Saiprem Kadlur

Mechanical Engineer | Degree (Btech+Minors) | Fr. C. Rodrigues Institute of Technology, Vashi
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SUMMARY

Mechanical engineering student with minors in IoT and Embedded Systems, experienced in CAD design, composite manufacturing, CNC machining, and electronics integration. Skilled in developing cost-effective prototypes and innovative solutions through hands-on work with carbon fiber fabrication, 3D printing, and embedded systems. Passionate about bridging mechanical design with electronics for practical, real-world applications.

WORK EXPERIENCE

- **JSM Composites** — Mechanical Engineering Intern
  June 2024 - July 2024

  - Worked on the manufacturing of **carbon fiber sheets using infusion** and hydraulic press methods for **aerospace and defense applications.**
  - Assisted in **mold creation** using epoxy tooling boards and EPP foam and performed carbon fiber layups to fabricate parts.
  - Operated **CNC machines** for 2D and 3D composite components and contributed to CAD design using SolidWorks.
  - Participated in **quality checks, ensuring dimensional accuracy** and product standards.

- **Directronics** — Project Development Intern
  Dec 2024 – current

  - Designed and prototyped a **telescopic mount for image processing** used at Tata Cancer Hospitals, involving complete mechanical layout and 3D modeling.
  - Built an **object-sorting conveyor system using Raspberry Pi**, with logic for sorting items based on size and color via sensor integration.
  - Worked extensively with **CAD (SolidWorks), FDM, SLA 3D printing** for custom part fabrication and rapid prototyping.
  - Developed embedded systems using **Arduino and Raspberry Pi** and interfacing sensors.

- Contributed to a plastic recycling project focused on **filament pultrusion** from PET bottles.

EDUCATION

Fr. C. Rodrigues Institute of Technology
B.Tech - Mechanical Engineering and Minors in IOT and Embedded systems
2023 - 2027

PROJECT

Design and Fabrication of a cost-effective CNC machine for PCB manufacturing — 2024 - 2025

• Designed and developed a **cost-effective, compact CNC PCB milling machine** for students, makers, and small-scale electronics prototyping

• Utilized digital design tools to generate **G-code from PCB layouts**, automating the conversion of user inputs into accurate tool paths.

• Conducted **iterative testing** to improve machining accuracy and reduce setup time.

• Validated design through **user feedback and performance analysis**, demonstrating the potential of accessible CNC tech in electronics innovation.

ONGOING PROJECTS

• **UAV Surveillance Drone with Carbon Fiber Structure**

- Designing a **lightweight UAV** using carbon fiber composite structures made through vacuum infusion and 3D-printed electroplated molds.
- Integrating **FPV camera, GPS, and flight controller** for real-time surveillance applications.

• Electroplating 3D Printed Parts for Functional Prototypes

- Developing a process of **metal-coat FDM 3D printed parts** for enhanced **strength, conductivity, and appearance**.
- Optimizing **surface preparation, current control, and plating time** for consistent quality.

• Self-Balancing Robot with Modular Design

- Building a **two-wheeled self-balancing robot** using gyroscope and accelerometer feedback for high stability.
- Emphasis on **modular mechanical design** to allow easy upgrades and part replacement.
- Ensuring **precise control and real-time response** using PID tuning and sensor fusion.

SKILLS

• **Design & Simulation:** SolidWorks, Fusion 360, Blender, Slicer (Cura and Bambu Studio)

• **Programming & Electronics:** Arduino, Raspberry Pi, Basic Embedded C, Python (basics)

• **Manufacturing & Prototyping:** FDM & SLA 3D Printing, CNC Milling, Vacuum Infusion

• **Tools & Processes:** PCB Design (EasyEDA), Electroplating, Composite Fabrication

• **Software & Platforms:** Universal G-code Sender, Flat CAM, KiCad