Malam CIPTA KUTKM 2006 -

Cetusan Inspirasi Projek Teknikal & Aplikasi

14 Julai 2006
Hotel Equatorial Melaka

Anjuran :
Universiti Industri (UNIC)
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA

" PENYELIDIK CEMERLANG KUTKM TERBILANG "

Bismillahirahmanirahim.
Assalamualaikum wrt. wbt. dan salam sejahtera.

Penyelidikan Cemerlang, Akademik Gemilang, KUTKM Terbilang!

Pencapaian penyelidikan dan kecemerlangan akademik adalah dua perkara penting yang saling berhubung kait untuk menjadikan KUTKM sebagai sebuah universiti teknikal terkemuka di dunia seperti yang dihasratkan.

KUTKM telah terlibat secara aktif dalam aktiviti penyelidikan seperti pameran dan pertandingan di peringkat kebangsaan dan antarabangsa sejak penubuhannya. Matlamatnya adalah untuk memberi ruang, pendedahan dan peluang kepada ahli akademik dalam bidang penyelidikan selaras dengan hasrat negara untuk melahirkan lebih ramai penyelidik yang berkaliber. Penyertaan ini tidak sahaja telah berjaya mengharumkan nama KUTKM tetapi juga telah menggalak dan membudayakan aktiviti penyelidikan sebagai asas penjanaan ilmu dan penemuan baru.

Majlis 'Malam Cipta KUTKM 2006 - Cetusan Inspirasi Projek Teknikal dan Aplikasi' yang diadakan ini merupakan satu pengiktirafan dan penghargaan kepada para penyelidik KUTKM kerana telah berjaya menyumbang pingat dan anugerah dalam pameran dan pertandingan yang telah disertai.

Diharapkan pengiktirafan yang diberikan akan lebih mendorong para penyelidik untuk memberi lebih komitmen untuk terus berusaha lebih gigih lagi dalam aktiviti penyelidikan. Bidang penyelidikan perlu menjadi teras motivasi kepada ahli akademik kerana kejayaan seseorang ahli akademik tidak sahaja diukur dari sudut pengajaran dan pembelajaran tetapi juga sumbangannya kepada penyelidikan negara yang akan dimanfaatkan.

Anugerah Khas Penyelidikan adalah satu anugerah keunggulan yang diberikan pada majlis ini kepada penyelidik yang telah menunjukkan komitmen dan pencapaian yang tinggi dalam bidang penyelidikan. Ia adalah satu titik permulaan ke arah lebih banyak hasil penyelidikan yang kreatif dan inovatif. Saya yakin ahli akademik KUTKM mempunyai potensi dan kualiti tinggi untuk menghasilkan lebih banyak lagi penemuan penyelidikan yang akan menyumbangkan kepada pembangunan negara.

Tahniah dan syabas kepada Pusat Universiti Industri (UNIC) di atas usaha yang diadakan ini dan diharapkan ia menjadi satu acara tahunan yang berprestij bagi KUTKM.

DATUK PROFESOR ISMAIL BIN HASSAN
REKTOR

PRAKATA TIMBALAN REKTOR (PENYELIDIKAN DAN PENGKOMERSILAN/ INOVASI)

Assalammualaikum,

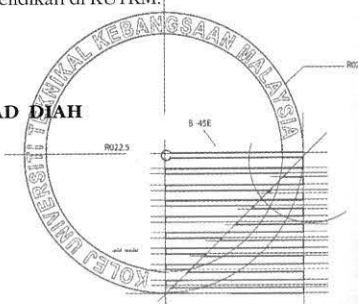
Tahniah diucapkan kepada pihak Pusat Universiti Industri kerana telah berjaya menganjurkan Malam Cipta KUTKM 2006 - Cetusan Inspirasi Projek Teknikal dan Aplikasi'. Majlis ini bertujuan untuk mengiktiraf dan menghargai kejayaan penyelidik KUTKM, memotivasikan para penyelidik muda KUTKM untuk melibatkan diri secara aktif dalam bidang teknikal dan penyelidikan dan sekaligus mempamerkan penemuan-penemuan baru para penyelidik KUTKM dalam bidang penyelidikan, pembangunan dan inovasi. Secara tidak langsung, budaya penyelidikan di KUTKM dapat diberi galakkan.

Melalui majlis ini juga, kita berpeluang meraikan kejayaan para penyelidik KUTKM semasa menyertai pertandingan penyelidikan seperti I.TEX 2005, Ekspo RND IPTA 2005, MTE 2006 dan "34th International Exhibition Of Inventions New Techniques and Products Geneva" dimana kita telah berjaya menggondol pingat emas, perak dan gangsa dalam kesemua pertandingan tersebut.

Saya berharap dengan adanya pengiktirafan dan penghargaan sebegini dapat menggalakkan lagi golongan staf akademik untuk menjalankan penyelidikan dengan lebih aktif lagi sekaligus menyumbang kepada pembangunan ekonomi Negara, masyarakat dan mengatasi cabaran teknologi dunia kelak.

Sekali lagi saya ingin mengucapkan tahniah kepada pihak Pusat Universiti Industri kerana telah berjaya merealisasikan Malam Cipta KUTKM 2006 dan telah berjaya meningkatkan pencapaian penyelidikan di KUTKM sehingga memotivasikan para penyelidik yang terdiri dari staf akademik dan pelajar KUTKM untuk membudayakan penyelidikan di KUTKM. Saya berharap komitmen dan usaha yang ditunjukkan oleh pihak Universiti Industri dapat dikekalkan demi kejayaan dan kecemerlangan penyelidikan di KUTKM. Sekian, terima kasih.

