

D Y PATIL COLLEGE OF ENGINEERING, AKURDI, PUNE 44
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEPTEMBER 2024 NEWS LETTER

Faculty Achievements/Participations:

1. Dr. Rutuja Deshmukh reviewed papers in IEEE International Conference on Intelligent Systems and Advance Applications (ICISAA-2024)- reviewed 9 papers.
2. Mrs. Usha Jadhav, Dr. Prashant Titare and Mr. Prabhu Reddy participated & successfully completed AICTE Training and Learning (ATAL) Academy Offline FOP on FUTURE Tech: AI Applications and Trends for Educators held from 23-09-2024 to 28-09-2024, organized by Department of Artificial Intelligence and Data Science, D. Y. Patil College of Engineering, Akurdi, Pune.
3. Dr. Sarika Patil published a SCOPUS INDEX PAPER PUBLICATION on "Design and Control of Modular Compliant XY Positioning stage" in Pan-American Mathematical Journal, Vol. 34, No. 03, September 2024.
4. Mrs. Trupti Wagh has reviewed papers in IEEE International Conference on Intelligent Systems and Advance Applications (ICISAA-2024)- reviewed 8 papers.
5. Mrs. Shilpa Jagtap and Mrs. Shailaja Yadav were invited as evaluator for Circuit design competition held at Y. B. Patil Polytechnic.
6. Mrs. Shailaja Yadav presented paper in International Conference on Electronics, Communication and Signal Processing.
7. Mrs. Shilpa Jagtap paper accepted in SCOPUS indexed journal – Journal of Integrated Science and Technology.
8. Mrs. Ramnika Jha published a paper on "Face Recognition using Canny Edge Detector and KL Transform"
9. Mrs. Aparna Shinde, Mrs. Trupti Wagh, Mrs. Manisha Rajput, Mrs. Vasanti Vedpathak and Mrs. Ramnika Jha attended Online workshop on "Research Proposals, Publications and IPR".
10. Mrs. Mrunalini Pant attended a National Level workshop on "Basic Research Essentials".



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Design and Control of Modular Compliant XY Positioning stage

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Abstract:

The modular design and controller implementation of compliant XY stage having large motion range are presented. The design involves symmetric parallel kinematic configuration using composed parallelogram flexure module (CPM) with input-output decoupling properties. The architectural parameters are determined based on the performance metrics such as stiffness, resonance frequency and motion range etc. The FEA simulation predicts the range of motion of 12 mm along each working axes. A prototype is developed to assess the performances of the stage. The results exhibit the small deviation between the two working axes which reflects the better decoupled motion. The PID controller is implemented to achieve the accuracy of positioning with submicron resolution.

Keywords: Compliant, parallel kinematic, modular design, decoupling properties, motion control, translation stages.

1. Introduction

Compliant mechanisms generate precise, repeatable motions by elastic deformation of a flexible element. It offers several benefits like no friction, backlash free and lower cost. Compliant micro positioning systems gaining popularity in the domain of precision engineering and manufacturing eg. atomic force microscopy, bio cell manipulation, lithography. In precision engineering, micro positioning systems which are capable to generate large range i.e. over 10 mm, precise motion with compact size. A compact precision positioning stage allows to accommodate in limited space. Also it enables reduction in cost in terms of material and manufacturing. The kinematic scheme is determined first and architectural parameters of the stage are designed with a view to operate it in the elastic limit without fatigue failure. The material's yield strength limits the motion range which

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177

Name of Faculty Coordinator :

