

Santha Kumar P

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PROFESSIONAL SUMMARY

Results-driven professional with a keen interest in business and solid foundational technical skills. A proactive learner with a strong foundation in engineering principles, ready to tackle diverse challenges and contribute effectively to any project or team.

EDUCATION

B.E. Aeronautical Excel Engineering College 8.39 CGPA	2020 – 2024
HSC Government Model Higher Sec School, Sellampalayam 52.67 %	2019 – 2020

SKILLS

Auto Cad	Ansys
Aerodynamics	Aerodynamics, Aerospace Systems & UAV Design
CFD	Electrics and Electronics
Materials & Composites (JFRP, Fabrication)	Solid Works

ACADEMIC PROJECTS

- Stability and Control Analysis Of Flight** 🔗
- Performed an in-depth stability and control analysis of a fixed-wing aircraft, evaluating both longitudinal (pitch) and lateral-directional (roll and yaw) stability characteristics.
 - Utilized aerospace software tools such as MATLAB/Simulink and XFLR5 to simulate flight behavior under varying aerodynamic and atmospheric conditions.
 - Developed dynamic models incorporating aircraft geometry, center of gravity, and aerodynamic coefficients to predict trim conditions and stability margins.
 - Interpreted eigenvalue plots and response curves to identify potential instabilities and recommended control surface adjustments for improved flight performance.
 - Contributed to enhancing flight safety and maneuverability through theoretical modeling and numerical simulations.
- Investigation and Fabrication of Jute Fibre Reinforced Composite for Aerospace Applications** 🔗
- Investigated the mechanical behavior and material properties of Jute Fibre Reinforced Polymer (JFRP) composites as sustainable alternatives for aerospace structural components.
 - Designed and fabricated composite specimens using hand lay-up and compression molding techniques, optimizing fiber orientation and resin content for mechanical performance.
 - Performed mechanical testing including tensile strength, flexural strength, and impact resistance to benchmark performance against conventional composite materials.
 - Analyzed data to assess the viability of jute fibers in terms of strength-to-weight ratio, durability, cost effectiveness, and environmental sustainability.
 - Explored potential use cases such as aircraft interior panels, UAV structural components, and secondary aerospace parts, aligning with industry goals of greener aviation.
- Electromagnetic Pulse (EMP) Drone Defense System :**
- Designed, developed, and prototyped a compact Electromagnetic Pulse (EMP)-based counter-drone system, drawing inspiration from the tactical use of drones in the Russo-Ukraine conflict.
 - Engineered a miniaturized EMP generator capable of emitting high-intensity pulses aimed at disrupting or disabling electronic circuitry within small UAVs.
 - Focused on optimizing power efficiency and directional pulse targeting to ensure the system's suitability for defense, critical infrastructure protection, and high-security zones.
 - Conducted field testing and system validation under controlled environments to assess effectiveness in neutralizing off-the-shelf quadcopters and custom UAV platforms.
 - Explored shielding countermeasures and safe integration with existing surveillance systems to enable real time threat response.

CERTIFICATES

- Garuda's 1st National Drone Contest 2023 🔗 |
- IP Awareness / Training program under NIPAM (National IP Awareness Mission) 🔗 |
- Workshop on Satellite Communication: conducted by Omspace Rocket and Exploration Pvt Ltd. 🔗 |
- Open Rocket Session 1.0 - Embark on a Rocketry Journey " with Omspace Rocket and Exploration Pvt Ltd. 🔗