FACULTY OF MECHANICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM

DIPLOMA IN MECHANICAL ENGINEERING (AUTOMOTIVE)
FUEL INJECTION SYSTEM

MUHAMAD SHAH B. OSMAN 98080404
MUHAMMAD FAHMI B. HASHIM 98080411
MOHD ZULHAMIS B ABD. KADIR 98080356
MOHAMED HESZZUDDIN B MD. ABU HASSAN 98080125

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ABSTRACT

In completing our final project's report we've done our research for the last 12 months. We've done a research on the fuel injection system. Now we know what are the different between an electronic fuel-injection system and a diesel fuel-injection system.

We've done the research to improve our knowledge and it really helps us to understand the fuel-injection system very well. We also able to diagnose if the engine got any problem.

We were also able to know what the advantages and the disadvantages between both system. The conclusion that we made is that if you want a vehicle with a power output, you should use a diesel engine, but if you want a vehicle that is environmentally friendly, you should get a gasoline engine.

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May Allah bless you.

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1.1 INTRODUCTION

The injection system is the most vital component in the working of CI (compression injection) and SI (spark ignition) engines. The engines performance viz. power output, economy etc. is greatly dependent on the effectiveness of the fuel injection system. The injection system has to perform the important duty of initiating and controlling the combustion process.

Basically the purpose of carburetion and fuel injection is the same viz. preparation of the combustible charge. But in case of carburetion fuel is atomized by process relying on the air speed greater than fuel speed at the fuel nozzle, whereas, in fuel injection the fuel speed at the point of delivery is greater than the air speed to atomize the fuel. In carburetors, air flowing through a venturi picks up a fuel from the nozzle located there. The amount of fuel drawn into the engine depends upon the air velocity in the venturi. In a fuel injection system, the amount of fuel delivered into the same stream going to the engine is controlled by a pump which forces the fuel under pressure.

When the fuel is injected into the combustion chamber towards the end of compression stroke, is atomized into very fine droplets. These droplets vaporize due to the heat transfer from the compressed air and form a fuel mixture. Due to continued heat transfer from hot air to the fuel, the temperatures reaches a value higher than its self-ignition temperature. This causes the fuel to ignite spontaneously initiating the combustion process.