DATUK PROF. MADYA DR. ABU BAKAR BIN MOHAMAD DIAH
TIMBALAN REKTOR
PENYELIDIKAN & PENGKOMERSILAN / INOVASI



PRAKATA DEKAN PUSAT UNIVERSITI INDUSTRI

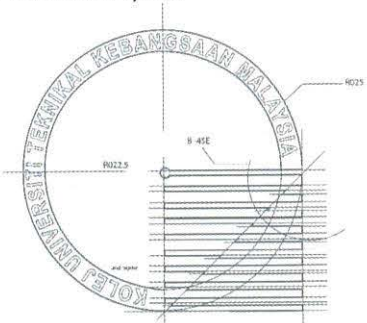
Assalamualaikum,

Penyelidikan, Pembangunan, Inovasi dan Pengkomersilan dalam bidang sains dan teknologi adalah penting dalam memastikan kejayaan sesebuah negara dalam persaingan ekonomi moden. Ianya merupakan pelaburan strategik dalam meningkatkan keupayaan negara untuk menjadi lebih inovatif serta aktif dalam menghadapi cabaran yang mendatang. Kini, KUTKM sedang giat melaksanakan perancangan khusus untuk mengembang dan memperkasa program penyelidikan, pembangunan dan inovasi dalam usaha universiti untuk memenuhi misi dan visi universiti ini.

Aktiviti penyelidikan telah bermula pada tahun 2003 dengan geran jangka pendek dari Kementerian Pengajian Tinggi (KPT) sebanyak RM500,000 di ikuti dengan tahun 2004, KPT menambah lagi geran sebanyak RM750,000. Pada tahun 2005, KUTKM telah memperuntukkan RM1.5 juta untuk tujuan yang sama. Jumlah projek yang mendapat geran dalam tempoh 3 tahun tersebut melebihi 135 semuanya. Disamping itu pada tahun 2005, 2 projek penyelidikan jangka panjang telah mendapat geran IRPA berjumlah RM748,000 dari Kementerian Sains, Teknologi dan Inovasi (MOSTI).

KUTKM juga telah memenangi beberapa hadiah dan anugerah pada pameran penyelidikan peringkat kebangsaan dan antarabangsa. Sasaran seterusnya adalah untuk meningkatkan perolehan geran penyelidikan jangka panjang dan juga untuk memenangi banyak hadiah dan pingat di pameran peringkat antarabangsa. Universiti telah buat pertama kalinya mengambil bahagian dalam pameran penyelidikan antarabangsa di Geneva dengan beroleh kejayaan cemerlang. Dengan itu universiti telah dapat meningkatkan "research profile" serta mendapat pengiktirafan diperingkat antarabangsa. Hari ini kita berkongsi kejayaan penyelidik-penyelidik universiti yang telah berjaya membawa KUTKM ke persada kebangsaan dan antrabangsa. Tahniah serta Syabas.

PROF. DR MOHAMAD KADIM BIN SUAIDI
DEKAN
PUSAT UNIVERSITI INDUSTRI



"KUTKM TERBILANG"

Di Sini Segala Bermula
Cemerlang Mencipta Gemilang
Bertuah Bumiku Menyaksi
Bersama Kita Berjuang

Tersohor Persada Dunia
Senada Wawasan Negara
Melahir Insan Luhur Jiwa
Mampan Menambat Dunia

C/O

Perkongsian Pintar
Universiti Dan Industri
Kreatif Inovatif

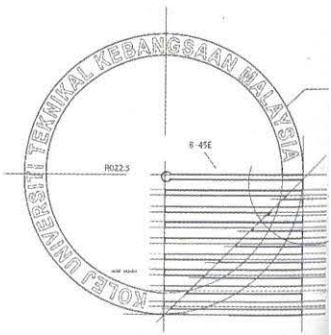
Pembelajaran Teras
Aplikasi Dan Kompetensi
Tekad Mencapai Visi

Demi Semangat Negara
Kami Mencurah Bakti
Nasib Pertiwi Terus Dibela
Kepada Ibunda Kami Berjanji

Kutkm Ku Cemerlang
Kutkm Ku Gemilang
Kutkm Ku Terbilang
Kutkm Terus Berjuang

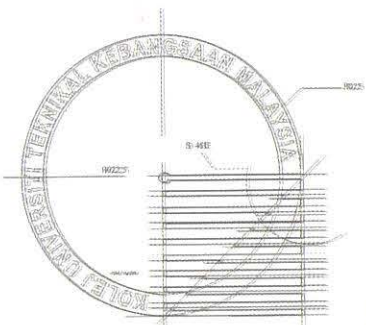
Kutkm Ku Cemerlang
Kutkm Ku Gemilang
Kutkm Ku Terbilang
Kutkm Terus Berjuang

LAGU : M.NASIR
LIRIK : SETH / KUTKM



14 Julai 2006 (Jumaat)

8.00 mlm.	:	Ketibaan Penyelidik dan Jemputan
8.10 mlm.	:	Ketibaan Pegawai-Pegawai Kanan KUTKM
8.15 mlm.	:	Ketibaan Y.Bhg. Datuk Prof. Ismail bin Hassan, Rektor KUTKM
8.20 mlm.	:	Ketibaan Pengerusi Jawatankuasa Negeri Pelajaran dan Pengajian Tinggi
8.30 mlm.	:	Bacaan Doa
8.35 mlm.	:	Nyanyian Lagu KUTKM
8.40 mlm.	:	Ucapan Aluan oleh Y.Bhg. Datuk Prof. Madya Dr. Abu Bakar bin Mohamad Diah, Timbalan Rektor (Penyelidikan &Pengkomersilan/ Inovasi)
8.50 mlm.	:	Ucapan oleh YBhg. Datuk Prof. Ismail bin Hassan, Rektor KUTKM
9.00 mlm.	:	Penyampaian Sijil Penghargaan
	:	Penyampaian Anugerah Khas Penyelidikan
	:	Pelancaran Buku 'Polisi dan Garis Panduan Penyelidikan', Buku 'Polisi dan Garis Panduan Perundingan' dan 'KUTKM Directory of Expertise'
9.30 mlm	:	Jamuan Makan
11.00 mlm	:	Bersurai



