CHUGILAN G

MECHATRONICS ENGINEER | RAPID PROTOTYPING | DFAM | UAV SYSTEMS

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ABOUT ME

Mechatronics Engineering graduate specializing in Design for Additive Manufacturing, FDM 3D Printing, Rapid Prototyping. Experienced in designing manufacturable components, optimizing prints and validating functional prototypes. Hands-on experience in UAV systems, mechanical-electronic integration, and iterative engineering design.

WORK EXPERIENCE

Polyview Private Limited - Prototyping Engineer **May 2025 – Present**

- Applied Design for Additive Manufacturing **(DfAM)** to design functional components and electronic enclosures optimised for 3D-printing, strength and assembly.
- Managed **FDM 3D printing**, including slicing optimisation, printer calibration, troubleshooting print failures, material selection, and print maintenance.
- Performed **Rapid prototyping** and validation, iterating designs based on filament, accuracy and structural performance.
- Experience in **UAV Systems**, electronics integration, hardware assembly, configuration and troubleshooting during R&D

Aerobotlabs - Intern **Jan 2025 – April 2025**

- Obtained **DGCA-Certified drone pilot license**, with hands on multi-rotor flight operations and safety procedures.
- Serviced UAV platforms including **Drones**, **VTOL & Fixed Wing** systems for maintenance, troubleshooting, and pre-flight checks.
- Performed **Battery maintenance** including LiPo, Li-Ion & LiHv health monitoring, safe charging, storage procedures, and power system checks during the operations.
- Assisted in **Flight testing, Calibration, and Integration** of flight controllers, ESCs, GPS modules, and radio systems, performing setup using ArduPilot Mission Planner.

PROJECTS

3D Printed Flying Wing - High Speed UAV

- Designed 500mm wingspan 3D printed flying wing using CAD achieving 230+ km/h, optimized for high-speed missions including target-crash applications and climate research.

VTOL Builds - Long Range Applications

- Built VTOL platforms from open-source 3D printed airframes, selected long-range telemetry, GPS, power systems, integrated avionics, and configured ArduPilot parameters for endurance.

Sub-250g Autonomous Drone - Final Year Project

- Developed sub-250g autonomous UAV integrating LiDAR and optical flow sensors, configured Ardupilot parameters for stable indoor & outdoor navigation with or without GPS.

FPV Drone Builds - Whoops, Freestyle & Racing

- Integrated and tuned FPV multirotor platforms including Betaflight setup, tuning, and validate flight performance.

Automotive Restoration

- Restored non-running Maruti Zen to working condition, performing mechanical troubleshooting, parts sourcing, hands-on automotive system understanding.

EDUCATION

- **B.E. Mechatronics -** Chennai Institute of Technology (2025) | CGPA - 7.83
- **Class 12 -** Velammal Vidyalaya - Melayanambakkam (2021) | Percentage - 86%
- **Class 10 -** Vivekanandha Vidyalaya - Ambattur (2019) | Percentage - 83%

SKILLS

- **Additive Manufacturing :** FDM 3D Printing, Slicing Optimisation (Bambu Studio, Cura), Printer Calibration, Print Troubleshooting, Post-Processing.
- **Design Engineering** : Fusion 360, AutoCAD, Design for Additive Manufacturing (DfAM), Basic CFD Analysis (SimScale) for Aerodynamic flow.
- **UAV Systems** : VTOL, Multi-Rotor & Fixed-Wing Development, Electronics selection & integration, (Mission Planner, Inav, Betaflight) software's for setup & Piloting.
- **Automotive Mechanics** : Troubleshooting & Vehicle diagnostics, Repair & Maintenance, Parts sourcing, & workshop tools handling.
- **Content & Media :** Photography, Videography & Social media managements.