ENGINE MANAGEMENT SYSTEM

LABORATORY REPORT

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<tr><td colspan="6">GASOLINE ELECTRONIC FUEL INJECTION (EFI)</td></tr>
<tr><td colspan="2">Group</td><td colspan="4"></td></tr>
<tr><td colspan="2">Lecturer Name</td><td colspan="4"></td></tr>
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1. INTRODUCTION

2. OBJECTIVE

Based on the experiment, student shall be able:

1. To operate On-Board Diagnostic scanner.
2. To understand how gasoline Electronic Fuel Injection (EFI) system works.
3. To determine basic parameters needed by the gasoline EFI's ECU.
4. To identify input, output, and correction factor of engine map.
5. To explore engine map of the gasoline EFI.

3. EQUIPMENT

1. A Petrol Engine Injection System Educational Trainer.
2. An On-Board Diagnostic (OBD) scanner.
3. A voltmeter
4. An oscilloscope.

4. PROCEDURE

1. Turn on power supply of the Whole CANBUS System Educational Training Equipment trainer.
2. Please ensure that all the toggle switches at the control panel are turned on and all the knob at zero position.
3. Turn on ignition key.
4. Connect the OBD scanner to the trainer.
5. Select vehicle type Hyundai Grandeur (HG) 2.4 MPI year 2014.
6. At the OBD scanner interface, read the data stream by selecting several parameters that need to be displayed as tabulated in **Table 1**.
7. Run the trainer with engine speed at 1500 rpm.
8. Record Cyl. 1 Injection Time-1st Pulse and Ignition Output Value-Cyl1 at specific accelerator pedal position according in **Table 2**.

Table 1: Selected readings in OBD scanner

Actual Engine Speed
Accelerator Pedal Position
Cyl. 1 Injection Time-1st Pulse
Ignition Output Value-Cyl1

5. OBSERVATION

State any observation involves during the experiment.

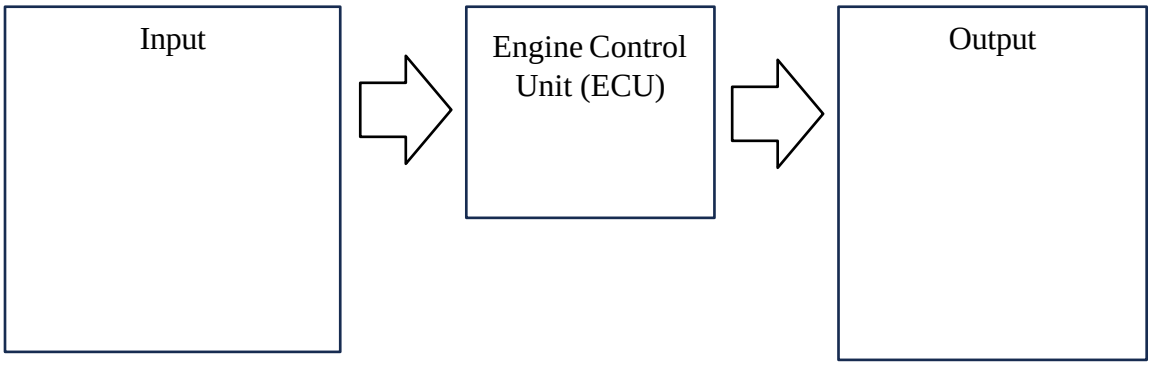
6. RESULT

Table 2: Experiment matrix.

Accelerator Pedal Position (%)	Cyl. 1 Injection Time-1st Pulse (ms)	Ignition Output Value-Cyl1 (BTDC)
0		
10		
20		
30		
40		
50		
60		
70		
80		
90		

7. DISCUSSION

1. According to the experiment, identify input and output variables of the gasoline EFI's engine management system.



2. Based on the result, what is the definition of Cyl. 1 Injection Time-1st Pulse? With aided of a graph, explain and justify its trend against the accelerator pedal position?
3. Based on the result, what is the definition of Ignition Output Value-Cyl1? With aided of a graph, explain and justify its trend against the accelerator pedal position?

8. CONCLUSION

REFERENCES

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