



About Hytech Automation

Hytech Group, established in the year 1992 is a technology oriented manufacturing industry based in Pune, Maharashtra, India. Hytech group started as Hytech Hydraulics catering to hydraulics automation requirement for process industries. Now, there are Today, Hytech Group owns four verticals broadly classified as under -

- Hytech Automation
- Hytech Automation – Didactic Solutions
- Hytech Hydraulics
- Hytech Distribution

Hytech Automation

Hytech Automation is one of the channel partners for the integration of Fanuc Industrial Robots. Core activity of Hytech Automation is automation related solutions. This is a project oriented division that caters to industrial robotics integration as well as application oriented process integration. Few top clients include Maruti Suzuki, Indian Railways, LG India, etc.

Hytech Automation also manufactures special purpose machines required for technologically advanced applications. One of the most successful product is Laser assisted CNC Turning machine which was developed in collaboration with DRDO – INDIA and LZH – Germany. This specially designed CNC turning machine can machine components up to 78 HRC.

Hytech Automation – Didactic Solutions

Hytech Automation – Didactic Solutions mostly deals with the Automation and Application Engineering related Educational Solutions. These Didactic Solutions involve manufacturing of training kits as well as services such as ‘Syllabus Designing’ and ‘Train the Trainer Program’. There are four verticals in this division namely, CIM – Computer Integrated Manufacturing, Mechatronics, CNC Machines and Robotics.

With more than 20 years’ experience in the field of technological solutions, Hytech Automation – Didactic has acquired necessary expertise to provide industry oriented educational solutions which are relevant almost all over the world.

Hytech Automation is authorized channel partner for Fanuc Robots as well as Fanuc CNC related products. With client base in more than 25 countries, ‘Hytech Automation – Didactic Solution’ has more than 3000 active customers in educational as well as industrial sector. Few of the reputed customers include Maruti Suzuki - India, Bosch – India, Indian Navy, Mahindra and Mahindra, Myanmar Navy, Singapore Polytechnic, Khartoum University - Sudan, Palestine Technical University, etc.

Hytech Hydraulics

Hytech Hydraulics is the oldest vertical under Hytech umbrella. It caters to the hydraulic related automation as well as project requirements in process industry. Few top clients include Thyssen Krupp, Wonder Cement, Ambuja Cement, Dalmia Cement, etc. Hytech Hydraulics has supplied more than 300 kiln thrusters operating in 4 different continents. Few of the kiln thrusters are operational 24 x 7 for more than 22 years.

Hytech Hydraulics has designed and patented a fine flow control valve which is considered as a monopolistic product in the cement industry. More than 2000 such valves are operational in various cement plants all across the globe.

Hytech Distribution

Hytech Distribution is the trading arm of Hytech Group. Over the years, Hytech Group has established collaborations with few reputed manufacturers as well as service providers from all over the world. Hytech holds distributorship of BobCAD – CAM, Fanuc NC Guide, Fanuc Roboguide, Fanuc Simulator, Visual Components, IRAI – Automgen, etc.





Models / Layouts

COMPUTER INTEGRATED MANUFACTURING SYSTEM – LAYOUT 1



HYTECH

Since 1992

www.hytechautomation.in



COMPUTER INTEGRATED MANUFACTURING SYSTEM – LAYOUT 2



HYTECH

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Hytech – Computer Integrated Manufacturing System

Hytech Computer Integrated Manufacturing System is a completely automated manufacturing system which exactly replicated the industrial automated manufacturing systems with data acquisition as well as few of the latest industrial automation systems mentioned below:

1. CNC Turning Machine with Industrial Controller (Fanuc / Siemens)
2. CNC Vertical Machining Center with Industrial Controller (Fanuc / Siemens)
3. Automated Storage and Retrieval System with integrated transfer stations
4. Industrial Robotic Arm (Fanuc) mounted on a horizontal Gantry System
5. Vertical gantry system
6. Automated Guided Vehicle
7. Transfer Conveyor (Flexible)
8. Industrial Supervisory control and Data Acquisition (Siemens)
9. Industry 4.0 (Siemens) for remote data acquisition as well as control
10. Factory Design and Simulation software (3D) with dynamic simulation and more than 3000 industrial automation systems in the library

UTILISATION

This is a complete manufacturing system setup where participants can have hands on experience on following manufacturing technologies:

1. CNC Turning
2. CNC Milling
3. Industrial Robotics
4. SCADA
5. PLC / Mechatronics
6. Automated Storage and Retrieval System

Entire CIM / FMS system can be operated in individual or integrated mode which enables user to utilise every single system / machine providing hands on experience to participants. User does not need to procure other machines / equipment separately since he can carry out necessary training sessions on individual machines.



