PRESSURE MONITORING SYSTEM INTERFACED WITH GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM)

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Fakulti Kejuruteraan Elektronik dan Kejuruteraan Komputer

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DECLARATION

"I hereby, declare this report entitled "Pressure Monitoring System Interfaced with GSM" is the result of my own research except as cited in references.

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APPROVAL

This report is submitted to the Faculty of Electronic Engineering and Computer Engineering (Electronic Telecommunication) of UTeM as a partial fulfilment of the requirement for the degree of Bachelor of Electronic Engineering (Telecommunication) (Hons.). The member of the supervisory committee is as follow:

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DEDICATION

Specially dedicate to

My beloved family, lecturers, supervisor and friends who have guided and inspired me through my journey in education. Also thanks to their support, beliefs and motivation.

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ABSTRACT

Pressure can be defined as a force presses over an area. It cannot be seen but when it does you can feel it. Although pressure is sightless, it gives an impact to a certain thing. One of a simple example that can explain the effect of pressure over an area is s shaking tree blown by a wind. The wind presses over an area which is the tree resulting in pressure. For some materials, pressure can change its properties. These materials are chemical substances. An amount of force exerted by pressure can change the nature and characteristics of the substances. For example, forces of pressure can faster or slower the rate of reaction or melting point of a chemical substance. The result is depended on a type of chemical being forced. In a chemical processing industry, this factor might disturb the desired results which can cost a lot of money to the company. Hence, in order to avoid this unwanted situation, a device known as Pressure Monitoring System (PSM) interfaced with GSM is designed. The device can detect force of pressure around by using pressure sensor and show it based on a real time condition. The device also is implemented with warning system in order to notify people about the current pressure condition. The warning system consists light indicator and message notification.

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ABSTRAK

Tekanan boleh didefinisikan sebagai daya yang dikenakan ke atas suatu kawasan. Tekanan adalah sesuatu yang tidak dapat dilihat tetapi ianya boleh dirasai. Walaupun tekanan tidak dapat dilihat, tetapi ia dapat memberi kesan kepada sesetengah benda. Suatu contoh mudah untuk menerangkan tekanan ialah pokok yang bergoncang semasa ditiup angin. Angin yang bertiup menekan pokok tersebut yang mana adalah salah satu konsep tekanan. Untuk sesetengah bahan, tekanan dapat merubah sifat-sifatnya. Bahan yang dimaksudkan tersebut adalah bahan kimia. Tekanan yang dikenakan keatas bahan-bahan kimia boleh merubah bentuk dan sifat-sifatnya. Sebagai contoh, tekanan dapat mempercepatkan atau memperlahankan kadar reaksi dan takat lebur sesuatu bahan kimia tersebut. Kadar reaksi dan takat lebur tersebut bergantung kepada jenis bahan kimia yang terbabit. Dalam industry pemprosesan kimia, benda-benda ini boleh menjejaskan hasil yang dijangka dan seterusnya mendatangkan kerugian kepada syarikat. Jadi, untuk mengelakkan daripada terjadi keadaan begitu, suatu alat yang dikenali sebagai “Pressure Monitoring System” (PMS) yang digabung dengan GSM direka. Alat tersebut boleh megesan tekanan udara di sekeliling menggunakan pengesan tekana dan menyiarkan bacaan tersebut secara langsung. Alat tersebut juga dibekalkan dengan sistem amaran untuk memberi amaran tentang keadaan tekanan semasa. Sistem amaran terdiri daripada penunjuk cahaya dan pemberitahuan melalui mesej.

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SHORT FORM LIST

PMS	-	Pressure Monitoring System
TPMS	-	Tire Pressure Monitoring System
LCD	-	Liquid Crystal Display
GSM	-	Global System for Mobile Communication
PSI	-	Pounce per Square Inch
Pa	-	Pascal
K	-	Kilo
M	-	Mega
Hz	-	Hertz
ID	-	Identification
Kmph	-	Kilo Meter per Hour
MCU	-	Microcontroller Unit
RAM	-	Random Access Memory
DSP	-	Digital Signal Processing
PVDF	-	Polyvinylidene Fluoride

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RFID	-	Radio Frequency Identification
CPU	-	Center Processing Unit
I/O	-	Input/Output
ROM	-	Read Only Memory
USB	-	Universal Serial Bus
RF	-	Radio Frequency
AM	-	Amplitude Modulation
FM	-	Frequency Modulation
ASK	-	Amplitude Shift Keying
FSK	-	Frequency Shift Keying
MODEM	-	Modulation and Demodulation
SIM	-	Subscriber Identity Module
FDMA	-	Frequency Division Multiple Access
TDMA	-	Time Division Multiple Access
IMSI	-	International Mobile Subscriber Identity
SMS	-	Short Message Service
CRT	-	Cathode Ray Tube
IC	-	Integrated Circuit
ASIC	-	Application Specified Integrated Circuit
ADC	-	Analog to Digital Converter
CMOS	-	Complementary metal–oxide–semiconductor
LIN	-	Local Interconnect Network
TTL	-	Transistor-transistor logic

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GPS	-	Global Positioning System
ISM	-	Industrial, Scientific and Medical
SPI	-	Serial Peripheral Interface
MOSI	-	Master Out Slave In
MISO	-	Master In Slave Out
EEPROM	-	Erasable Programmable Read-Only Memory
UART	-	Universal Asynchronous Receiver/Transmitter
USART	-	Universal Synchronous/Asynchronous Receiver/Transmitter
PIC	-	Programmable Integrated Chip
IC	-	Integrated Circuit
LED	-	Light-Emitting Diode
PCB	-	Printed Circuit Layout
TX	-	Transmitter
RX	-	Receiver
STD	-	Subscriber Trunk Dialing
BTS	-	Base Transceiver Station
BSC	-	Base Station Controller
USB	-	Universal Serial Bus
PC	-	Personal Computer
IIC	-	Inter-Integrated Circuit
PVC	-	Polyvinyl-chloride
MEMS	-	Micro-electromechanical system

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