Dipalje Pujari

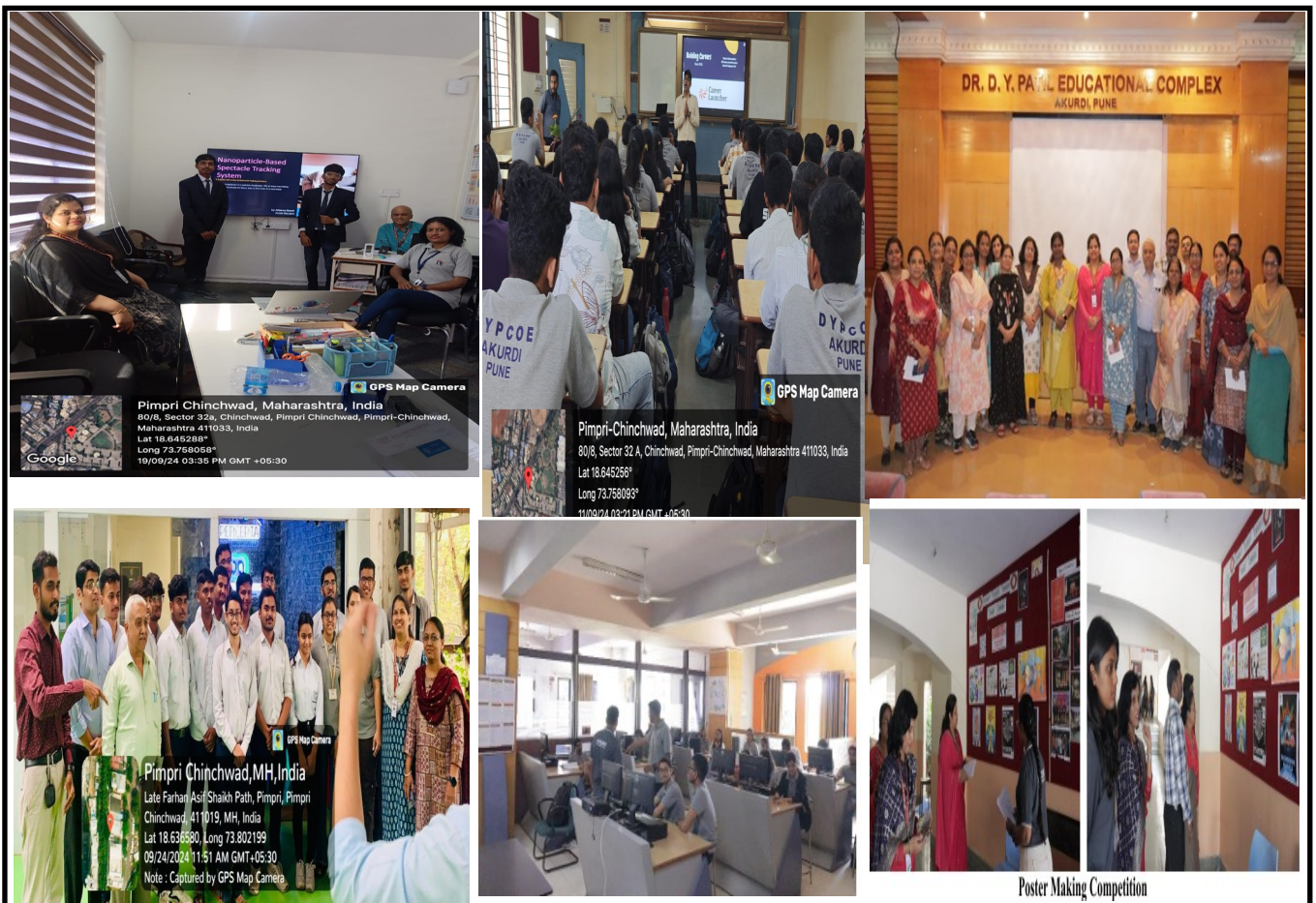
Dr. Rutuja Deshmukh
Head of the Department

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1. Department Activities:

1. Heutagogy Problem Statement for students Competition was organized on the occasion of Engineer's Day celebration under IEEE in E & TC Department sponsored by Boot camp Skills Pvt. Ltd Pune.
2. Expert lecture on Group Discussion and Personal Interview Techniques was organized for TE E&TC students on Tuesday, 10th Sept 2024 .
3. The ENTICERS Students association organized Teachers Day and Engineers Day on 18 Sept. 2024.
4. Industrial visit was conducted for SE students at BEST Automation Pvt. Ltd., Chinchwad on 24th September, 2024.
5. Activities Conducted Celebrating Teachers Day and Engineers Day by ENTICERS
 1. Lectures Conducted by Students
 2. Quiz Competition
 3. Poster Making Competition
6. Expert session on Vedic Mathematics under IKS was conducted for SE students on 10th September, 2024.
7. Expert lecture by Alumni was conducted for BE students on 28th September , 2024 on "AI & Cloud Computing"



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Dipalje Pujari

Dr. Rutuja Deshmukh
Head of the Department

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Students Achievements:

- 1.Sarthak Ambhore participated and was Second runner up in **Badminton** Tournament at SPPU Zonal Sports held in the Inter Collegiate Competition.
- 2.Meet Bhattad Ranked 5th and Got a certificate confirming the selection for Zonal in **Chess** competition at SPPU Zonal Sports held in the Inter Collegiate Competition.
- 3.Aman Sharma and Shantanu Nirphale won the **Table Tennis** Tournament at SPPU Zonal Sports held in the Inter Collegiate Competition
- 4.Yash Shinde cleared the Cleared CDS 2024 exam for Indian Naval Academic.
- 5.Vedant Bhamre got placed in Placement at Bosch India Chasis Systems limited.
- 6.Ritvik Maheshkar won the first prize in Poster Making Competition held by ENTICERS.
- 7.Yash Kumar won in Quiz competition held by ENTICERS.
- 8.Rohit Pawale completed the course on VLSI SoC Design using Verilog HDL.



Pictures of the Events

Name of Faculty Coordinator :

Dipalie Pujari

Dr. Rutuja Deshmukh
Head of the Department