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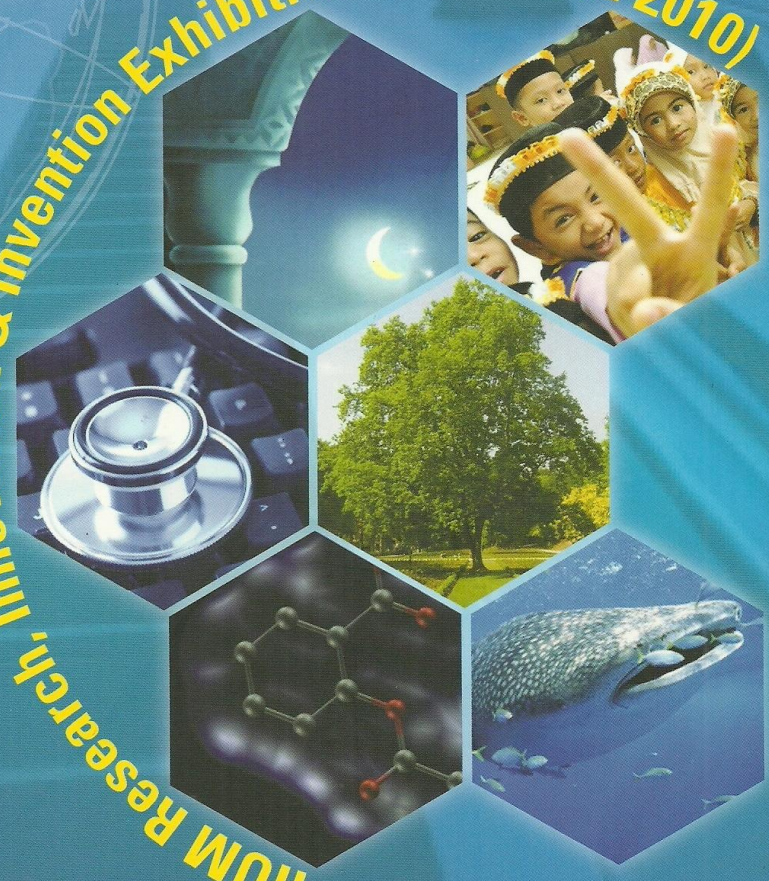

ENHANCING QUALITY RESEARCH &

INNOVATION for SOCIETAL DEVELOPMENT

condition on cellulase production from STP sludge by T.reesei Rut C-30, were studied using statistical experimental design. Plackett-Burman design was used to determine or screened the most important media compositions followed by the statistical optimization with selected media constituent in sludge for cellulase production as well as optimization of parameters that affect the bioconversion process. In addition, the recovery of the cellulase was enhanced through membrane filtration which in turn will make the whole process of the enzyme production more cost effective. Therefore, this project generally offers a potential less expensive alternative in the cellulase production, with the ever available material source. This approach is economically valuable, non-hazardous and environmentally friendly.

PP-16 The effect of cocoa clones on chocolate flavour

***Othman Abd Samah**, Jumali Suratman, Wan Aidah Wan Ibrahim*
Biomedical Science, Kulliyyah of Science
International Islamic University Malaysia

Fermentation of Theobroma cacao L. beans has been considered to be the most important factor influencing cocoa flavour and has accordingly received most attention. Five selected cocoa clones (KKM 1, KKM 22, PBC 123, PBC 140 and BR 25) choosen from major cocoa plantations in Malaysia were treated under normal fermentation process. Samples were prepared in the prescribed techniques to evaluate chocolate flavour, respectively. The present of foreign taste was detected in all five samples, with the PBC 123 being significantly higher than the rest at $p<0.05$ while PBC 140 has the lowest foreign taste. Chocolate made of PBC 140 clone was highest in acceptability, which significantly different from the rest at $p<0.05$. PBC 123 on the other hand was the least acceptable. The most acceptable sample was the reference sample. In general PBC 140 was the best clone evaluated in this study in terms of sensory evaluation as compared to the other four samples and also to other previously studies using various strategies on fermentation techniques including those which used pure cultures of selected microbes for fermentation.

