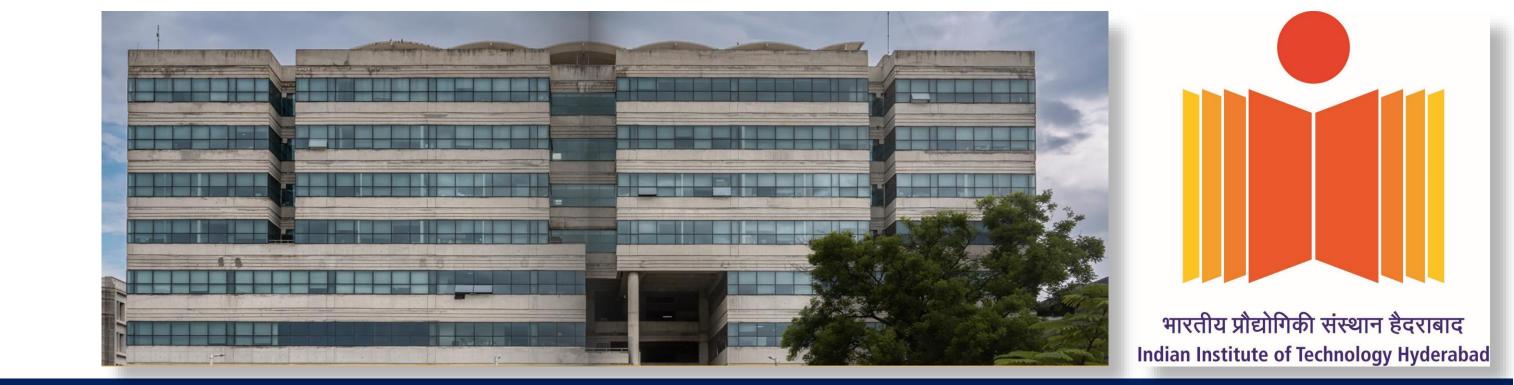
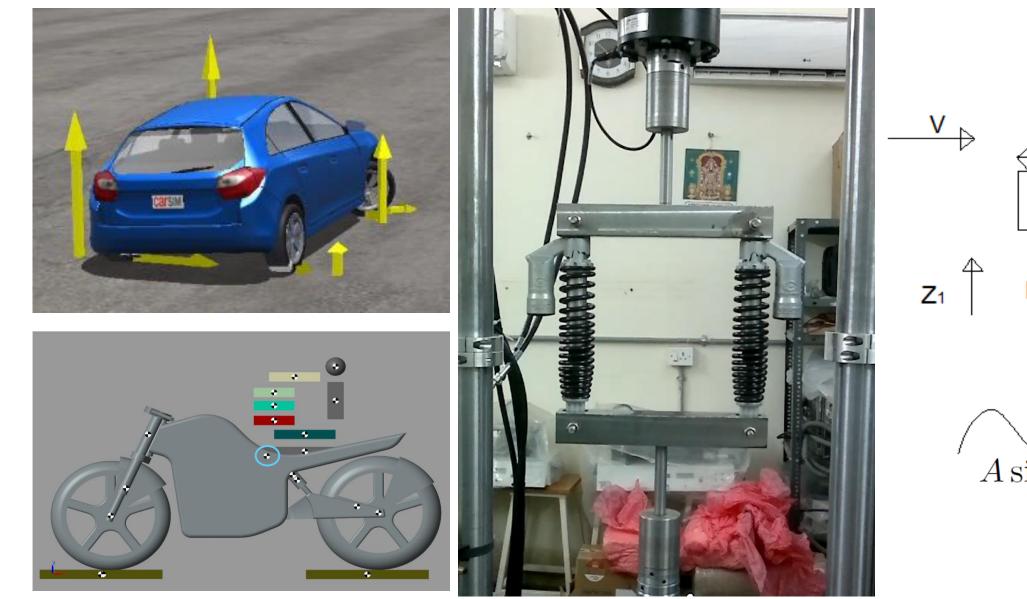


