

## **Staff Industrial Visit Report**

- **Visit Program Title:** Industry Institute Interaction
- **Name of Industry:** **Autofina Robotics & Automation Pvt Ltd, Pune**
- **Name of Faculties:**
  1. Mr. Bhosale B. Y. (I/C HOD)
  2. Mr. Kanse A. B. (Asst. Professor)
  3. Mr. Kadam S. G. (Asst. Professor)
  4. Mr. Kale D. M. (Lab. Assistant)
- **Department:** Mechanical Department
- **Schedule:** 15<sup>th</sup> July 2023 (Saturday), From 10:00 am to 5:00 pm (1 Day)
- **Focus of Training:**
  1. To stay up to date with the manufacturing industry's technological advancements.
  2. To understand the gap between the theoretical and practical knowledge that could be passed to the society.
  3. To gain in-depth knowledge about the construction and working of Robot, robot internal parts, motors, belts etc.
  4. Hand on experience of robot pointing & programming.
  5. To understand the different applications of six axis and five axis robots.
- **Benefit to our Institute:**
  1. Representation & Introduction of our Institute.
  2. Interaction with director **Mr. Zubin Damania** of **Autofina Robotics Pvt Ltd.**
  3. Interaction with Experienced Faculties.
  4. Obtained one point (1 mark) under staff training program activity from monitoring committee point of view.
  5. Built relation among such industries with our department regarding Student Internships, Projects, Expert talks and Placement opportunities.

## **1. About Industry:**

Autofina Robotics is established in 2013 in Cambridge, UK, Autofina has carved a niche in developing innovative robots that are revolutionizing the field of industrial automation. We specialize in setting up Industrial Robotics Labs and take pride in our robots being installed in over 50 labs across India. Initially, our robots were produced under license by a Tata Motors subsidiary until 2022. Today, they are manufactured at our own facility in Pune, under the Make in India program, showcasing our commitment to domestic production and growth. As we stand on the brink of a new era of user-friendly robots, our industrial robot arms are making a mark. They offer payloads up to 10kg, reach up to 800mm, provide a remarkable repeatability of <50 microns, and a Mean Time Between Failures (MTBF) of 20,000 hours. By enabling the commoditization of industrial robots, Autofina is driving the future of automation forward.

## **2. Autofina Robotics, Industrial Robotics Lab Setup:**

Specializing in the establishment of advanced Industrial Robotic Labs, they have a strong track record of successful partnerships with colleges and universities. Their mission is to bring hands-on, practical robotics education to India, and we're proud to be leading this initiative to bridge the gap between education and industry.

In a significant step forward, taken over Tal Brabo, a subsidiary of Tata Motors, and have begun manufacturing industrial robots in India. This move not only expands our capabilities but also strengthens our commitment to providing top-notch robotics education globally. With over 50+ labs set up and running successfully in India, making a tangible impact in the field of industrial robotics education.

### **Setting up a basic Industrial Robotics Lab involves several key steps:**

1. **Secure a Suitable Space:** The lab should be spacious enough to accommodate the equipment and provide a safe environment for users.
2. **Invest in Essential Equipment:** This includes industrial robots, application tables, and air compressors.
3. **Include Application-Specific Tools:** Depending on the learning objectives, you might need tools such as spray painting guns, magnetic grippers, and conveyor belts.
4. **Safety Training:** Once the equipment is in place, ensure that all users are trained on safety protocols and proper usage of the machines.
5. **Facilitate Learning and Experimentation:** The goal of an Industrial Robotics Lab is to provide hands-on experience and practical understanding of industrial robotics. Make sure the setup encourages learning and experimentation.

### 3. Various Robot Applications:



**Voice command**



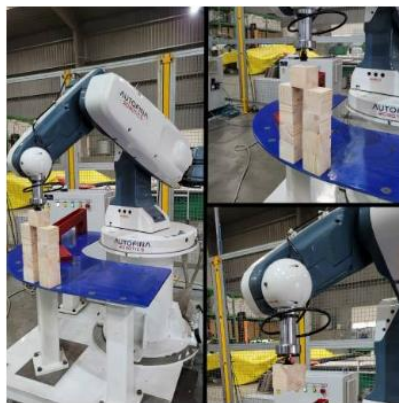
**Colour sensing**



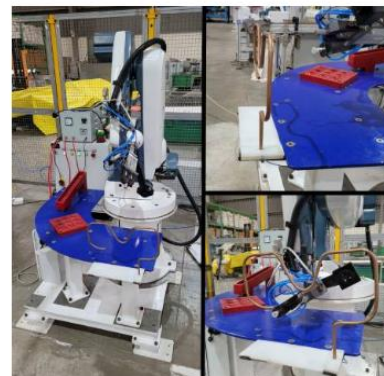
**Industrial spraying**



**Material sensing**



**Vacuum gripping**



**2D Path following**



**Magnetic pick and place**



**Glueing**

#### 4. Types of Products:

- ✓ Autofina Robotics is a leading industrial robotics company that specializes in the design and manufacture of **5-axis and 6-axis industrial robots**.
- ✓ Their robots are designed in the UK and manufactured in India.
- ✓ It has the latest technology and engineering expertise, resulting in a high-performance, reliable product that exceeds industry standards.
- ✓ Autofina robots can be on different 9 languages along with PLC interaction.
- ✓ Robots are operating on gearless long life wire enforced belt operated technology.

