

# Kottapalli Bharath

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## CAREER OBJECTIVE

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Aspiring Mechanical Design Engineer with hands-on experience in CAD/CAE, FEA, and thermal systems analysis, Mechanical Systems Design & Analysis, seeking to contribute to innovative aerospace and mechanical organizations.

## SKILLS

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- **Hard Skills:**

- DESIGN & SIMULATION TOOLS: SolidWorks, CATIA V5, CREO Parametric, Auto CAD, ANSYS workbench, ANSYS Fluent, Open rocket, MATLAB (basic).
- ENGINEERING EXPERTISE: CAD/CAE, Mold Design, Thermal Analysis, FEM, CFD, Rapid Prototyping, Rocket Design, Product Design.

- **Soft Skills:**

- CORE STRENGTHS: Problem Solving, Analytical Thinking, GD&T, Technical Documentation, Communication, proficient in Microsoft office 365.

## WORK EXPERIENCE

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### Intern - Project Trainee

Jun 2025 – Jul 2025

#### ISRO - TELEMETRY TRACKING & COMMAND NETWORK CENTRE (ISTRAC)

Bangalore, KA

- Engineered a 12-way radial power combiner for X-band applications, enhancing deep-space data transmission by 2% and cutting procurement expenses by 95% through system integration.
- Developed an advanced heat-sink structure and performed ANSYS thermo-fluid analysis, achieving 99% cooling efficiency, minimized impedance, and improved operational reliability.

### Rocket Design Intern

Jan 2024 – Mar 2024

#### FEYNMAN AEROSPACE LTD.

Mumbai, MH

- Designed and simulated single- and multi-stage rockets using SolidWorks and Open Rocket, achieving an apogee of 2,278 m, velocity of 361 m/s, and acceleration of 341 m/s<sup>2</sup> through optimized aerodynamic and propulsion modeling.
- Integrated and configured reloadable solid motors (Aerotech G-54W, Cesaroni 320H565-14A, Loki J820-LW) to refine thrust-to-weight ratio and ensure stable, efficient multi-stage flight performance.

## EDUCATION

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### HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE (HITS)

Chennai, TN

Bachelor of Engineering, Mechanical Engineering

Expected May 2026

- Cumulative GPA: 8.88/10.0;
- Relevant Coursework: Thermodynamics, Strength of materials, CAD CAE, Heat and Mass transfer, FEM etc.

### CENTRAL INSTITUTE OF PLASTICS ENGINEERING & TECHNOLOGY (CIPET)

Secunderabad, TS

Post Diploma in Plastic Mold Design using CAD/CAM  
2023

Aug 2021-Jan

- Cumulative GPA: 9.14 / 10.0;
- Relevant Coursework: Plastic Materials, Mold design, product design, Rapid prototyping, CNC machining.

## **GOVERNMENT POLYTECHNIC COLLEGE.**

Hyderabad, TS

Diploma in Automobile Engineering  
2021

Masabtank,

Jun 2018 - Apr

- Cumulative GPA: 9.2 / 10.0;
- Relevant Coursework: Thermal Engineering, Automobile Electrical Systems, CAD, Basics of Automobile Engineering.

## **NEWGEN SCHOOL OF EXCELLENCE**

Matriculation – Graduation with Distinction

Hyderabad, TS

Jun 2015 – Mar 2018

- Cumulative GPA: 8.8 / 10.

## **ACADEMIC PROJECTS**

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### **INVESTIGATION ON HOT CORROSION BEHAVIOUR OF 304HCu STAINLESS STEEL PRECOATED WITH Na<sub>2</sub>SO<sub>4</sub> - 75%NaCl UNDER 750°C.**

- Tested the 304HCu stainless steel material coated with Na<sub>2</sub>SO<sub>4</sub> – 75%NaCl under 750°C and conducted a corrosion comparative study on both Welded and parent material.
- We found that weld 304HCu corrodes 2 times faster than the parent metal with a 48.25% higher oxidation percentage. This happens mainly due to the chromium protective layer depletion in the metal happens at 750°C temp, under the reaction with Sulphate solution.

### **DESIGN AND DEVELOPMENT OF PORTABLE CHARGING STATION USING SUSTAINABLE ENERGY**

May 2025

- Developed a portable charging station which can harness electricity from both wind and solar energies.
- This device can charge mobile accessories and trekking accessories in remote areas, is capable of generating up-to 65 W of electricity from wind and 60 W of electricity from solar energy.

### **EFFECT OF MATERIALS ON THERMO-MECHANICAL CHARACTERISTICS OF AN AUTOMOTIVE BRAKE DISC**

Dec 2024

- Created and analyzed the thermo-mechanical properties of a 4-wheeler automotive ventilated brake disc using 4-different materials, (i.e, Grey Cast Iron, Al6061-T6, Ti-6Al-4V, and C/SiC)
- Through numerical simulation we observed that the metal Al6061-T6 has 138% high heat dissipation capacity when compared with the existing cast iron, followed by carbon ceramics with 92% and titanium alloy with 70% when compared with cast iron material.

### **DESIGN OF OMNIDIRECTIONAL WHEEL BASED MOBILE ROBOT**

May 2024

- Created and animated an omnidirectional wheel-based robot using SolidWorks 3D modelling software and functioned animation monitoring the robot motion in all 360° rotation.

### **DESIGN OPTIMIZATION OF AERODYNAMICS ANALYSIS ON CAR BODY**

Dec 2023

- Modelled and analyzed the aerodynamic effect on a modelled Nissan-GTR sports car which has modelled using the SolidWorks 3D modelling software.
- A Fluid analysis study was carried out to determine the effects of lift and drag coefficients of the car body at various speeds.

### **DESIGN OF TWO PLATE PLASTIC INJECTION MOLD**

Jan 2023

- Prepared a detailed prototype of a two- plate plastic injection mold utilizing Creo; enhanced design accuracy, enabling a 20% reduction in material waste and conserving resource costs during production.
- A plastic flow simulation was studied to analyze the flow of molten plastic material in the mold and monitored the cooling rate and filling time, using CREO EMX tool.

## **CERTIFICATIONS & ACHIEVEMENTS**

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- ISRO-ISTRAC Internship Certificate – 2025
- ICT Design Week 2025 – Participant, Sri Sairam Engineering College, Chennai
- PALS Tinkathon 2024 – 25 – Project workshop at IIT Madras
- Rocket Design Internship Certificate – 2024
- Academic Excellence Award for 2023 - 24 & 2024 - 25
- 1<sup>st</sup> Prize – Designography, MechArena (20<sup>th</sup> National level Technical Symposium, Osmania University) – 2023
- AutoCAD 2D & 3D Training (CISTOCADD)

## **PUBLICATIONS**

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- “Studies on Radial Ventilated Disc Brake Materials – Effect of Metal Matrix Composite Materials using FEA in Automotive Brake Disc”, Advances in Additive Manufacturing Technologies, Taylor & Francis, 2024.

## **LANGUAGES**

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| ● Telugu (Fluent, Native), | ● English, (Fluent) |
| ● Hindi, (Professional)    | ● Tamil (Beginner)  |