport with flexible support. This innovation is patented(published) with Indian Patent Office using IPR grant of INR 50000



Mentor for a project named "A Dragging Device for the Gas Cylinders". (September 2020 - October 2021). The present invention relates to a gas dragging device for gas cylinders. It is an adjustable dragging device which is capable to transport the gas cylinders from one place to another place without

lifting the cylinder manually. This innovation is patented (published) with the Indian patent office



This project is regarding conversion of single cylinder petrol engine bike to Electrical Vehicle. Due to Indian Scrape Policy, huge scrape will be generated. This project saves many vehicles going to scrape by converting it to EV bike. This reduces pollution and prevents usage of fossil fuels. The converted bike runs with 0.15 paise per kilometer with a range of 55 km and a speed of 50 km/hr. The battery takes 3 hrs to charge. Local newspapers have published this innovation.



After above conversion we found that range is the major constrain to use EV vehicle. So, we came out with the hybrid concept, where a vehicle runs both on engine and electric battery. We made Activa Scooter as hybrid vehicle which still not available in Indian market as a new product. This scooter runs with 1500 watt electric hub motor which carries 250 kg weight with 50 km of range and 55 km/hr of speed, with charging time around 2.5 hrs.



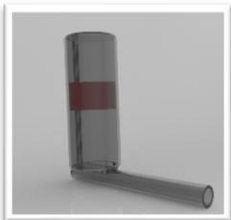
Electrically powered Goods Vehicle is designed and manufactured at the University campus using 85% of scrape material. The vehicle is meant for the in-campus movement of goods up to 350 kg, with 5 hours of battery life and 2.5 hrs of charging time. It is powered by 48 watt electric motor and 900 watt li-on battery. This is one of its kind in the region. This innovation was published with many local newspapers and social channels.



A joint ring for an extension pipe in the irrigation system relates to extension pipes and joint ring for irrigation systems. This joint removes the problems with the conventional design. This innovation has been patented with Indian patent Office. IPR grant of INR 50000/- is given to this project.



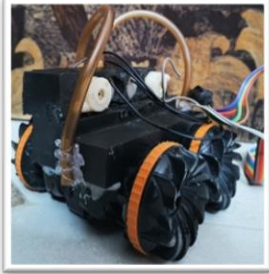
Electro Mobilizer is a revolutionary handheld device designed with an ergonomic shape and size specifically tailored to cater to the common muscle mobilization needs. This user-friendly device harnesses the power of Electrical Stimulation - Muscles stimulator and Transcutaneous Electrical Nerve Stimulation (TENS) to provide effective soft tissue mobilization, targeting muscles, capsules, ligaments, and tendons. The Electro Mobilizer is an innovative solution to prevent and control overuse injuries, particularly among physiotherapists who often experience strain due to repetitive movements during treatments. What sets this device apart is that it addresses a crucial gap in the market, as no such product currently exists in patent searches. The project has received Prototype Grant of INR 26500, Startup Srujan Grant of INR 2.5L from i-Hub, Gujarat.



Breath Retraining Device is a multi disciplinary project. It relates to a breathing retraining device. More particularly it is for breathing exercising and retraining device which being capable of measure volume, pressure, and resistance of breathing level and improve the respiratory function of respiratory muscles. This innovation is patented with Indian Patent Office. Final Design in in process. There is a good potential for this product for the technology transfer.



A handheld device for bronchial hygiene for pediatric population is a multidisciplinary project solving the problem of hyper secretion. No devices are available for pediatric patients with effective sustain frequency. This device is portable, provides specific frequency, easy to use and provides equal and effective impact of percussion each time. This project is given Prototype Grant of INR 26500. Patent is under drafting.



Aqua Land Robot is a versatile and innovative creation designed to traverse various terrains effortlessly. Equipped with a Raspberry Pi, proximity sensors, propellers, and motors, this remarkable robot possesses the remarkable ability to operate both on land and underwater. With its unique design, it can smoothly navigate in all directions underwater, offering exceptional mobility and control. Whether it's cruising on dry land or delving into the depths of aquatic environments, Aqua Land Robot is a cutting-edge marvel that can be expertly maneuvered both right and left, showcasing its adaptability and unmatched functionality. We have cleared two level and has reached to the final round for India's biggest robotic competition "Robofest 3.0" and has received prize money of INR 2.5L by Gujcost, Department of Science and Technology, Government of Gujarat.