PP-19 Virtual Reality Application for Learning History and Cultural Heritage

***Puteri Shireen Jahn Kassim**, Murni Mahmud, Juliana Aida Abu Bakar , Kamarul Bahrin Buyung*
Building Technology and Engineering, Kulliyyah of Architecture & Environmental Design
International Islamic University Malaysia

The aim of this product is to utilize the state of art virtual reality (VR) technology in revolutionizing the current state of how history, cultural heritage and arts are taught in formal and informal education. This is to combine the IT savvies of the younger generation with the current needs to continuously educate the young and general public on history, their cultural and national identity. To fully maximizing VR technology, the framework of "arts and architecture" is used to take the viewer or learner through the massive historical and cultural information. Typically, students learn history by memorizing facts and figures and museum visitors are taken through exhibits and posters. With this system, historical information is embedded in a three-dimensional interface, game-like environments, as well as integrating both animation and multimedia, to make the process of learning even more engaging and exciting. A large cultural complex, in this case Fatehpur Sikri of Agra India, is used as a medium whereby the user can navigate through and call up information. The novelty of this application is the user experience on learning history and cultural heritage while walking through historical monuments.

PP-21 Human Detection and Tracking for Video Surveillance System

***Amir Akramin Shafie**, Othman O Khalifa, M.H. Ali, Roslizar Mat Ali*
Mechatronics Engineering, Kulliyyah of Engineering
International Islamic University Malaysia

Recent research in video surveillance system has shown an increasing focus on creating reliable systems utilizing non-computationally expensive technique for observing humans' appearance, movements and activities, thus providing analytical information for advanced human behavior analysis

and realistic human modeling. In order for the system to function, it requires robust method for detecting human form from a given input of video streams. In this paper, we will present a human detection and tracking technique suitable for video surveillance which requires fast computations in addition of accurate results. The techniques we propose include adaptive background modeling for background subtraction, size-filter segmentation, head detection for group segmentation, shadow removal, as well as dynamic human tracking based on stochastic probabilities and histogram in both single and multi-cameras. In single camera tracking, we calculate the possibility of candidate in consecutive image frame belonging to a known human in previous frame based on geometric locations and motion information. In multi-camera tracking, we define certain human appearance model that describes human and match their physical properties obtained from earlier processing. In this paper we also propose several solutions for performance problem in terms of computational complexity within human detection.

PP-23 Hazardless Nanocomposite for Gas Barrier Potential

*Nur Ayuni Jamal, **Hazleen Anuar**, Zuraida Ahmad, Shamsul Bahri Abdul Razak*
Manufacturing & Materials Engineering, Kulliyyah of Engineering
International Islamic University Malaysia

Composites based on high density polyethylene (HDPE), ethylene propylene diene monomer (EPDM) and Organically Modified Montmorillonite (OMMT) clays were made by melt compounding followed by compression molding. Tensile testing, X-ray diffraction (XRD) and Transmission Electron Microscopy (TEM) were used to characterize the nanocomposites. The addition of clay, compatibilizer agent (Maleic Anhydride Polyethylene (MAPE)) and the exposure under Electron Beam Irradiation (EB) considerably improved the tensile properties of the composite system. Tensile Strength (MPa) and Tensile Modulus (MPa) were found to increase significantly with increasing clay content and decreasing as the clay content exceeds 4 wt% values. The largest improvement in composite mechanical properties occurred at clay loading levels of 4% (2-8 wt %) with EB Irradiation system followed by MAPE and unirradiated/untreated systems. Nearly 67% increase in tensile strength and 64% increase in tensile modulus were observed with EB irradiated system. The *d* spacings of the clay in nanocomposite were monitored using XRD and the extent of delamination was examined by TEM. The wide angle of XRD patterns showed the increased d-spacing of clay layers, indicating enhanced compatibility between HDPE and OMMT with the EB irradiated and addition of MAPE. TEM photomicrographs illustrated the intercalated and partially exfoliated structures of the nanocomposite with OMMT and MAPE system.

PP-36 VisUn-3D : Visualization of User Navigation Using 3D Maps in Virtual 3D Walk-Spaces for Mobile User

***Teddy Mantoro**, Media Anugerah Ayu, Umran Azziz, Moaz AbdulBagi*
Department of Computer Science, Kulliyyah of Information & Communication Technology
International Islamic University Malaysia

VisUn-3D is a prototype for mobile user navigation using 3D model in a pervasive computing environment.

The contribution and the uniqueness of this work is that , we built a visualization of 3D campus maps inside 3D workspace at our campus environment to navigate several users at the same time by using their mobile device such as PDAs. The 3D rendering and GPS navigation are embedded into various wireless PDA or smart phone devices to allow the navigation of the users.

This approach could navigate more than 2 users in a 3D walk-space and at the same time navigate the users by showing their wherebout in 3D projection mapped on the same picture. The map shows the location of the user in the scene to navigate to the location of another user to meet on the same image plane.