Senarai Pemenang Pingat

Malam

CIPTA KUTKM 2006 -

Cetusan Inspirasi Projek Teknikal & Aplikasi

Air Pressure Plug

Penyelidik : 1) Mohd Najib bin Abdul Manan
2) Nik Mohd Farid bin Che ZainalAbidin
3) Hambali bin Arep@Ariff

Fakulti : FKP

Nama Pertandingan : 1) Geneva
2) I.TEX/EINIC
3) Ekspo IPTA 2005
4) MTE 2006

Pingat : 1) 2 Emas
2) 1 Perak
3) 1 Gangsa

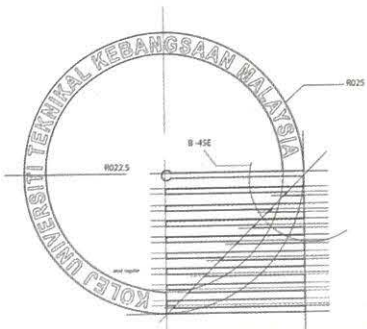
The HVAC Inspection Crawler

Penyelidik : 1) Tan Chee Fai
2) Lim Thiam Lai
3) Prof. Madya Lt. Kol. Ir. Mohd Hazani bin Hj. Shafei
4) Prof. Madya Dr. Md. Radzai bin Said
5) Shamsul Anuar Shamsuddin
6) Soo Yew Guan

Fakulti : FKM

Nama Pertandingan : Ekspo IPTA 2005

Pingat : 1 Perak



SENARAI PEMENANG PINGAT SECARA KESELURUHAN

Economical Optical Waveguide Fabrication Technique Based on Ion Exchange

Penyelidik : 1)Kok Swee Leong
2) Hazli Rafis bin Abdul Rahim
3)Khairuddin bin Osman
4)Mohd Shahril Izuan bin Mohd Zin

Fakulti : FKEKK

Nama Pertandingan: 1) Ekspo IPTA 2005
2) Geneva

Pingat : 2 Gangsa

Carbon Adsorbent for Natural Gas and LPG Storage in the Automobile

Penyelidik : 1) Safarudin Ghazali Herawan
2) Imanurezeki bin Mohamad

Fakulti : FKM

Nama Pertandingan: 1) Geneva
2) Ekspo IPTA 2005
3) MTE 2006

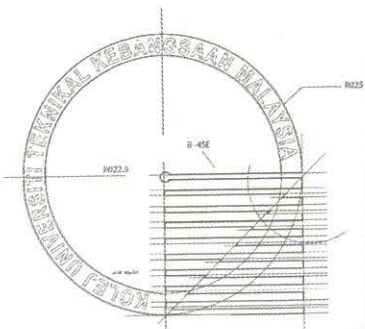
Pingat : 3 Gangsa

Obstacle Avoidance for Vision-Based Automated Guide Vehicle (V-AGV) Using Shortest Path Planning

Penyelidik : 1) Prof. Dr. Marizan bin Sulaiman
2) Hairol Nizam bin Mohd Shah

Fakulti : FKE

Nama Pertandingan: Ekspo IPTA 2005
Pingat : 1 Gangsa



NALURI (Natural Language Understanding and Reasoning for Intelligence)

Penyelidik : Wilson Wong Yik Sen

Fakulti : FTMK

Nama Pertandingan : Ekspo IPTA 2005

Pingat : 1 Gangsa

Fault Analysis and Tutorial Software (FATS)

Penyelidik : 1) Prof. Dr. Marizan bin Sulaiman
2) Zainuddin bin Mat Isa

Fakulti :FKE

Nama Pertandingan: 1) I.TEX 2005
2) MTE 2006

Pingat : 1) 1 Perak
2) 1 Gangsa

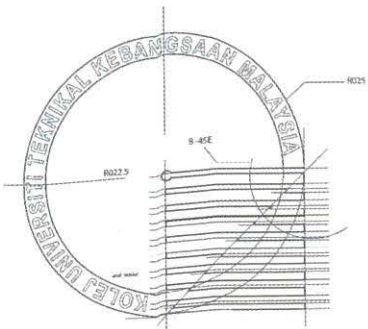
Smart Switching System (S3)

Penyelidik : En. P.S. Sivarao

Fakulti : FKP

Nama Pertandingan: MTE 2006

Pingat : 1 Gangsa



SENARAI PEMENANG PINGAT SECARA KESELURUHAN

Application of New Electricity Risk Management System To The Unit Commitment (UC) And Economic Load Dispatch (ELD) Problems To Optimize The Total Operating Cost of Generation Mix In Malaysia

Penyelidik : 1) Dr. Musse Mohamud Ahmed
2) En. Mohd Yusri bin Jamil

Fakulti : FKE

Nama Pertandingan : MTE 2006

Pingat : 1 Gangsa

Multipurpose Convection Gas Oven

Penyelidik : 1) En. Juhari bin Abd. Razak
2) En. Mohd Raduan bin Khalil

Fakulti : FKM

Nama Pertandingan : MTE 2006

Pingat : 1 Gangsa

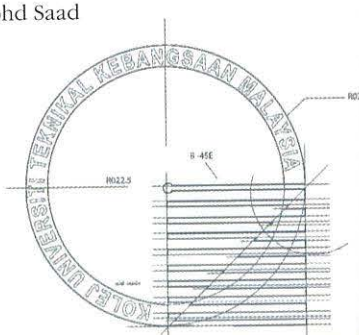
Real Time Power Quality Monitoring System Based On TMS320CV5416 DSP Processor.

