

**3D EXPERIMENTAL OF AIR FLOW
ANALYSIS AROUND PROTON SAVVY CAR MODEL**

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ABSTRACT

This project is about the study of air flow analysis around a Proton Savvy car model from wind tunnel experiment. The experiment data include the aerodynamic force and moment using a three component external balance where the data is very importance to calculate a drag and lift coefficient which is the one of the importance consideration in designing the body of car. A Proton Savvy car was selected in this study to investigate about their drag coefficient. The drag coefficient is a common metric in automobile design, where designers strive to achieve a low coefficient. Minimizing drag is done to improve fuel efficiency at highway speeds, where aerodynamic effects represent a substantial fraction of the energy needed to keep the car moving. Indeed, aerodynamic drag increases with the square of speed, where a lower drag coefficient translates directly into lower fuel costs. In this project, a 1:16 scale Proton Savvy model car that was produced with CAD software (CATIA V5, a product from Dassault System) where the dimension of car was obtained by measurement from automotive laboratory at University Technology Mara (Uitm). The CAD data will be translated into solid object through a combination of laser, photochemistry and software technology. The process we call as stereolithography (SLA) prototyping process. From wind tunnel experiment, many elements of a vehicle's form can be revealed their behaviors in air flow when carefully tested. Finally, from the results of experiment, many ideas come out to improve the drag and lift coefficient to produce and develop an advanced, vehicle base on aerodynamic design of a car.

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