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MAE 6900

In the last few decades, aircraft designers have sought to be able to change an aircraft's airfoil geometry midflight in order to optimize the flight characteristics for its current operating conditions. Past work included designing aircraft with variable planform geometries, but there are currently no successful designs of aircraft that can change the cross-sectional shape of their wings.

In this project, an airfoil made primarily of metal with low melting temperature is being investigated. The goal of this project is to design a wing that can be melted and reformed midflight. The airfoil's geometry has to be controllable and has to react to the pilot's input quickly.

The design process involved using various engineering simulation tools, namely finite element analysis (FEA) and computational fluid dynamics (CFD) to analyze and optimize the airfoil for its flight characteristics, its structural integrity, and the flow characteristics of the liquid metal of which the airfoil will be made. Engineering simulations have the advantage of providing feedback without the construction of costly prototypes.

Using these techniques, a workable design was reached. The next steps for the project is to construct and test a prototype in order to verify and validate the simulation results.