

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Project Background**

Chassis forms the structural backbone of commercial vehicles. The main function of the chassis is to support the components and payload mounted upon it including engine, body, passengers and also luggage. Chassis function's also to maintain the desired relationship between the suspension and steering mechanism mounting points.

When the truck travels along the road, the chassis is subjected to stress, bending moment and vibrations induced by road roughness, weather and components that mounted on it. Stress that acting on chassis is varies with the displacement and each part on the car chassis. Because of the behavior of the chassis that always subjected to stress (moving or not), some of the critical part will collapse.

Computer based numerical stress analysis methods (e.g finite element analysis) have permitted the complex distributions of stress in engineering to be more calculated. These allow linear stress and non-linear stress analysis to be performed for static and dynamic loads. In finite element analysis, behavior of structure is obtained by analyzing the collective behavior of the elements. Algor is one of the software that usually used in engineering field to perform the static analysis. It provided a better solution to analyze impact of load on the chassis body including the critical part which experiences a high value of stress/load on it.

## **1.2 Project Objectives**

There are several objectives regarding the title of stress analysis on chassis, which are:

- To analyze the static load that cause stress forces transmitted to the different part of chassis.
- To compare the finite element analysis result between different static load and different part of the truck chassis.

## **1.3 Project Scopes**

Scopes oft this project are:

1. Draw the 3D model of truck car chassis using Solidwork software.
2. Using Algor software to run stress analysis based on simulation method (e.g finite element analysis).
3. Compare the result analysis by the different load value.