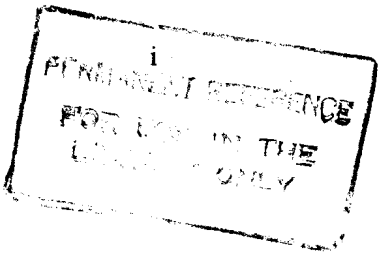

A DEMONSTRATION EXPERIMENT

ON BERNOULLI'S PRINCIPLE

FOR ADVANCED LEVEL PHYSICS

PROJECT REPORT PRESENTED

BY

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ABSTRACT

A model apparatus has been, successfully developed in order to demonstrate Bernoulli's principle for students in advance level Physics classes. The apparatus was first designed and its components were constructed separately and then assembled together to form a complete unit.

The apparatus has been devised in such a way to produce a streamline flow of air inside a wind tunnel. The variation of pressure with different air speeds was studied through quantitative measurements. The results were found to be in agreement with Bernoulli's principle.

The "lift" on an aerofoil due to laminar flow of air was investigated. The maximum lift produced on the aerofoil at a constant air speed was first directly measured. Then the lift was calculated in terms of the pressure difference, measured at the top and the bottom of the aero foil. The magnitudes of the lift obtained in the two different methods were found to be in agreement.

The variation of the lift on the aerofoil with different air speeds was investigated. The lift became greater for higher wind velocities. Similarly an experiment was also carried out using air flowing at different angles. It was found that the "lift" increased as the angle of attack increased until the flow down stream became turbulent.

This model demonstration apparatus is found to be suitable for demonstrating Bernoulli's principle to Advanced level Physics students.