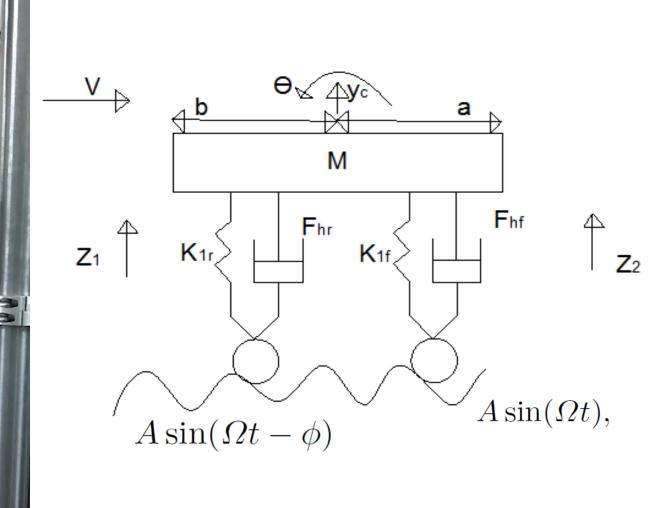
## **MAE-Industry Connect 2024**

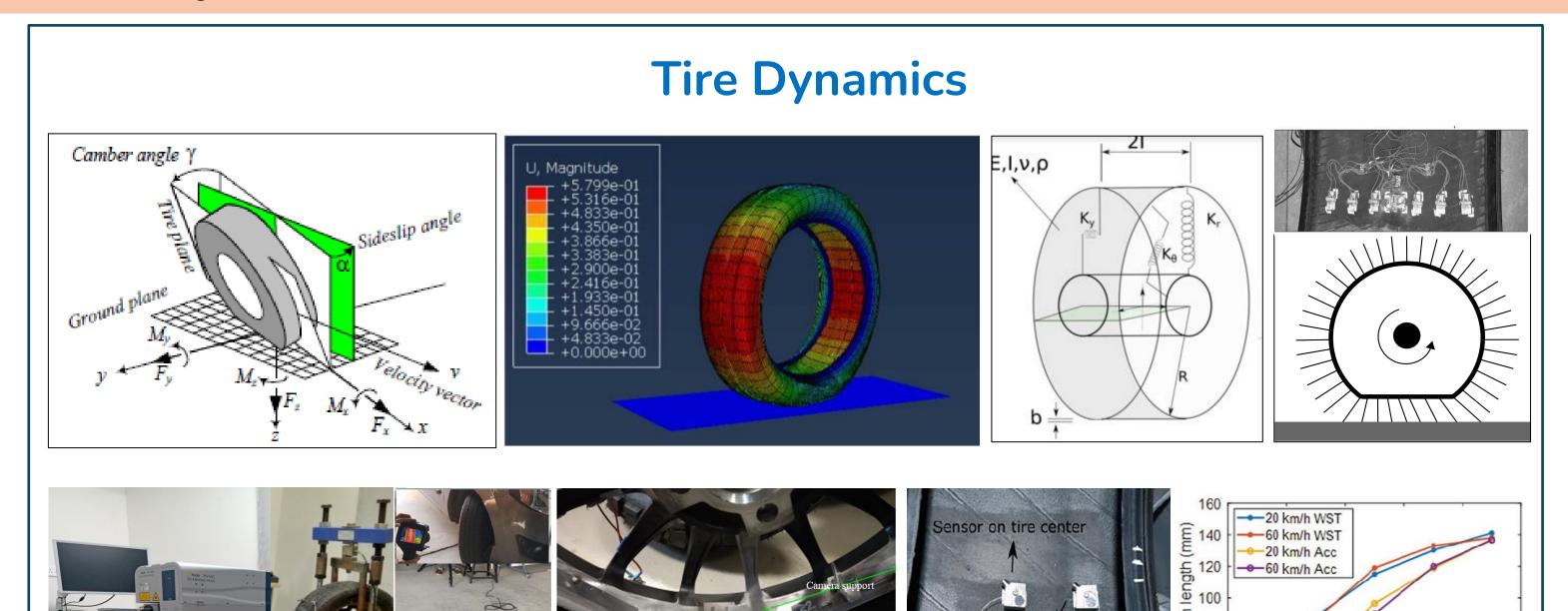


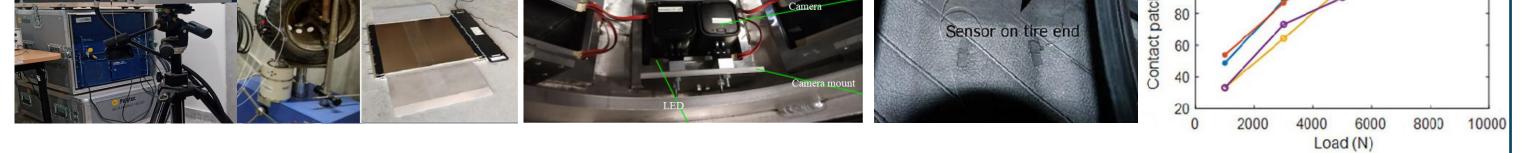
# Mobility

#### **Vehicle Suspension Dynamics**









Aakash Swami et al, SAESAE International Journal of Vehicle Dynamics, Stability, and NVH, Volume 5, Issue 3, April 2021