Penyelidik : 1) En. Abdul Rahim bin Abdullah
2) En. Norhashimah Mohd Saad

Fakulti : FKE dan FKEKK

Nama Pertandingan: MTE 2006

Pingat : 1 Gangsa



Abstrak

Malam
CIPTA KUTKM 2006 -
Cetusan Inspirasi Projek
Teknikal & Aplikasi

Air Pressure Plug

1) Mohd Najib B. Abdul Manan
2) Nik Mohd Farid B. Che Zainal Abidin
3) Hambali B. Ariff
Fakulti Kejuruteraan Pembuatan

Abstract

The idea behind the development of this invention was based on the problem encountered by motorist when they were facing with flat tyres. Air pressure plug was an invention that delivered or channeled air from internal combustion engine. The movement of piston in combustion engine generated compressed air in the engine. The compressed air was channeled out from the engine through modified spark plug. The advantage of the invention was its size that was quite small such that it can be put inside the pocket

Keywords: Internal Combustion Engine, Spark Plug, Inflatable Item/ Article

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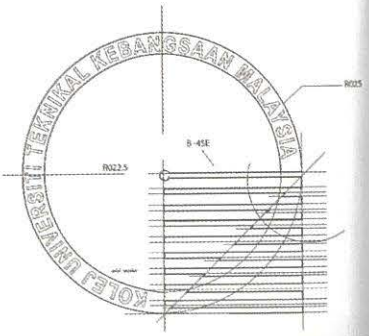

The Multi-Function Inspection Crawler

Tan Chee Fai
Fakulti Kejuruteraan Mekanikal

Abstrak

Heating, ventilating and air-conditioning (HVAC) systems can play several roles to reduce the environmental impact of buildings. A large part of the HVAC system consists of rectangular ducts as small as 150 X 150mm in size, type of HVAC duct to which we restrict our attention here. The Malaysia public sewerage system is about 50,000 km long. The sewage system is normally the largest infrastructure investment of cities and towns overall. The overall system is not in good condition. In consequence, much effort must be taken to inspect, maintain, and repair the sewage pipes. A large part of the public sewerage system consists of circular pipes of 200-9000 mm inner diameter, type of pipes to which we restrict our attention here too. Obviously, both systems are not accessible for humans. The current state of the art to maintain such HVAC duct and sewerage system is to use tele-operated camera platforms. These platforms are connected to the outer world by a cable serving for energy supply, for transmission of commands from the human operator to the device, for data transmission back to the operator, for measuring the distance travelled, and as a lifeline. However, a tethered platform is severely restricted in its mobility and radius of action. This implies high inspection cost because the device must frequently be hauled in and moved to its next entry point. Moreover, to-be-inspected areas of the HVAC system must be prepared by being cleaned and sometimes bypassed and shut off, which implies that many problems, cannot be detected that have to do with the HVAC during operation. Human were used to check the HVAC and sewerage systems but only limited to the man-sized passable HVAC duct and sewerage pipe. The usage of human inspection is dangerous, time consuming and expensive. The design of the first Malaysian made multi-function inspection crawler are used to gather additional information about what is taking place between HVAC duct and sewerage system access points. The multi-function inspection crawler is low cost to manufacture, easy to maintain, customisable, operate continuously, record the condition of inspection areas and waterproof. The multi-function inspection crawler is beneficial to Malaysia building services, sanitary and HVAC industry. The commercialisation potential of the multi-function inspection crawler are sales of design and consultation and sales of multi-function inspection crawler and control unit.

Keywords: Heating, ventilating and air-conditioning (HVAC), Sewerage system, Multi-function inspection crawler

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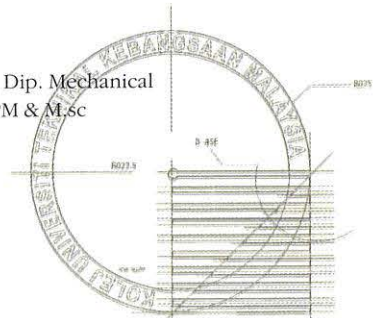

Economical Optical Waveguide Fabrication Technique Based On Ion-Exchange

1) Zainuddin bin Mat Isa
2) Prof. Marizan bin Sulaiman
Fakulti Kejuruteraan Elektrik

Abstrak

This software can be used for fault studies by calculating the fault currents injected into the power system during faults. The fault studies will be carried out for four typical types of fault commonly occurred in power system. These faults are the single-line to ground (SLG), line-to-line (LTL), double-line to ground (DLG) and three-phase (3-P) of the non-symmetrical and symmetrical type faults. In addition to fault analysis, this interactive software also will include the per-unit calculation, sequence networks analysis, phasor representation of symmetrical components, step-by-step network reduction process and formulation process of bus impedance matrix. It will make analysis of power system is more interesting for students as they can see the effects of unsymmetrical conditions in power system. Furthermore, students do not have to go through detail mathematics in order to visualize the operating characteristics of power system under study. Finally, the software was incorporate the GUI (Graphical User Interface) environment for convenience and user-friendly.

