**ABSTRACT**

With the emphasis lying on increasing fuel efficiency of vehicles in order to combat rising fuel prices and environmental challenges the manufacturers are thinking beyond the conventional vehicle systems by focusing on its aerodynamics. Aerodynamic drag exceeds 50 per cent of the total resistance to motion at speeds above 70km/hr, and above 100 km/hr it is the most important factor. The review is done to identify the various shortcomings of the automotive designers when it is in regards to flow separation of air at the rear of the vehicle which causes most of the losses. This paper focuses on the work already done in the field of aerodynamics starting with Ahmed Body. It is a bluff body with adjustable rear slant angle and the basis upon which the aerodynamicists test their models. This brings to the simulation.. CFD tool is found very useful in automobile industry ranging from system level (exterior aerodynamics, ventilation, internal combustion engines) to component level (disk brake cooling).CFD simulations are carried out by dividing the physical domain into small finite volume elements and numerically solved the governing equations that describe the behavior of the flow.

The main concerns of automotive aerodynamics are reducing drag, reducing wind noise, minimizing noise emission and preventing undesired lift forces at high speeds. The most important part in the study of automobiles is to understand the pressure distribution over the shape of the automobile. The pressure at the back does not recover to the stagnation pressure level. As a result of the flow separation, the pressures at the back of the car are lower than at the front, which creates drag. For some classes of racing vehicles, it may also be important to produce desirable downwards aerodynamic forces to improve traction and thus cornering abilities. Wind-tunnel testing was applied to automobile, to determine aerodynamic forces but more to determine ways to reduce the power required to move the vehicle on roadways at a given speed.

So in this paper we will be analyzing the different types of car models and their aerodynamic structures. The main concern is about the pressure and the velocity of the different types of car bodies. by changing the aerodynamic shape we will be finding the velocities and the pressures acting on the bodies.Thus finding whether the body can withstand the pressure and velocity at a certain given set of conditions. Thus the efficiency of the vehicle is determined by the aerodynamic design and shape of the car body.