



**FAKULTI KEJURUTERAAN MEKANIKAL  
UNIVERSITI TEKNOLOGI MARA (UiTM)  
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**FINAL YEAR PROJECT**

**VARIABLES MONITORING FOR THE TWO STROKE ENGINE  
USING COMPUTER INTERFACING TECHNIQUE**

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## ABSTRACT

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Studying of the performance and performing the analysis of an internal combustion engine is a quite complicated work. We need to know many variables through which we will be able to investigate the behaviour of the engine. Such variables are temperature, pressure, speed, torque and exhaust gases temperature etc. The readings need to be taken many times over a short time. A previous phase of this work was done to make the measurement for the sake of realisation of the radical combustion. However the main problem faced is detecting and measuring of the variables was an obstacle, when it is needed to investigate the behaviour of those variables within a short duration of time. For example, a two - stroke engine that runs at 3600rpm (or 60rev/s) will undergoes Top Dead Centre (TDC) for every 0.0167 seconds. It is totally impossible for human to record the pressure and temperature at this short interval of time. In this work the main task is to overcome the above problem, by the means of providing the proper interfacing between the engine and the Personal Computer (PC), which help for providing high accuracy of measurement as well as data data acquisition for further analysis.

However the interfacing between a commercial two - stroke engine with the PC for the sake of performance analysis was been established. ADAM modules was used as the hardware to convert the signal detected by the sensor before being transmitted to the computer. A proper interfacing software to monitor and facilitate parameters variations

# CHAPTER 1

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## DATA LOGGING AND DATA ACQUISITION.

### 1.1 Data Acquisition System.

Computer Interface System is a set of devices that forms a system that allows us to feed data from real world to our computer. The signal produced by sensors, transducers and flow meters been taken and converts into a form that a computer can understand. The advantages of PC Based Acquisition System is that:

- 1) We can use our computer integrated to the system to gather, monitor real time display and analyze the data.
- 2) The system can be extended to control and react to our input data to control accurately our processes for maximum efficiency , if the acquisition system has some output capabilities.

Computer interface system works with the integration of hardware interface equipment to take full advantage of our computer system. The hardware equipment combined with appropriate sensors will bring and converts the physical data into digital data that computer can process it.. There also software been designed to analyze the data using transforms and curves fitting. There are 2 kinds of interface system identified until now. These are;