Sejal Jaysing Sharbidre

Second Year Undergraduate
Mechanical Engineering
Indian Institute of Technology Gandhinagar

sejal.sharbidre@iitgn.ac.in
+91 7249602112
LinkedIn

ACADEMIC DETAILS

Degree	Specialization	Institute	Year	CPI/%
B.Tech.- M.Tech.	*Mechanical Engineering*	IIT Gandhinagar	2024-Present	7.61/10
Class XII	*Physics, Chemistry, Maths*	Pushpasen Sawant Jr College	2023-2024	84.5%
Class X		Kudal HighSchool, Kudal	2021-2022	97.20%

PROJECTS

- **Design and Analysis of a Single-Stack PEM Fuel Cell** [January'26-April'26]
  Prof. Atul Bhargav, IIT Gandhinagar
  - Modeled PEM fuel cell performance to estimate reactant consumption, flow rates (SLPM), and V–I characteristics using electrochemical principles.
  - Designed bipolar plate flow fields and developed 3D-printed prototypes to study channel geometry and stack compactness.
  - Investigated humidification strategies, implementing a bubble humidifier and exploring Nafion membrane humidifiers for improved high-pressure operation.
  - Developed an instrumentation and control system integrating sensors, SSR-based switching, and AC–DC power conversion.
  - Implementing LabVIEW-based data acquisition for real-time monitoring of pressure, temperature, and system performance, with plans to build and scale to multi-stack fuel cell systems.
- **Smart Parking System using IoT and Mobile Application** [January'25 - April'25]
  World of Engineering(Course) Project
  - Designed and developed an IoT-based parking system using ESP32 with sensor fusion (ultrasonic + magnetometer) for accurate real-time vehicle detection.
  - Implemented a cloud-integrated data pipeline (Firebase) to synchronize parking slot availability with a mobile application.
  - Built a map-based mobile app interface to display nearest available parking slots with real-time updates and navigation.
  - Optimized system for low power consumption and scalable deployment, incorporating battery-powered modules and efficient communication.
- **Smart Irrigation System using Environmental Sensor Logic** [January'25 - April'25]
  Principles and Applications of Electrical Engineering(Course) Project
  - Designed and implemented an automated irrigation system using Arduino integrating soil moisture, temperature, humidity, rainfall, and light sensors for data-driven watering decisions.
  - Developed logic-based control to activate irrigation only under optimal conditions (dry soil, low sunlight, no rainfall), improving water efficiency and reducing wastage.
  - Integrated relay-controlled pump and real-time monitoring (LCD display) to ensure efficient, low-cost, and sustainable irrigation for agricultural applications.

COURSE WORK

- **Academic (Completed):** Statics and Dynamics, Thermodynamics, Data-Centric Computing, Probability, Statistics and Data Visualization
- **Academic (Ongoing):**Fluid Dynamics, Mechanics of Solids, Vibrations, Principles of Manufacturing Processes.

TECHNICAL SKILLS

- **Programming Languages:** Python, MATLAB, HTML, Mathematica
- **Tools & Simulation Software:** MSC Adams, Autodesk Inventor, Fusion 360, Cantera
- **Libraries:** NumPy, Pandas, Matplotlib

POSITIONS OF RESPONSIBILITY

- **Amalthea TechExpo Senior Team, IIT Gandhinagar**
  - Coordinated company outreach and partnerships, enhancing professional communication and networking skills.
  - Managed on-ground event execution and led junior team members to ensure smooth operations on D-Day.
- **Inter IIT Sports Meet Representative**
  - Represented IIT Gandhinagar as a Volleyball Team Member in Inter IIT Sports Meet 2024 (IIT Kanpur) and 2025 (IIT Hyderabad).
- **Organising Team – Hallabol, IIT Gandhinagar**
  - Assisted in event planning and on-ground execution.
- **General Member – Mess Council, Welfare Council, IIT Gandhinagar**
  - Supported mess operations and coordinated student feedback with Mess Manager.
  - Assisted in resolving issues to improve overall dining experience.