### Aerodynamics, Aeroelastics, and Aeroacoustics of Aerial Vehicles



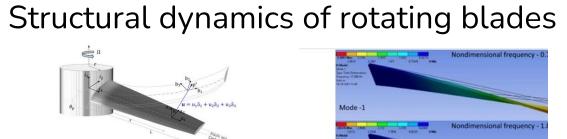
Performance studies of aerodynamics of multi-rotor systems for air mobility applications

Drag optimization using CFD for passenger cabin for air-mobility application.

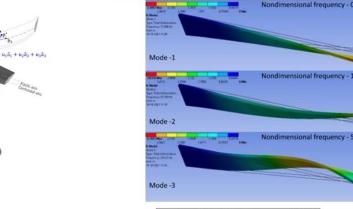
10 20 30 40 50 60 70 80 90

Flutter prediction of wings and fins at transonic and supersonic Mach numbers

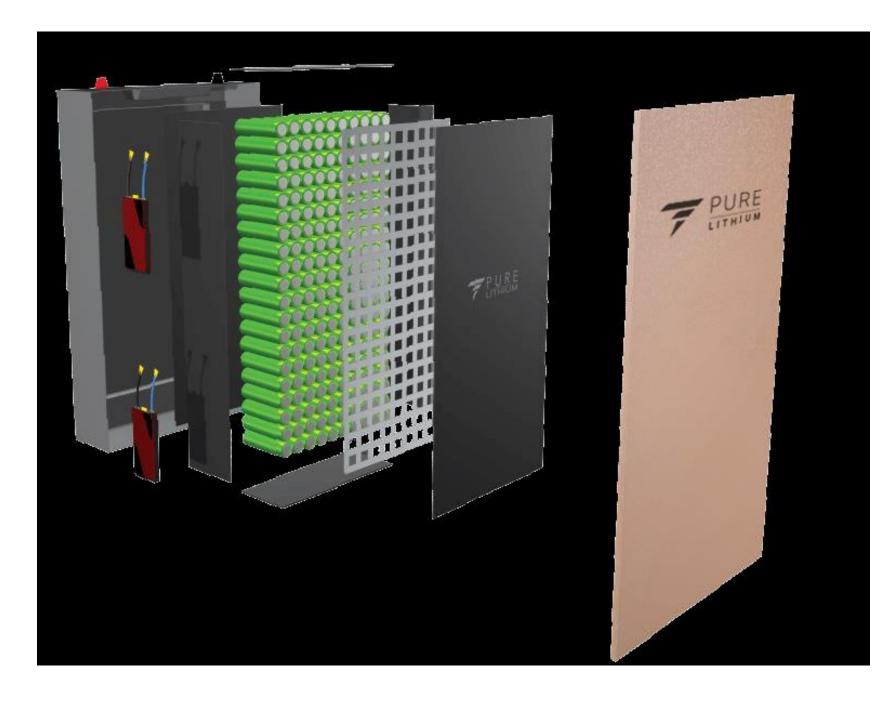
Noise prediction from cavities and passive noise reduction approach



