

## **A Detailed Study of Two Different Airfoils on Flight Performance of MAV of Same Physical Dimension**

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**Abstract :** The paper presents a study of micro air vehicles (MAVs) with wingspans of 20 Cm with two different airfoil configurations. MAVs have vast potential applications in both military and civilian areas. These MAVs are fully autonomous and supply real-time data. The paper focuses on two different designs of the MAVs one being N22 airfoil and the other a flat plate with similar dimension. As designed, the MAV would fly in a low Reynolds-number regime at airspeeds of 15 & 20 m/sec. Propulsion would be provided by an electric motor with an advanced lithium. Because of the close coupling between vehicle elements, system integration would be a significant challenge, requiring tight packaging and multifunction components to meet mass limitations and Centre of Gravity (C.G) balancing. These MAVs are feasible and within a couple of years of technology development in key areas including sensors, propulsion, Aerodynamics, and packaging these would be easily available to the users at affordable prices. The paper finally compares the flight performance of the two configurations.

**Keywords :** airfoil, CFD, MAV, flight performance, endurance, climb, lift, drag

**Conference Title :** ICAAA 2016 : International Conference on Applied Aerodynamics and Aeromechanics

**Conference Location :** London, United Kingdom

**Conference Dates :** January 18-19, 2016