

# **EFFECT OF ANGLE OF FLAP ON LIFT AND DRAG IN A FLAPPING WING FLIGHT**

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## **ABSTRACT**

The aim of this work is to evaluate the influence of angle of flap on lift and drag in a flapping wing flight. To do so aerodynamic analysis is carried on flap wing using CFD simulations. Flapping wing aerodynamic performance has been only concentrated on motion under calm and clear atmospheric conditions. Small atmospheric disturbance such as gust wind could lead to flapping MAV (Micro Aerial Vehicle) great damage. FLUENT software was adopted for the motions of flapping wing. By considering unsteady flow of 3-D flapping wing, the aerodynamic parameters considered are lift and thrust. Finally, the flapping wing behavior is simulated in gust wind conditions through existing gust wind profile, and results shows that the lift did change with the wind speed. As wind speed becomes larger, the lifts also vary violently and lead to detrimental situations. Weather influence always observed for the design of wing.

**KEYWORDS:** Kinematic Parameters, Wing Rotation, Clap, Fling, Aerodynamic Characteristics