



Department of Electronics & Telecommunication Engineering

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| Topic Name: | Industrial Visit |
| Name of the Guest Speaker: | Mr. Dhilen Vora |
| Designation: | Proprietor |
| Organization/Institution: | PRECITECH Weighing System, Vasai |
| Date: | 9th August 2024 |
| Time: | 10AM TO 1PM |

Programme Summary / Details:

Objective:

The visit aimed to enhance students practical knowledge of various electronic components and operations such as understanding of transducers and their applications in weighing systems, focusing on the conversion of mechanical energy into electrical energy, and practical insights into various components used in such systems.

Key Learning Points:

1. Transducers and Their Function:

Transducers: Devices that convert mechanical energy into electrical energy. Students observed how transducers are used in weighing systems to measure changes in resistance.

Strain Gauge: Utilized to measure changes in resistance due to mechanical stress. For every 5-volt input, the output is 2 mW/V. This is relevant to the EICS (Electrical Instrumentation and Control Systems) subject.

2. Wheatstone Bridge Circuit: Students revisited the Wheatstone Bridge principle, a fundamental concept for measuring resistance changes in strain gauges. The Wheatstone Bridge is critical for accurate strain measurement.

3. Load Cell Components Live and Dead Parts: The visit included a demonstration of the load cell's live and dead parts, providing insights into their construction and function.

RS232 Connection: Observed how the load cell interfaces with a computer via RS232, facilitating the weighing machine's functions, including its use as a filling machine and tensile testing machine.

4. Construction and Components:

Power Supply: The construction of the weighing system includes a Li-ion charger using Constant Current/Constant Voltage (CC/CV) for fast and durable operation.

Transformer: Instead of using an EI core transformer, an R-core transformer is employed for better performance.

Amplifier: An essential component in the system, integrated within the microprocessor. The system uses the 328H microprocessor with an Analog-to-Digital Converter (ADC).



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5. Product Range: The weighing system is capable of measuring weights ranging from 10 mg to 100 tons, demonstrating the versatility and precision of the technology.

Conclusion:

The visit to Preci Tech provided valuable hands-on experience and a deeper understanding of how mechanical energy is converted into electrical signals in weighing systems. The students gained practical knowledge about the components involved, including strain gauges, Wheatstone bridges, and various construction elements. This experience is directly applicable to their studies in EICS and will enhance their practical skills in the field of electronics and instrumentation.

Report Prepared By:

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2nd Year, EXTC Branch





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