MECHATRONICS LABORATORY
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The laboratory has started in July 2001 as a part of the Mechanical Engineering Department at IIT Delhi. It is located in Block II, Room No. 420.

We do

1. Intelligent Conveyor System: Sorting of items, e.g., boxes with and without a company label, can be performed by this conveyor system comprising a belt conveyor, sensors, a pneumatic pusher, and a PLC. This is useful for industries requiring automatic sorting or fault detection.

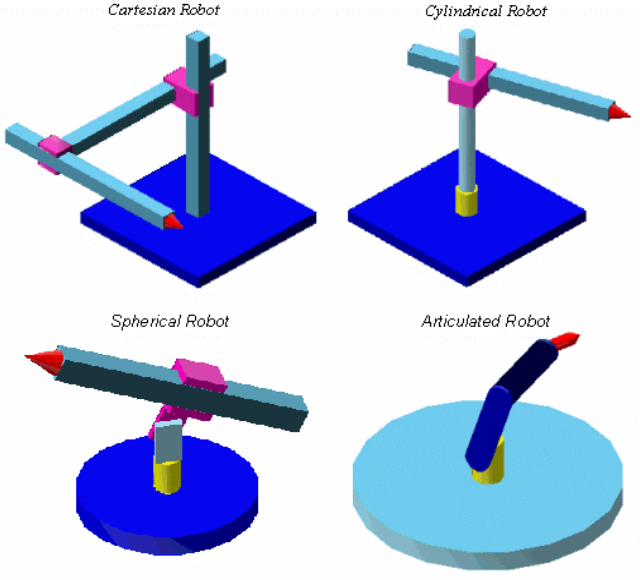
2. Fiber Optic Sensor: A new fiber optic sensor is developed in the lab as a B. Tech Project, which won a best B. Tech project award. The sensor is integrated with the above conveyor system to replace the contrast sensor in order to count number of accepted/rejected pieces, check dimensions, and belt jamming, etc.

3. MA3000 Robot: This five degree-of-freedom robot is used to teach basic concepts of robotics in the department. Students developed programs to move in a straight or circular paths and studying its motor torque requirements using data acquisition system.

4. Recursive Inverse Dynamics of Industrial Manipulators (RIDIM): An in-house developed software in C++/VC++ used in Robotics and Multibody Dynamics courses at IIT Delhi.

5. Virtual Robotic Laboratory (VRL): To advance robotics teaching/learning without an expensive real robot, basic robots are modelled in an existing dynamics software ADAMS. Students are able to perform robot related experiments in this virtual environment.

6. A CNC XY Positioning System: This AC servo-motor controlled positioning system is to simulate a CNC milling/grinding table.



Mathematical model is developed and results were compared with its actual behaviour. Such mathematical model is useful in deciding the optimum specification of the table for an application.

7. RTX Robot
Programs are developed to write characters like IIT by the robot. Kinematic identification of the robot using a technology developed for the CNC machine is underway.

8. Internet Controlled OWI Robot
Programs are developed by in a UG final year project to control a toy robot through internet. Voice interface is also added to help the users.

and many more…

9. HaPRA: Indigenously designed and developed in B. Tech projects for pick-n-place operations.

10. Parallel Drive Robot: An Asada (MIT, USA) parallel drive type 2-axis robot is developed for research purposes.

11. Hexapod: A concept is used to flight simulators is applied as machine tool.

12. Hexa-slide Manipulator: A six-constant-legged parallel manipulator is developed in a Ph. D research for machine tool applications.

13. Mobile Robot: A bought-out system is used for path planning study.

14. Walking Robot: A ready made toy robot able to walk and play soccer.

15. 8085 Training Kits: Several 8085 microprocessor kits used for stepper motor control and elevator simulator, etc.

16. ULTRAGRIP: A robot kinematic simulation software is also available in the lab.

17. Phantom: A hardware system that interfaces with software to have realistic feel like push/pull.

We are 

Dr. S. K. Saha: **Faculty-in-charge;** Mr. D. Jaitly: **Lab-in-charge**

Prasad Bhanle, Baljit Bansal, A.B. Koteswara Rao: **Ph. D Students**
Amardeep Chauhan, Tariq Ansari, Srikant: **M. Tech Students**
Sanjeev Singh, N. Prasad, Sukhvindar Singh: **Other researchers**

and

Prof. V. P. Agrawal, Dr. S. Mukherjee, Prof. B. Seth, Dr. P.V.M. Rao, Dr. I. N. Kar (EE)