UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF A BODY FRAME OF FORMULA STUDENT RACE CAR

NUR ADHAM BIN ADLAN

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ABSTRACT

The goal of the Formula Student Racing Car project was to develop and build an ideal body frame that complies with safety regulations while optimizing structural integrity, reducing weight, and improving aerodynamic performance. It was difficult to strike a balance between efficiency and effectiveness given the different limitations. One of the objectives was to design and build the body frame of the Formula Student Racing Car using a process that involved welding, cutting, cleaning, and finishing. The finished body frame, which was made of hollow steel bars, passed strict durability and safety testing and came out of it without damage. This final product's successful completion within the allotted eight weeks is evidence that exact specifications, standards, and client demands were met. The product has many advantages, highlighting how important it is to meet user needs and guarantee outstanding performance, robustness, and safety. The Formula Student Racing Car has the potential to be a significant sales item, especially for racing enthusiasts. As a final-year project, it will be noteworthy to achieve market recognition and success.

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CHAPTER ONE INTRODUCTION

1.1 Background of Study

These days Formula Race Car is the competition that interests many people. Formula Cars have extensive usage around the world. As people know, when people want to join the competition of Formula Cars, the most important part is they must have the car. The required car should have a strong body frame. An automobile's body frame called the chassis, holds the car's sub-assemblies and other parts in place. The chassis also stabilizes the car against the forces and impacts it must withstand over its lifetime. In the case of passenger cars, the frame's construction is of the body type, and most commercial vehicles, including trucks, are produced with body-on-frame construction.

The main reason for inventing these body frames is to make the Formula Car safer, more durable, and also the car's performance. The chassis must accommodate various systems, such as the frame, wheels, brakes, steering, and suspension. To maintain the rigidity of the whole structure, solutions created from expertise and modern engineering capabilities are needed in the manufacturing of a chassis [1]. In addition, when the car is used regularly to join the competition, there is a probability that the car will break and cause an accident during the race. Overall, the available body frames are good enough, but there are some factors to improve the body frames itself.

Therefore, a new project should be invented to solve the current problem to make the drivers of the Formula car race safer. The main criteria of an invention must follow the latest era and technology. In addition, for the driver to give the best performance during the race competition, they must have a good machine and their car's power. So, they can't win the race with bad body frames and also the car that may cause accidents and other things that we do not want to happen. However, we need solid body