UTILISATION

User can conduct training in following courses on Hytech CIM / FMS systems

1. CNC

CNC Turning as well as CNC Milling machines are equipped with industrial CNC controllers such as Siemens / Fanuc. Participants can be trained on latest CNC technology with automatic tool changers as well as Linear Motion Guideways. Floor mounted machines can provide actual experience of industrial CNC machines cutting material such as MS / Aluminum

2. Robotics

Robotic arm in the Hytech CIM setup is the latest robotic arm from Fanuc which is most commonly used in industry. In individual mode, participants can be trained on robotic applications such as Handling, Pick and Place, Palletising, Machine Tending, Assembly etc. Separate exercise table is provided in the setup for individual use of Robotic Arm

3. Mechatronics

Various Systems such as Automated Storage and Retrieval (ASRS), Automated Guided Vehicle (AGV), Gantry can be used for the training in the field of Mechatronics

Automated Guided Vehicle (AGV) is a magnetic strip guided system which is controlled through Central PLC and SCADA through wireless communication protocol. ASRS is equipped with Servo motors which is nothing but a three axes robot which is used for storage and retrieval with automatic transfer stations. Entire system is controlled through PLC which is then controlled through SCADA and central PLC.

AGV and ASRS integration as well as operation is an exercise which involves Advanced level mechatronics related training and applications.

4. PLC and SCADA

Every machine / system in the CIM setup is equipped with PLC which communicates with Central PLC and the entire system is controlled through industrial SCADA system. Integration as well as central control system is an educational experience which involves advanced training in the field of mechatronics as well as industrial application engineering. One of the biggest advantages of this system is that the user can reset the entire system back to initial factory settings within few seconds which gives them necessary freedom to carry out the actual experiments.



LAYOUTS

There are two standard layouts for Hytech CIM / FMS system. Although the control structure in both layouts remains the same, the mechanical equipment are different. CIM / FMS layout can also be modified in case if the user has any specific requirement.

Layout 1:

Layout 1 consists of following major equipment / software.

- CNC Turning Center
- CNC Milling (Vertical Machining) Center
- Automatic Storage and Retrieval System with linear transfer station (36 cells)
- Industrial Robot with 6 axes and minimum reach of 1400mm with 10KG payload capacity
- Gantry with Linear motion guideways for robot movement (7th axis) with minimum travel of 5 meter
- Industrial SCADA for communications as well as control of entire system
- 3D Simulation as well as design software (Factory design) with OPC UA connectivity (30 seats)
- Central control station with industrial PLC for entire system connectivity (Industry 4.0 ready)
- Movable Control pendant with touch screen HMI (8 meter)

Layout 2:

Layout 2 consists of following major equipment / software.

- CNC Turning Center
- CNC Milling (Vertical Machining) Center
- Automatic Storage and Retrieval System (36 cells)
- Industrial Flex belt conveyor with load capacity of 45 KG
- Vertical Gantry for machine loading operation with minimum travel of 4 meter
- Magnetic strip guided 'Automated Guided Vehicle' (AGV)
- Linear transfer stations, one each at each station of AGV (ASRS and Machine loading)
- Industrial SCADA for communications as well as control of entire system
- 3D Simulation as well as design software (Factory design) with OPC UA connectivity (30 seats)
- Central control station with industrial PLC for entire system connectivity (Industry 4.0 ready)
- Movable Control pendant with touch screen HMI (8 meter)



