

M VIJAYA PRAKASH



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Profile

DGCA (Directorate General of Civil Aviation) certified multirotor pilot with a bachelor's degree in aerospace engineering, and currently pursuing a master's degree in Avionics Engineering specialization in aerial robotics - flight control systems.

Objective - To pursue a career with dedication and reach my peak efficiency in a professional organization wherever I serve my duty as a team player.

Experience

AVIONICS ENGINEER TRAINEE | DALOFT AEROSPACE | MARCH 2023 – SEPTEMBER 2023

- Designed design redundancy systems and integrated sensor fusion with embedded systems
- Team player in implementing control algorithms for aerial robot's flight controller.
- In-charge of simulation, bench testing, and in-flight testing of R&D products
- Guided in documentation for validation

DRONE INTERN | THROTTLE AEROSPACE SYSTEMS | MAY 2022 – SEPTEMBER 2022

- Created reports and documents as requested by the office manager
- Been a part of software team in Drone Defender Project
- Performed image processing tasks in object detection projects
- Acted as a Testing Pilot of the final product

Education

M.E. AVIONICS | Anna University – Madras Institute of Technology | 2022-PRESENT (CGPA* – 8.5/10)

B.Tech. AEROSPACE ENGINEERING | Periyar Maniammai Institute of Science and Technology | 2018-2022 (CGPA – 9.02/10, university silver medalist)

HSC – Science Stream (PCM) | Thamarai International School (CBSE) | 2018 (Percentage – 77%)

SSC | Kendriya Vidyalaya (CBSE) | 2016 (CGPA – 8.8/10)

Skills

- *Programming Language* (C++, Python, embedded C, Ada-95)
- *Flight Control System* (RPAS – UAV and ground systems)
- *Verification and Validation* (DO-178B/C)
- *Drone Piloting*
- *Image Processing* (OpenCV, YOLO, Object Detection and classification)
- *ARINC 429, ARINC 629, MIL-STD 1553B*
- **Matlab, Simulink, X-Plane**
- *CAD* (Fusion 360, openVSP)
- *Robotics* (ROS, Gazebo, Raspberry Pi, Arduino)

Language

- English (IELTS – 7 band)
- Hindi (professional)
- Tamil (Native)

Courses

- Machine Learning based high performance & low power VLSI System Design and Testing using FPGA - SERB, IIIT Tiruchirappalli
- Small and Medium category RPAS Piloting - CASR, Anna University
- UAV Design Part-II - NPTEL, IIT Kanpur

Publications

- **Designing and Structural Analysis of 3D wing using Ansys** | 2021 | *OAIJSE*
 - This paper's main scope is to find the perfect material for the wing structure by comparing aluminum and titanium alloys considered materials with high strength and less weight in aerospace industry. The wing was drawn by using (NACA 5 series airfoil) ANSYS design Modeler. Finite element analysis was done by Using ANSYS Static Structural.
- **A Review on Fabrication of Nanocomposites for Nano Amphibian drone** | 2022 | *IJDRBC*
 - In this review paper, we study the types of frames, frame suitable for nano amphibious drone, material used for the construction of frame, synthesis and characterization of the nanocomposite material used for the fabrication of frame and the characterization techniques used to study the material. Also, we study the use of super hydrophobic coating and varied materials and their contact angle used in super hydrophobic coatings.

Projects

- **LQR-Based Flight Control System for Autonomous Aerial Robots** | August 2023 – Present
 - Proposing an LQR controller for quadrotor control, which is linearized based on the quadrotor's state, unifies control of rotational and translational states, and handles time-varying system dynamics and control parameters.
- **Vision-Based Guidance for Aerial and Ground Robots in Indoor** | March 2023 – July 2023
 - The project developed an autonomous vision-based guidance algorithm for aerial ground robot navigation in GPS-denied environments, using OpenCV and ArUco markers for guidance. The applicability was validated through virtual and ROS experiments.
- **Drive by Wire Control of a Monocopter** | July 2021 – March 2022
 - A novel sensing and control framework is needed for an asymmetric, all-rotating platform. The framework will separate rigid body dynamics into rotor dynamics and particle navigation and demonstrate flight control methods.
- **Autonomous AI Drone with Real-Time Object Detection** | August 2020 – November 2020
 - The project proposes an object tracking method that uses inertial measurement unit data and global positioning system data to calculate relative position between the drone and the object, resulting in an energy-efficient drone supported by a digital signal processor and ARM core.
- **Fabrication and Testing of Agricultural UAV Structure** | September 2019 – October 2019
 - The project aims to combat pesticide harm and expedite pesticide spraying using an automated aerial quadcopter, equipped with PID control, an ultrasonic sensor, and an autonomous flight algorithm, to spray large areas quickly.