Z Vorticity(Max-Normalized) = 5e-4



#### Lithium-Ion Batteries for Electric Mobility

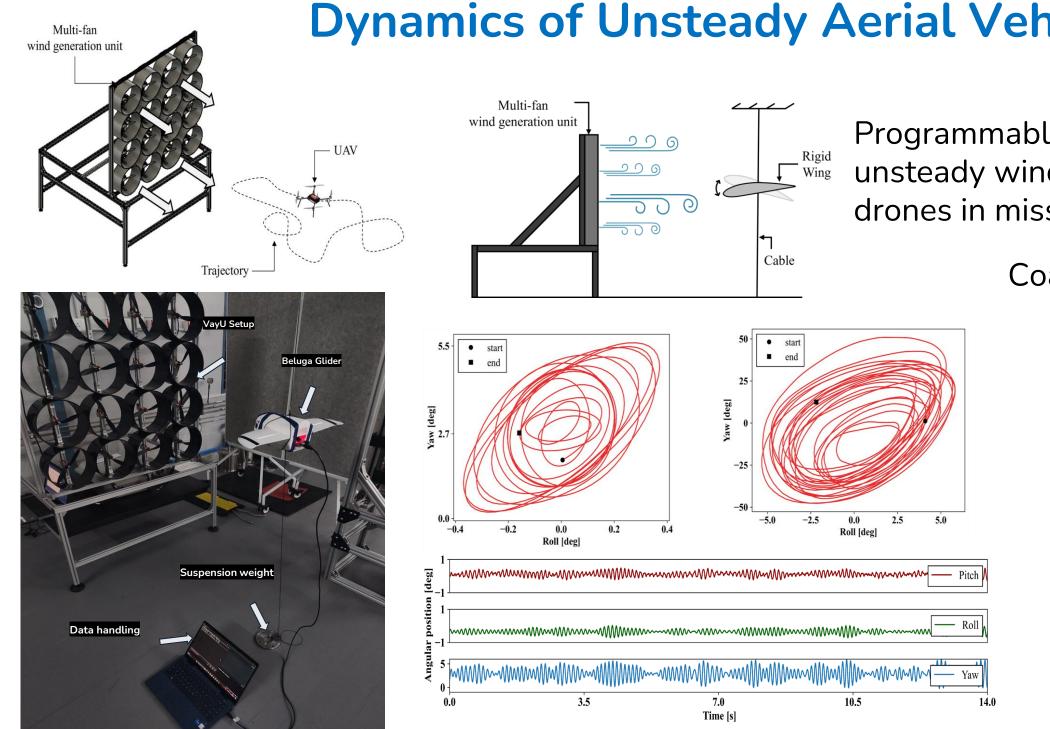


- 1. 3D Modelling & Simulations of Electro-Thermal-Chemistry Analysis of Lithium-Ion Batteries for Electric Mobility
- 2. Thermal Management: Liquid Cooling & Phase Change Materials
- 3. Electronics and Electrical Systems Packaging
- 4. Robust Metal Casings Design & Manufacturing for On-Road Durability and Safety

