



IRIIE
2010

IIUM Research, Innovation & Invention Exhibition 2010 (IRIIE 2010)

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P-187 Development of Material Selection Method for the Application of Children Bicycle Frame

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A bicycle frame is a crucial part for cycling performance, efficiency, comfort, and injury prevention. This is especially true in the case of children cyclists that do not have the necessary cycling experience, balance and the fully developed musculoskeletal system of the adults. The selection of the correct materials for a particular product especially a children bicycle frame is a key step in the design and development process because it will carry the load of the rider during cycling. In the present paper few methods have been developed to select material of a bicycle frame for children and teenagers 7–14 years old. This paper will present the development of the material selection methodology based on Ashby's material selection chart for the application of bicycle frame purposes. Two quantitative methods are proposed such as cost per unit strength and digital logic model methods. Also mechanical properties, including tensile strength, yield strength, Young's modulus, toughness, density as well as cost were used as the key parameters in the material selection stage. Among the material selection methods the development of digital logic model is the best suited method which identified that the Kevlar fiber reinforced plastics (KFRP) as the most appropriate candidate material for the application of children bicycle frame.

P-188 Reverse Engineering of Children Bicycle

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Reverse engineering often involves taking something apart and analyzing its workings in detail to be used in maintenance or to try to make a new product or component that does the same thing without copying anything from the original. In order to understand the existing design, materials and manufacturing process of a bicycle frame and also for the future direction in new materials with new design, a comprehensive study on the reverse engineering is essential. Therefore, in this paper, a systematic study on a bicycle frame reverse engineering is performed. The bicycle components were destructed and investigated using the metallurgical microscope and hardness tester for microstructural and microhardness examination purposes respectively. The cost analysis of the new proposed bicycle frame is also given in this paper.

P-191 A New Automated Compact Substation for Distribution System in Malaysia

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This project has developed a new distribution automation system and remote metering system. It is a customized distribution automation system (DAS) for secure fault isolation at the low voltage (LV) downstream, 415/240V by using the Tenaga Nasional Berhad (TNB) distribution system. It is the first DAS research work done on customer side substation for operating and controlling between the consumer side system and the substation in an automated manner. Most of the work is focused on developing very secure fault isolation whereby the fault is detected, identified, isolated and cleared in few seconds. Supervisory Control and Data Acquisition (SCADA) techniques has been utilized to build Human Machine Interface (HMI) that provides a graphical operator interface functions to monitor and control the system. Microprocessor based Remote Monitoring Devices have been used for customized software to be downloaded to the hardware. Power Line Carrier (PLC) has been used as communication media between

the consumer and the substation. As result, complete DAS fault isolation system has been developed for cost reduction, maintenance time saving and less human intervention during faults. This research has developed Automated Meter Reading (AMR) system in addition to DAS.

P-192 Ligninolytic Activities of Some Malaysian White Rot Fungi

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White rot fungi have been known for their extracellular secretion of ligninolytic enzymes. 19 white rot fungi were isolated around Gombak area. The white rot fungi were subcultured until pure cultures were achieved. They were first screened on solid media plates for their lignin modifying enzymes by using Poly R-478 and ABTS. Of the 19 white rot fungi tested 7 were able to decolorized Poly R-478 and 18 showed significant ABTS-oxidation activities. The positive strains were tested on liquid media for lignin peroxidases, Manganese peroxidases and laccase activity. From the result 6 strains were able to secrete the three enzymes, only one was able to secrete two out of three and 18 strains secreted one of the three enzymes.

P-194 Taylor-Newton Homotopy Method for Computing the Depth of Flow Rate for a Channel

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Homotopy approximation methods (HAM) can be considered as one of the new methods belong to the general classification of the computational methods which can be used to find the numerical solution of many types of the problems in science and engineering. The general problem relates to the flow and the depth of water in open channels such as rivers and canals is a nonlinear algebraic equation which is known as continuity equation. The solution of this equation is the depth of the water. This paper represents attempt to solve the equation of depth and flow using Newton homotopy based on Taylor series. Numerical example is given to show the effectiveness of the purposed method using MATLAB language.

P-199 Natural Sources of Antidiabetic Inhibitor from Malaysian Medicinal Herbs

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Diabetes is one of the chronic diseases affecting worldwide population. Presently, there is a growing interest in herbal remedies due to the side effects associated with the use of insulin and oral hypoglycaemic agents for diabetic patient. Therefore an investigation is required in a bionetwork rich and industrially-developed country like Malaysia to use alternative approaches to treat diabetics, such as plant based medicine. In this study, forty types of Malaysian antidiabetic plants were examined on the basis of their use in traditional medicines throughout Southeast Asia, to develop an understanding of the distribution and to give an assessment of the diversity present in the selected plants. Extracts of all 40 species of Malaysian medicinal plants were examined for β -glucosidase inhibition using an in-vitro model. Most of the plants showed varying degree of inhibitory activity (%) but *Centella asiatica* had the maximum percentage of β -glucosidase inhibitory activity (99.03%) while the second best is *Morinda citrifolia* with 96.37% inhibitory activity. Another two potential plants which gave higher inhibitory activity were *Cucumis sativus* (93.95%) and *Euphorbia tirucalli* L. (90.56%). To enhance the percentage inhibition of β -glucosidase inhibitory a study based on statistical design was employed. A mathematical model was developed to show the effects of each factor and their combinatorial interaction on percentage