LAYOUT 1



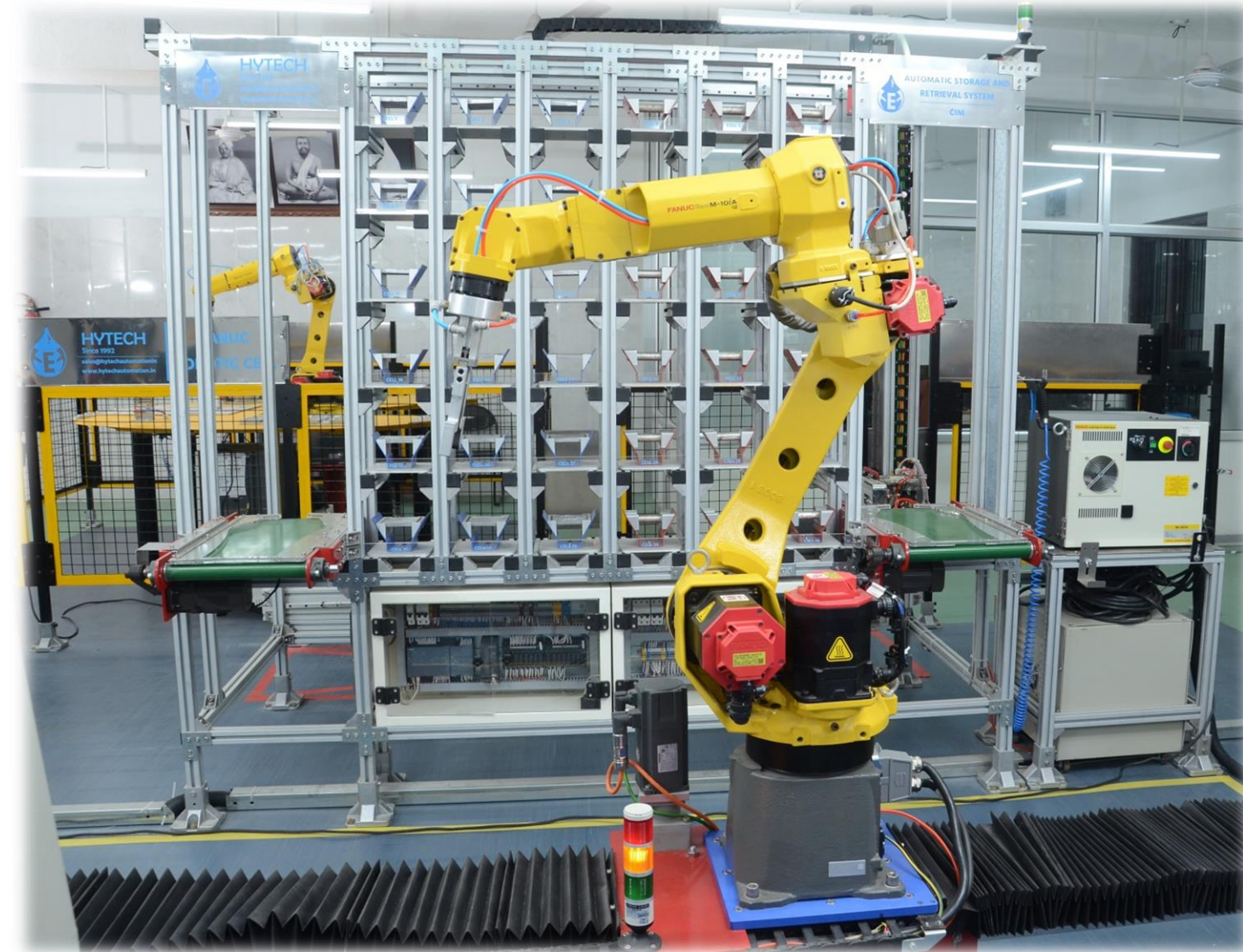


LAYOUT 1





LAYOUT 1



LAYOUT 1





LAYOUT 1



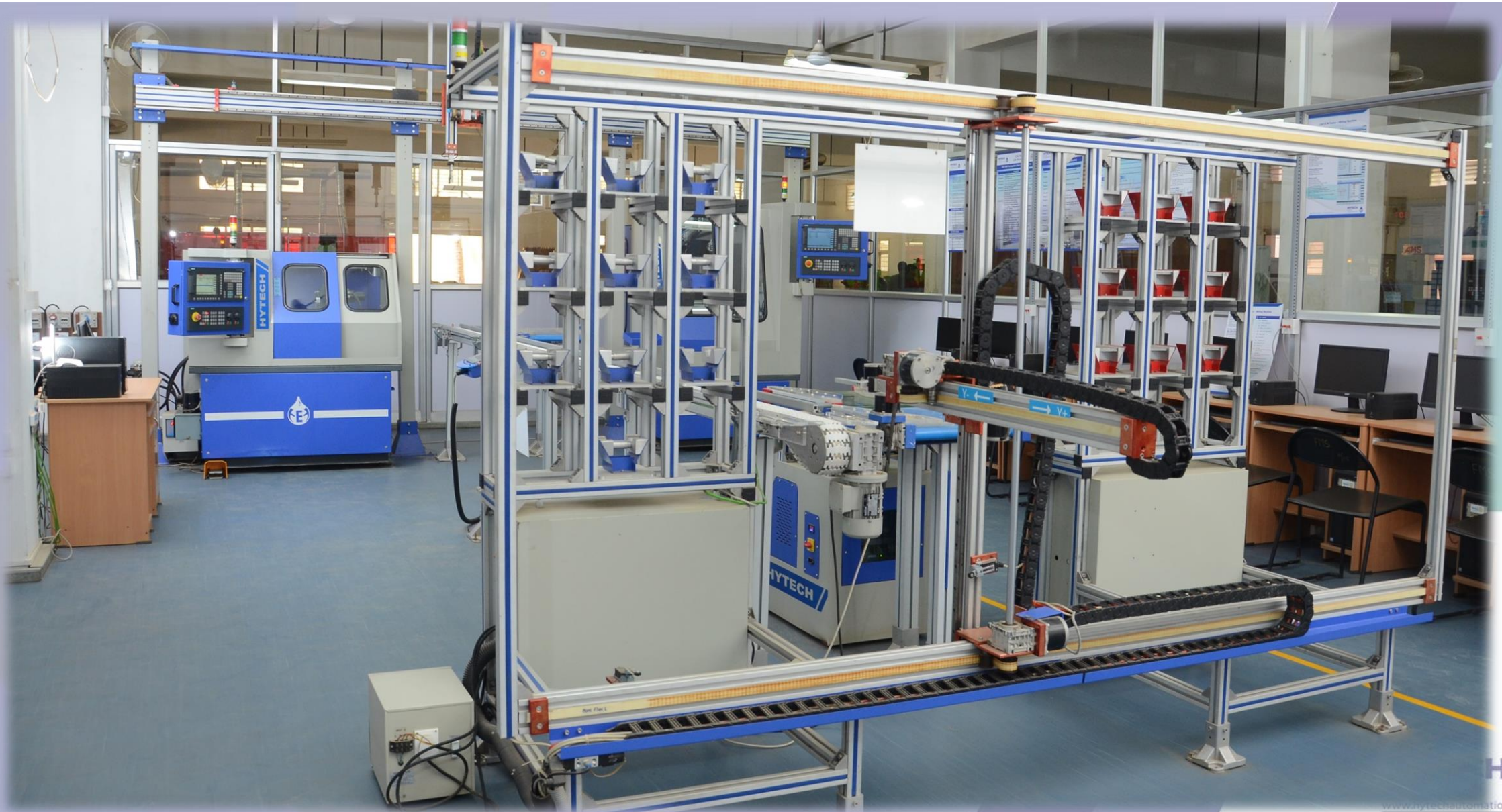


LAYOUT 2





LAYOUT 2





LAYOUT 2





LAYOUT 2



LAYOUT 1 – CNC TURNING OPERATION



Video Link

<https://youtu.be/QEIZE70vDPM>

LAYOUT 1 – CNC MILLING OPERATION



Video Link

<https://youtu.be/4Sjk9S4hPOs>



LAYOUT 1 – OVERVIEW



Video Link

<https://youtu.be/y6tsj5HHHv8>



LAYOUT 2 – OPERATION WITH AGV



Video Link

<https://youtu.be/8495ZIn5kHc>



Thank You!

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