Keywords: Fault analysis, Symmetrical components, E-learning software

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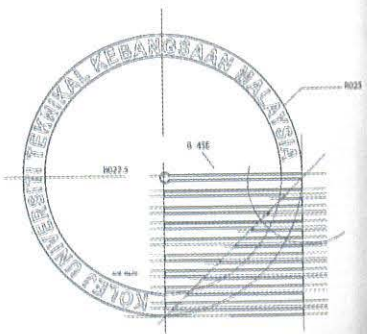

Carbon Adsorbent for Getting Higher Capacity in LPG Storage (Automotive Purpose)

1) Safarudin Gazali Herawan
2) Imanurezeki b. Mohamad
Fakulti Kejuruteraan Mekanikal

Abstrak

Oil palm shell is an agricultural waste material found abundantly in Malaysia. Since the characteristics of oil palm shell were found suitable for preparing activated carbon, these materials also have the potential to be prepared into useful and valuable product. This research, the concern is to make use of oil palm shell for preparing into a carbon adsorbent, which applied for Liquefied Petroleum Gas (LPG) as a gas feeder. This sample was prepared at a laboratory scale fixed-bed reactor, which is blanketed by a vertical furnace where pyrolysis took place. Nitrogen gas was used to obtain an inert atmosphere in the reactor. A suction blower was used to remove volatile matter as well as other gases during carbonization process. The samples were prepared in the different peak temperature. CO_2 activation also was used to investigate the effect of it in the sample. This research is found that the oil palm shell can be used for producing carbon adsorbent for LPG gas storage media since all the samples show capability to adsorb and desord of both gas. This research work will attempt to find a suitable solution to solve the environmental problems by utilizing the waste materials and to look into the industrial aspect of adsorption process for gas storage.

Keywords: carbon adsorbent, adsorption, gas storage

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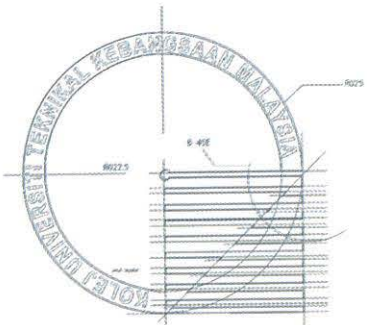

Fuzzy Logic Approach for Intelligent Mobile Robot in Space Area

1) Prof. Dr. Marizan bin Sulaiman,
2) Hairol Nizam bin Mohd Shah,
3) Syed Najib bin Syed Salim,
4) Muhammad Fahmi bin Miskon
Fakulti Kejuruteraan Elektrik

Abstrak

This paper introduces the fuzzy logic approach for intelligent mobile robot in space area. There have four major algorithms are involve. There are object detection, object classification, object tracking and obstacle avoidance. The core of the detection of mobile object are comprises into two process offline and online. An offline process consists of the training of the model, using deference input sources that depend on the application. An online process consists of the matching process and the result of the object poses. The main idea of object classification is to classify into two categories depend on the dimension of object, mobile robot and non-mobile object (obstacle). By using an offline and an online process the whole process becomes faster because there only have object classification, object tracking and obstacle avoidance are involved in real time. The positions of the mobile robot are represented by symbol X with difference color essay to compare with non-mobile object. The mobile robot is autonomous which it's could be going to the target position automatically without user guided. The fuzzy logic is use to guide the mobile robot direction until it reach the target position. The obstacle is determined by using obstacle avoidance algorithms. One of the unique advantages in this paper, the detection of mobile object only uses image processing that generated by the algorithms itself without additional sensor like sonar or IR sensor. The developed system has highly commercialization potential in the future.

Keywords: objects detection, object classification, object tracking, obstacle avoidance and fuzzy logic

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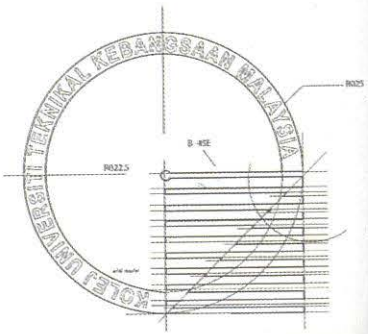

NaLURI (Natural Language Understanding Reasoning For Intelligence)

Wilson Wong Yik Sen
Fakulti Teknologi Maklumat dan Komunikasi

Abstrak

NaLURI is a knowledge based question answering system developed with practicality jn mind using technology in full-discourse natural language understanding and advanced reasoning (i.e. cooperative behavior) is react was initiated to solve two problems. T first is related to the restriction on the nature of question and response modern-day Question answering systems based on information retrieval and shallow natural language while the second concerns the limitations that are present in existing solutions to the first problem. NaLURI was founded upon the novel idea that a practical approach in the form of a framework which combines full-discourse natural language understanding, powerful representation formalism capable of exploiting ontological information and reasoning approach with advanced features, will solve both the first and second problem without compromising practicality factors. This project is significant in two ways. Firstly, NaLURI solves the problem of limited question types that can be asked by users and also enriched the responses by the system. Secondly, the result from this project will pave way allowing for more natural interaction between human and machines. At a larger scale, the practical use of natural language understanding advanced reasoning and powerful representation formalism in NaLURI will further encourage and help steer the research direction towards providing complete ability of understanding natural language and reasoning machines. NaLURI and its future derivatives will be use to any computer users who intend to seek information through natural means of k English and obtain rich and use/id response that demonstrate cooperative behavior.