#### **Unmanned Seagoing Vehicles**

Path to full autonomy and safe navigation

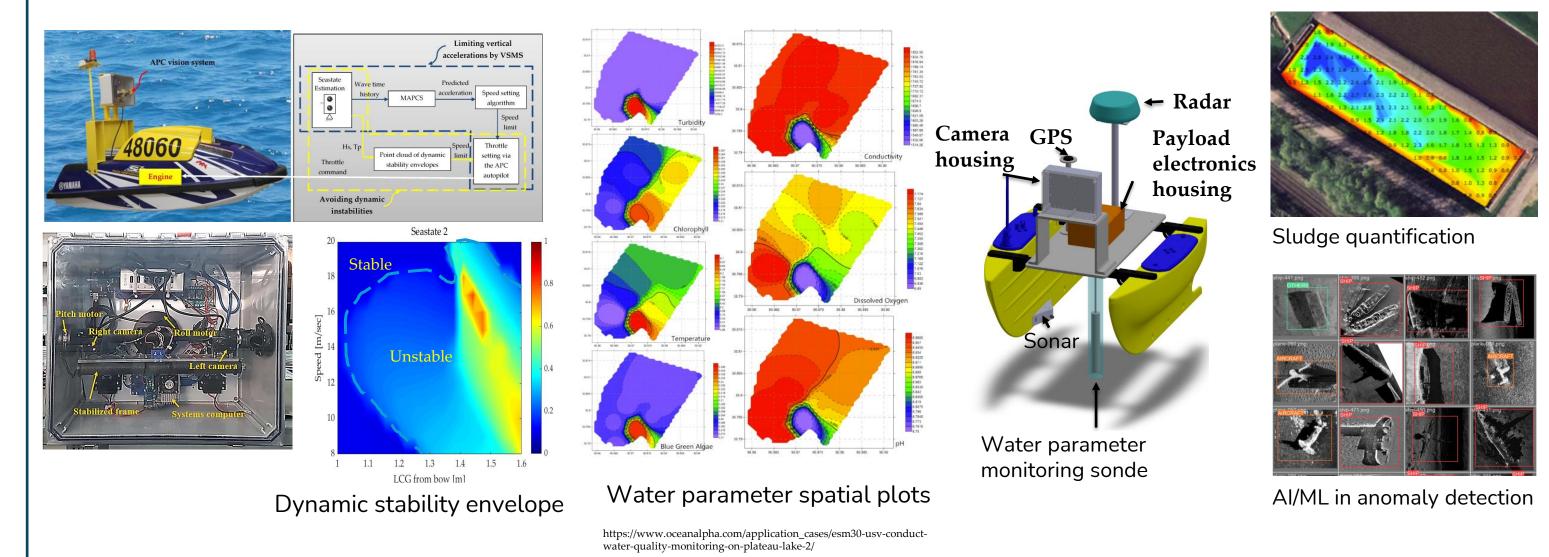
Prototype of urban lake monitoring USV

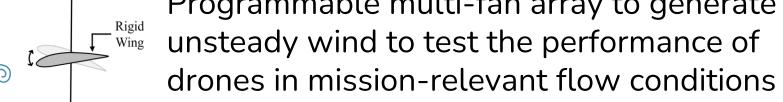


#### **Dynamics of Unsteady Aerial Vehicles**

Programmable multi-fan array to generate







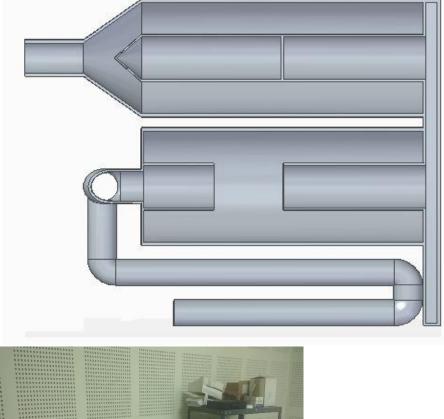
#### Coaxial Dual-rotor Drones

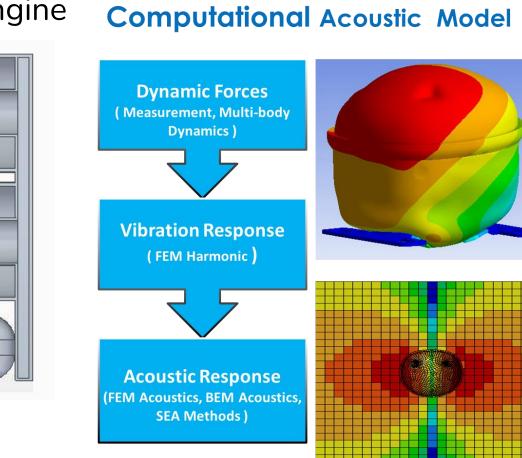


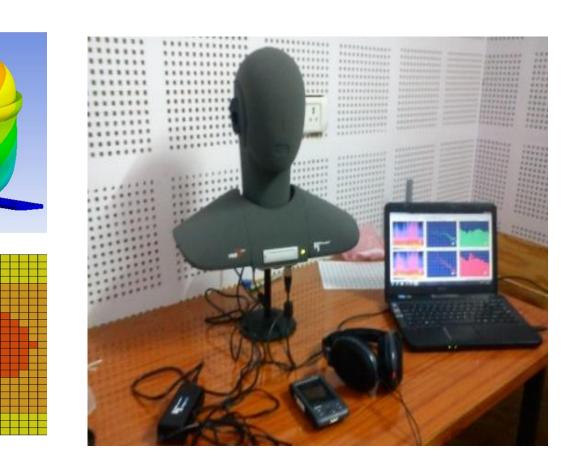
#### **Passenger Drone**

### Vehicle Acoustics

Muffler design for Wankel Engine













**Flight Control** 

**Flight Mechanics** 

Long Range Communication

1574m





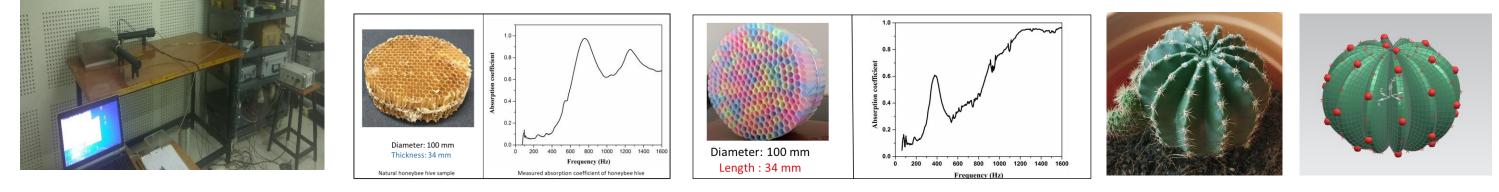


## Hexadeca-copter design















**Sensor Fusion & Validation** 

**Object Detection & obstacle avoidance** 

**Drone Prototype** 

#### The Team





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