



MECHATRONICS LABORATORY
Department of Mechanical Engineering
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We do

1. Intelligent Conveyor System

Sorting of items, e.g., boxes with and without a company label, can be performed by the conveyor system, comprising of a belt conveyor, sensors, a pneumatic pusher, and a PLC. This is conceived and developed in an M.Tech Project under the MHRD funding. This is useful for industries requiring automatic sorting or fault detection.



A new fiber optic sensor developed in the lab as a B. Tech Project, when attached to this system, enhanced its abilities to count number of accepted/rejected pieces, check dimensions, and belt jamming, etc



2. MA3000 Robot

This five degrees of freedom robot is used to teach basic concepts of robotics in the department. This kind of robot can perform many industrial tasks, e.g., picking and placing of, say, machined parts, from one machine to another or to the inspection area. Students developed programs to move in straight and circular paths and studying its motor torque requirements.

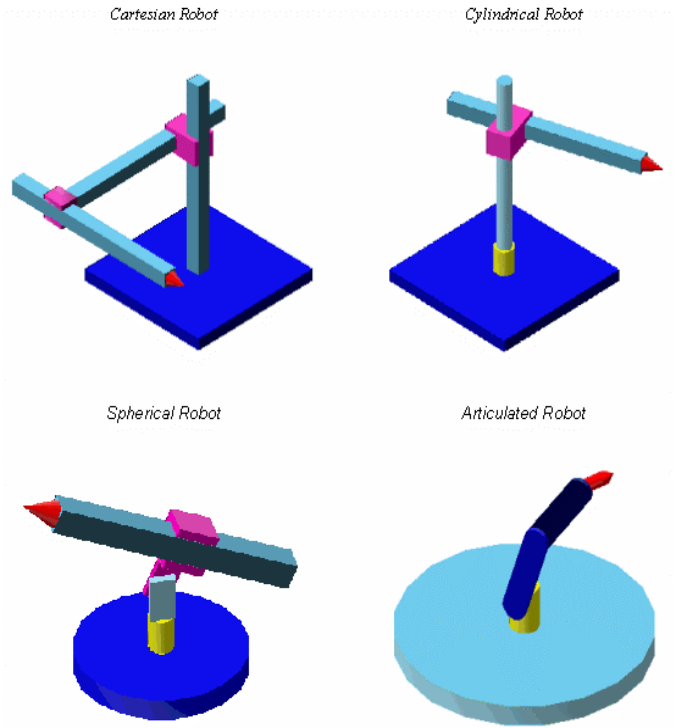
3. XY Positioning System

This AC servo motor controlled positioning system is developed in another M.Tech project under the MHRD fund to simulate 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.



4. Virtual Robotic Laboratory (VRL)

To advance robotics teaching/learning without having an expensive real robot, basic robot structures are developed in the laboratory. An existing dynamics software ADAMS is used to generate the basic robots, i.e., Cartesian, Cylindrical, Spherical and Articulated. In future, students will be able to perform robot related experiments in this virtual environment also.



and many more...

5. **Fiber Optic Sensor:** This fiber optics based sensor developed in a B.Tech project, which has received ICIM Stay Ahead Award in 2001.

6. **OWI robot:** A manual controlled toy robot is interfaced with microprocessor and computer by enthusiastic students.

7. **HaPRA:** Indigenously designed and developed in B. Tech projects for pick and place operations.

8. **Hexapod:** A concept used in flight simulators is applied as machine tool.

9. **Mobile Robot:** A bought out system is used for path planning study.



We are

Dr. S. K. Saha : **Faculty-in-charge** Mr. D. Jaitly : **Lab-in-charge**
 Prasad Bhangale, Pankaj Dorlikar, Baljit Bansal.....: **Ph. D. Student**
 Arvind Patle, Dinesh Sahu, Milind Kulkarni, Dheeraj Barma.....: **M. Tech Student**
 Pankaj Marothiya.....: **B. Tech Student**

And

Prof. V. P. Agrawal, Dr. S. Mukherjee, Prof. B. Seth, Dr. P. V. M. Rao, Dr. P. V. Rao