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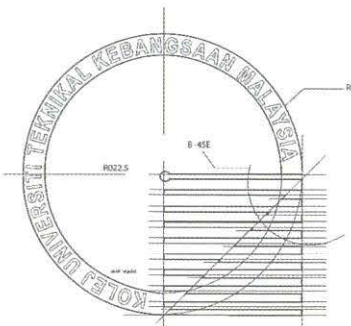

Fault Analysis And Tutorial Software (Fats)

1) Zainuddin bin Mat Isa
2) Prof. Marizan bin Sulaiman
Fakulti Kejuruteraan Elektrik

Abstrak

This software can be used for fault studies by calculating the fault currents injected into the power system during faults. The fault studies will be carried out for four typical types of fault commonly occurred in power system. These faults are the single-line to ground (SLG), line-to-line (LTL), double-line to ground (DLG) and three-phase (3-P) of the non-symmetrical and symmetrical type faults. In addition to fault analysis, this interactive software also will include the per-unit calculation, sequence networks analysis, phasor representation of symmetrical components, step-by-step network reduction process and formulation process of bus impedance matrix. It will make analysis of power system is more interesting for students as they can see the effects of unsymmetrical conditions in power system. Furthermore, students do not have to go through detail mathematics in order to visualize the operating characteristics of power system under study. Finally, the software was incorporate the GUI (Graphical User Interface) environment for convenience and user-friendly.

Keywords: Fault analysis, Symmetrical components, E-learning software

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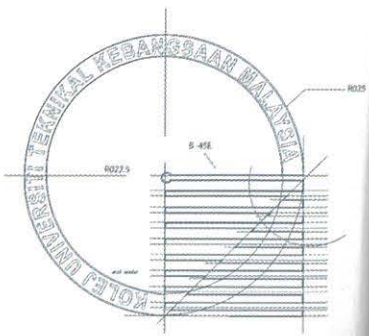

Abstrak

In this modern and rapidly developing technology world, every one is looking for simplicity in their daily life. One is willing to spend money if they are promised with 'something', which can make their life simple and safe. As to bring that to reality, here comes Smart Switching System (S^3). Its an intelligent switch which can switch ON and OFF any electrical equipment regardless of AC or DC operated by just a single clap or finger snap from any distance ranging from 0 to 5 meters. It can also be attached/ embedded into electrical and electronics appliances such as fan, blender, grinder, television, radio, security system, bulbs, lights, etc. Its enhanced technology has been extended to support fixed line telephone for hands free answering purpose.Unlike remote control, S^3 totally cuts off the current flow from the main power supply to the electrical appliances, which stand advantage of protecting appliances from lightening surge. S^3also will further extended the life of the appliances by prolonging electronic components in them due to total power cut. S^3 can be applied in domestic appliances and in industry with full confidence. It is very safe and can be easily handled even with wet hands with no fear of electric shock due to the non-contact smart system activation. Its non contact activation system prevents arcing/ sparking as normally happens in mechanical switches. S^3 also stand an advantage of maintenance free feature as it does not require battery for any reason as normally used in remote control. As this Smart Switching System design to be handled easily by anybody at any time, the input frequency/sound level controller is added so that it can be adjusted according to the user's need and suitability. This Smart Switching System has the potential to be highly commercialized due to its smart design, multiple/ vast application, user friendly, non-hazardous, etc.

Keywords: Intelligent system, smart switch system, lightning surge, maintenance free, multi tasking.

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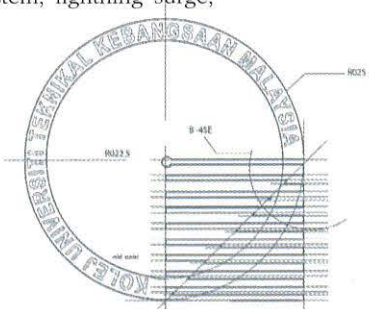

Application Of New Electricity Risk Management System To The Unit Commitment (Uc) And Economic Load Dispatch (Eld) Problems To Optimize The Total Operating Costs of Generation Mix In Malaysia

Dr. Musse Mohamud Ahmed
Fakulti Kejuruteraan Elektrik

Abstrak

In the power utilities, the problems of meeting the varying demand for electricity for the consumers with optimum costs are daily, weekly and monthly cycles. As electricity cannot be stored, it is necessary to start-up and shutdown generating units at various power stations each day. Since there are new concerns of risk management for the utility companies after the oil price crises, this project has been implemented to look into a new solution to the problems of unit commitment (UC) and economic load dispatch (ELD) problems in order to decide when and which generating units are to start-up and shut-down, in order to minimize the total fuel cost over a period of 24 hours with optimum risk reduction. It is the balancing between the total generation power and the total generation forecasted demands with optimum fuel cost. This project has developed a new risk management software program which deals with all the concerns of electricity supply, demand, and cost optimization and taking into account the risks involved in the operating costs of increasing price of oil and to optimize the costs and maximize the profits of the utility. This project has potential commercialization potential in Malaysia.

Keywords: Unit Commitment, Total Operating Cost Optimizer, Economic Load Dispatch, Risk Management System and Total Operating Costs.

