

# PROTOTYPE DESIGN COLLECTION

## SERIES 1



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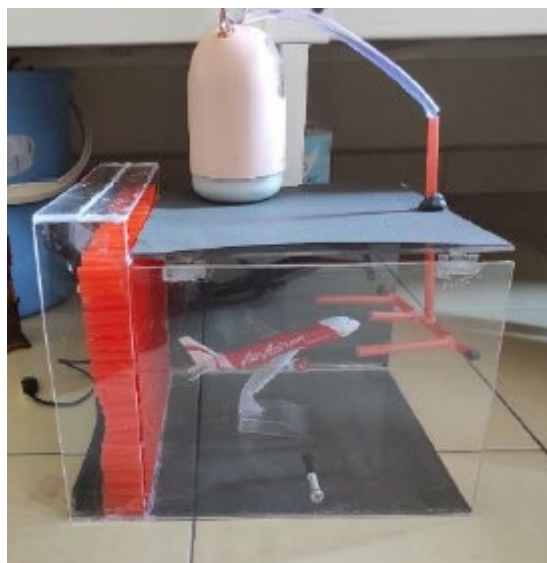
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#### PROJECT DESCRIPTION

The objective of the study was to understand the important aspect of designing and fabricating a mini wind tunnel for an aeroplane model. This mini wind tunnel worked to represent the aerodynamic aspect around the moving aeroplane using a quasi-static approach. Wind tunnel is a tool used in aerodynamic research to study the effects of wind moving over the solid object. In the present study, a low-velocity wind tunnel was designed and fabricated to study the drag and lift forces acting on the aeroplane's body. A typical open-circuit wind tunnel consists of a motor and fan unit, settling chamber, contraction cone, test section, and diffuser. The main work of the wind tunnel is to improve the design according to the aerodynamic shapes. This mini wind tunnel is made for experiment purposes as we will see and learn how the flow of air through aeroplanes. In this project, a mist/fog generator was used instead of smoke and the replicated aeroplane was used to represent the actual model. The scope of the study is to develop a mini wind tunnel to represent real size wind tunnel conditions with a few considerations to overcome the size limitation such as speed of the airflow, aeroplane flying position, and visibility of the mist from the diffuser. In conclusion, the air flowing through an aeroplane was obtained. However, several improvements such as real smoke should be considered for better representation and data collection.

**Keywords:** *Mini Wind tunnel, Aerodynamic, Airplane*

#### PROTOTYPE



**DESIGN PARAMETER**