### Autofina Tal Brabo -5



### Autofina Tal Brabo -6



Pic: Autofina 5 and 6 Axis Robot

## SPECIFICATIONS

ROBOT SPECIFICATIONS			
Payload	10kg	6 kg	2 kg
Max. Reach	750 mm	850 mm	600 mm
No. of axis	5	6	5
Mass (Excluding controller)	95 kg	100 kg	68 kg
Axis Ranges	Axis 1: ±180° Axis 2: ±130° Axis 3: ±150° Axis 4: ±180° Axis 5: 360°	Axis 1: ±180° Axis 2: ±130° Axis 3: ±150° Axis 4: ±180° Axis 5: ±110° Axis 6: 360°	A1: ±180° A2: ±130° A3: ±150° A4: ±180° A5: 360°
Max. Speed	A1: 110°/s A2: 110°/s A3: 110°/s A4 & A5: 150°/s	A1: 110°/s A2: 110°/s A3: 110°/s A4, A5 & A6: 150°/s	A1: 110°/s A2: 110°/s A3: 110°/s, A4 & A5: 150°/s
Position Repeatability	± 0.2 mm	± 0.2 mm	± 0.2 mm
Mounting Positions	Floor/Ceiling	Floor/Ceiling	Floor/Ceiling
Operating Temperature	0°- 50° C	0°- 40° C	0°-50° C

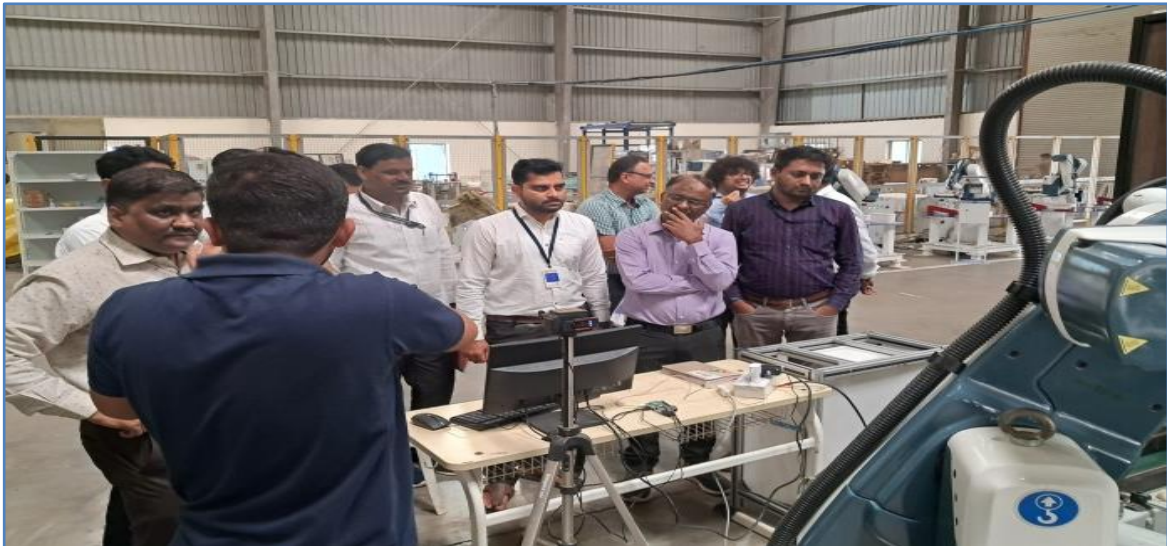
CONTROLLER FEATURES	
Controller Axis	5, 6
Digital Inputs/Outputs (standard)	16 (programmable)
Expansion IO's	512
Memory Slot Cards	Micro SD (upto 16 GB)
Analog Input Cards (0-10V)	2 X 12 bits
Analog Output (+/- 10V)	4 X 12 bits
Communication Options	Ethernet, Ether CAT & Modbus TCP/IP
Operating Temperature	0 to 45 deg C
Built in PLC	Ladder, Functional Block, Structured Text, SFC
Mains Power Supply	230 V ac / single phase
Ext. Axis Configuration	1 axis addition



## 5. Visit Photographs:



**Working demo of robot**



**Programming of robot**



**Interaction with director of Autofiana Robotics**



**Training Group Photo**

**6. Video Links:**

Autofina Robots actual working video links:

[https://drive.google.com/file/d/13Up1fqh45G67kXlkhy8WAb4S\\_XbYzKq4/view?usp=drive\\_link](https://drive.google.com/file/d/13Up1fqh45G67kXlkhy8WAb4S_XbYzKq4/view?usp=drive_link)

[https://drive.google.com/file/d/1gpIOWVvG6dCrDbmeex7GSrELvVHa9Z\\_I/view?usp=drive\\_link](https://drive.google.com/file/d/1gpIOWVvG6dCrDbmeex7GSrELvVHa9Z_I/view?usp=drive_link)

**7. Remark if any:**

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**HOD**

**Principal**