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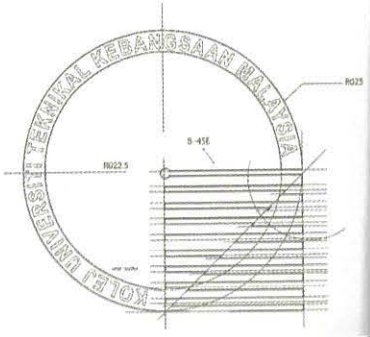

Abstrak

This multipurpose convection gas oven is intended for the small or medium scaled food industry. It utilizes the principle of a regular gas stove to heat a compact enclosure. Continuous and evenly distributed heat flow is provided inside the enclosure by using the concept of recycle heat and its fluid dynamics. A simple prototype, a square-shaped design has been built to test the concept. This simple design consists of flame-prevention steel plate, fixed and adjustable railing guides and double layers frame cover with insulator. The prototype has been tested by baking sponge-cake and *lemang*. In both cases the time needed to cook the food reduces tremendously. As of for cooking lemang, the output is nice, tender and cooked evenly without the neither burned nor uncooked sides. The shape of the oven will be optimized by considering the other shapes such circular and octagon. Further tests on feasibility of the oven for grilling purposes will also be conducted. The purposed oven has a potential to be commercialized as it utilizes ordinary gas tank and no extra equipment to operate.

Keywords: Convection oven, heat flow, fluid dynamics, food industry

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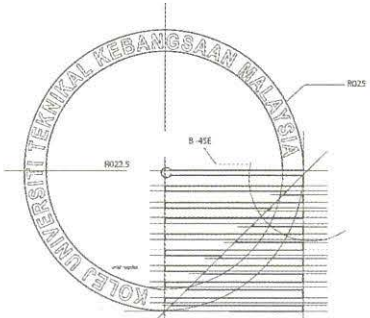

Real Time Power Quality Monitoring System Based On TMS320CV5416

Abdul Rahim bin Abdullah
Fakulti Kejuruteraan Elektrik

Abstrak

With the existence of modern technologies that require stable power supply, power quality has become a great concern. Any disturbance in the power-line can cause disruption in manufacturing process or services provided. Under worst case conditions results in equipment failure and subsequent increase in cost of operation. Monitoring and analysis of power-line waveforms are essential to provide assessment of the power quality. This project presents a system that can monitor power-line voltage and current waveforms in real time. Signal analysis techniques such as the periodogram power spectrum and spectogram time frequency analysis are employed to analyze power-line voltage and current variations. The heart of the system is the Texas Instruments DSP (Digital Signal Processing) TMS320CV5416. A graphical user interface on a personal computer was developed using the Visual Basic version 6.0 to display parameters of measurement from power line such as voltage (rms), current (rms), frequency, real power, apparent power and power factor and present periodogram and spectogram of voltage and current signal. The system allows users to identify power quality problems and take the necessary corrective or preventive action.

Keywords: Power Quality issues, harmonic problems, test, measurement and instrumentation.

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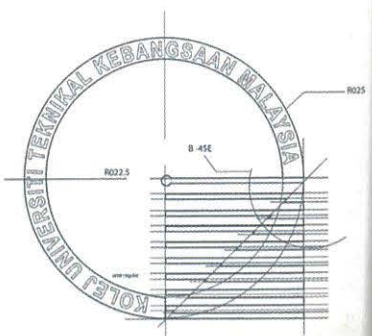

Senarai Peserta

Malam
CIPTA KUTKM 2006 -
Cetusan Inspirasi Projek
Teknikal & Aplikasi

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1	Prof. Dr. Mohd Razali bin Muhamad	Keropok Lekor Slicer	FKP
2	Hassan bin Attan Mastura bte Shamsudin	Conceptual Vehicle Chasis Design	FKP
3	Zulkeflee bin Abdullah	Analysis & Improvement of Product &Process Design Using DFA House Methodology	FKP
4	Mohd Najib bin Abd Manan Nik Mohd Farid bin Che Zainal Abidin Hambali bin Ariff	Air Pressure Plug	FKP
5	Hambali bin Ariff Abd. Rahim bin Samsuddin Mohamad bin Minhat Mohd Fairus bin Ninggal Mohd Nazri bin Abd. Mokte	Manual Wheelchair Design	FKP
6	Prof. Dr.Marizan bin Sulaiman Zainuddin bin Mat Isa	GUI Based Power System Modeling and Analysis Using Symmetrical Components	FKE
7	Tan Chee Fai Prof. Madya Lt. Kol. Ir. Mohd Hazani bin Hj. Shafie Sivakumar a/l Dharmalingam Juhari bin Abd. Razak	An Expert Automotive Air Conditioner Production and Maintenance Fault Diagnosis System	FKM
8	Tan Chee FaiProf. Madya Lt. Kol. Ir. Mohd Hazani bin Hj. Shafie Sivakumar a/l Dharmalingam Shamsul Anuar bin Shamsuddin Lim Thiam Lai	Portable Mechanical T-Joint Tester	FKM

Bil	Nama Penyelidik	Tajuk Projek	Fakulti
1.	Safarudin Gazali Herawan	Carbon Adsorbent for Natural Gas and LPG Storage in The Automobile	FKM
2.	Tan Chee Fai	The Multiple Mechanical Test Rig	FKM
3.	Tan Chee Fai	The HVAC Inspection Crawler	FKM
4.	Farid Arafat b. Azidin	Developing DSP Interface for DSP – Systems in Laboratory for Motor Drive	FKEKK
5.	Kok Swee Leong	Economical Optical Waveguide Fabrication Technique Based on Ion-Exchange	FKEKK
6.	Maslita bt. Abd. Aziz	Kolej Universiti Teknikal Kebangsaan Malaysia Virtual Campus Tour	FTMK
7.	Mohd Hafiz b. Zakaria	The Effectiveness of Courseware Engineering Model Applied on Hands-on Subjects: A Case Study in Data Structure and Algorithm	FTMK
8.	Wilson Wong Yik Sen	NaLURI (Natural Language Understanding and Reasoning for Intelligence)	FTMK
9.	Noor Azilah bt. Draman @ Muda	Intelligent Vehicle Asset Management System	FTMK

