INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

Innovation / Prototype

1. Student Details

Name of the Student	Roll Number	Branch	Mobile Number
A. Abhishek	20951A2101	Aero	9391863903
B. Krishna	20951A2130	Aero	9392369750

2. Title of the Innovation or Prototype

Effect of tubercles airfoil on conventional wings

3. Define the problem and its relevance to today's market / society / industry need

Reducing the drag for an aircraft is an evergreen problem in the aviation sector.
This idea of reducing the drag producing at the wing section will definitely help the sector in modernising.

4. Describe the Solution / Proposed / Developed

The solution we are proposing is to use the tubercles wings in the place of normal conventional wings. This actually helps in reducing the drag by delaying boundary layer.

5. Explain the uniqueness and distinctive features of the (product / process /service)

The major uniqueness of the product is that, as the tubercles of the wing will helps in delaying the boundary layer separation which cannot be done by the normal conventional wings. Which resulting in the decrease in the pressure drag and increasing the stall angle.

- Angle of Incident (α) = 10 degree
- Lift (L) = 251.07 N

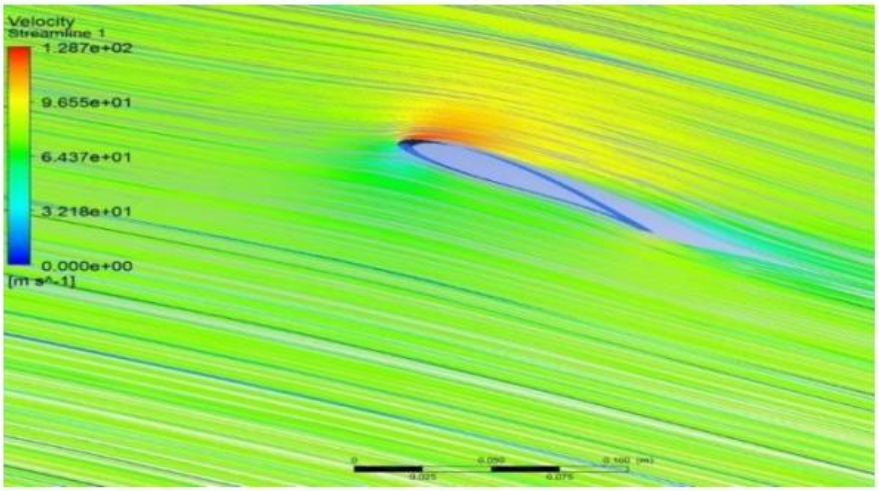
  Drag (D) = 36.698 N

Velocity = 80m/s
Density =1.225 kg/m^3
Surface area (s) = 0.052549 m^2
Lift (L) = 251 N
Drag (D) = 36.698 N
Coefficient of lift (Cl) = 1.22
Coefficient of drag (Cd) = 0.17832

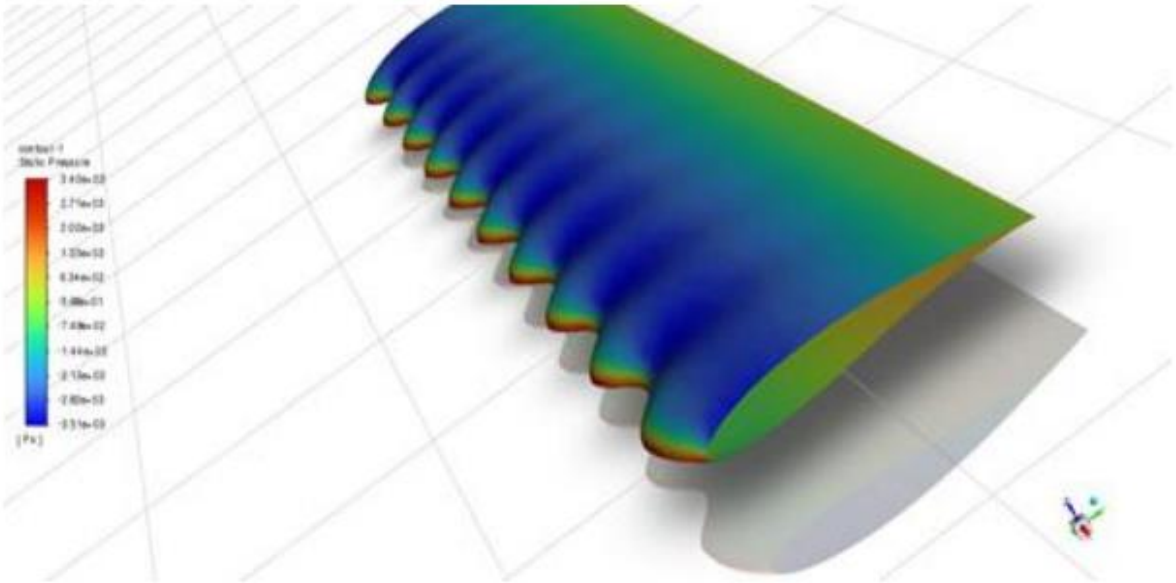
6. How your proposed / developed (product / process / service) solution is different from similar kind of product by the competitors if any

As of now there is no such product called tubercles wings in the market the idea of using the tubercles wings instead of normal conventional wings is not yet usedofficially in any plane.

So the market for the tubercles wings will be high by the results it is giving from the analysis.



Streamline Flow Over Wing (Plane Wing)



Pressure Contour of Tubercle Wing

Name of the PBL Handling Faculty :

Signature :