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11.	Muhammad Herman b. Jamaluddin Prof. Dr. Marizan b. Sulaiman Mohamed Azmi b. Said Chong Shin Horng	Design of Vision Guided Manipulator for Optimal Dynamic Performance	FKE
12.	Sulaiman b. Sabikan Prof. Dr. Marizan b. Sulaiman Syed Najib bin Syed Salim	Vision-based Automated Guided Vehicle for Navigation and Obstacle Avoidance – Multi Agent Approach	FKE
13.	Hairol Nizam b. Mohd Shah En. Sulaiman b. SabikanProf. Dr. Marizan bin Sulaiman	Obstacle Avoidance for Vision-based Automated Guide Vehicle (V-AGV) Using Shortest Path Planning	FKE
14.	Dr. Musse Mohamud Ahmed	Non-Interruptible Electrical Distribution Automation System Prototype	FKE
15.	Mohd Najib b. Abdul MananNik Mohd Farid b. Che Zainal Abidin	Air Pressure Plug	FKP

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1	Ho Yih Hwa Yeoh Chai Tick	Web Based (CGI) Weather Monitoring & Data Logging System	FKEKK
2	Zainuddin bin Mat Isa Prof. Dr. Marizan bin Sulaiman	Fault Analysis and Tutorial Software (FATS)	FKE
3	Abdul Rahim Abdullah Norhashimah Mohd Saad Ahmad Zuri Sha'ameri	Real Time Power Quality Monitoring System Based On TMS320CV5416 DSP Processor.	FKE
4	Dr. Musse Mohamud Ahmed	Electrical Distribution Automation System Prototype	FKE
5	Muhammad Herman bin Jamaluddin Prof. Dr. Marizan bin Sulaiman	Algorithm Development of Vision Guided Manipulator For Optimal Dynamic Performance	FKE
6	Sulaiman bin Sabikan Syed Najib bin Syed Salim Muhammad Fahmi bin Miskon	Vision Based Navigation of an Autonomous Robot Using Line Recognition	FKE
7	Hairol Nizam bin Mohd Shah Prof. Dr. Marizan bin Sulaiman Syed Najib bin Syed Salim Muhammad Fahmi bin Miskon	Fuzzy Logic Approach for Intelligent Mobile Robot in Space Area	FKE
8	Dr. Musse Mohamud Ahmed	Application of New Electricity Risk Management System To The Unit Commitment (UC) And Economic Load Dispatch (ELD) Problems To Optimize The Total Operating Cost of Generation Mix In Malaysia	FKE

Bil	Nama Penyelidik	Tajuk Projek	Fakulti
9	Juhari bin Abd. Razak Prof. Dr. Md. Razali bin Ayob Prof. Madya Md. Noah Jamal Mohd Yusoff Sulaiman Ruztamreen Jenal Masjuri Musa	Multipurpose Convection Gas Oven	FKM
10	Tan Che Fai Mohd Fakzan Akhmar bin Omar Shamsul Anuar Shamsudin Lim Chee Kian Wong Shaw Voon Prof. Abu bin Abdullah	e-Med Sys : An Electronic Mechanical Design System for Consultancy Services	FKM
11	Tan Chee Fai Prof. Madya Hazani Hj. Shafie Wong Shaw Voon Shamsul Anuar Shamsuddin	The Portable Mechanical Vx-Tester	FKM
12	Tan Chee Fai Lim Thiam Lai Prof. Madya Mohd Radzai Said Shamsul Anuar Shamsuddin Soo Yew Guan	The Multi-Function Inspection Crawler	FKM
13	Mohd Nizam Sudin Tan Chee FaiRazali Mohd Tihth Shamsul Anuar Shamsuddin	Cinema Piracy Buster	FKM
14	Safarudin Gazali Herawan Imanurezeki bin Mohamad	Carbon Adsorbent for Getting Higher Capacity in LPG Storage (Automotive Purpose)	FKM
15	P.S. Sivarao	Smart Switching System (S3)	FKP
16	Mohd Najib bin Abd. Manan Nik Mohd Farid bin Che Zainal Abidin Hambali bin Arep @ Ariff	Air Pressure Plug	FKP

Bil	Nama Penyelidik	Tajuk Projek	Fakulti
1	Tan Chee Fai / Lim Thiam Lai/ Prof. Madya Lt. Kol. Ir. Mohd Hazani bin Hj. Shafei/ Prof. Madya Dr. Md. Radzai bin Said/ Shamsul Anuar Shamsuddin/ Soo Yew Guan	The HVAC Inspection Crawler	FKM
2	Mohd Najib bin Abdul Manan/ Nik Mohd Farid bin Che Zainal Abidin / Hambali bin Arep@Ariff	Air Pressure Plug	FKP
3	Kok Swee Leong/ Hazli Rafis bin Abdul Rahim/ Khairuddin bin Osman	Economical Optical Waveguide Fabrication Technique Based on Ion-Exchange	FKEKK
4	Safarudin Ghazali Herawan/ Imanurezeki bin Mohamad	Carbon Adsorbent for Natural Gas and LPG Storage in the Automobile	FKM
5	Prof. Dr. Marizan bin Sulaiman/ Hairol Nizam bin Mohd Shah	Obstacle Avoidance for Vision-Based Automated Guide Vehicle (V-AGV) Using Shortest Path Planning	FKE
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