

CELEBRATING
COMMERCIALISATION
YEAR 2014

iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention
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exposition 2014

INNOVATEUR
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2014

27th - 30th
APRIL 2014
DEWAN AGUNG TUANKU CANSELOR (DATC)
UNIVERSITI TEKNOLOGI MARA
MALAYSIA

*Bridging
the valley of death :
advancing the
commercialisation
of research*

RESEARCH BOOK

iiindex2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

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FOREWORD

The Honourable Minister of Science, Technology and Innovation (MOSTI) has launched 2014 as Malaysia Commercialisation Year 2014 (MCY2014) with the theme Science Technology and Innovation (STI) for Wealth Creation. In line with this theme, Invention, Innovation, Design & Exposition 2014 (iidex2014) is an annual exposition organized by UiTM and is the ultimate platform to highlight and commercialise new inventions and innovations. Researchers and inventors will exhibit their products which cater to the needs and wants of the community and the country.

The iidex2014 creates a new dimension by fusing two competitive concepts, a competition among innovative products and a competition to invite Innovateur Wannabes to perform live pitching of their products to the audience. The iidex2014 focuses on comprehensive commercialization and creating opportunities for entrepreneurs to carry out R&D as well as to provide avenue to commercialise their products. Through expositions such as iidex2014, MOSTI hopes to inculcate the culture of commercialisation of new technology designed and created by Malaysians.

I wish to congratulate all the participants of the iidex2014 and this is the opportunity for all researchers to show their ideas and exhibits their products and creativity. Apart from showcasing their products, innovators will have the opportunity to provide a window to the industry for business matching during the exposition.

Tan Sri Dato' Sri Sallehuddin Mohamed
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A SELF-CONTAINED REAL-TIME ANGLE DEVIATION DETECTION AND MEASUREMENT TECHNIQUE FOR STRAIGHT LINE QUADROPTER NAVIGATION USING ACCELEROMETER

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Deviation from a planned path due to dynamic wind disturbances could defect a quadrocopter navigation accuracy and thus may result in poor execution of a task. Few researchers have proposed correction algorithms to be integrated in an autonomous quadrocopter navigation system to avert the problem. The algorithms are not practically applicable to allow a quadrocopter to navigate precisely on a planned trajectory around a small area with the presence of dynamic disturbances. This project proposes a new real-time adaptive trajectory correction algorithm for quadrocopter, which could specifically detect angle deviation through the use of accelerometer to allow for corrective action.

PORTABLE WIRELESS ITEM IDENTIFICATION SYSTEM (PWIIS)

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This project aims to create a technology that can help blind people in their daily lives. Usually, a person who is blind would not be able to identify the item in front of them. They need to touch, taste and smell each of the items they take to identify. As a result the process of identifying items will be slow as well as time consuming. In line with the increasing number of the blind people in Malaysia, related projects regarding blind people assistive should be built. Based on the problem statement, the creation of a technology-based device will help them to identify each item, thus the process will be quick and effective. Based on the study conducted, the use of RFID is the most suitable technology that can be used as a device for identifying items. Radio-frequency identification (RFID) is one of the wireless radio wave technologies which constantly transmits and receive signals using antennas if the tag is within the range of the detector. This device has been equipped with a microphone to record information about the items by using their voices and a speaker as a sender of information to the blind people. In addition, this device is portable and small. Hence it's easy to carry. Furthermore, the study includes an analysis to find the specification of PWIIS. This analysis covered the study of PWIIS in term of performance, response and accuracy in order to test its capabilities. In summary, this device is able to help and assist the blind to identify the items in their daily lives. It is able to give them accurate and quick information compared to the conventional method. The novelty of this project is it is able to support larger size memory card to save data; use voice as the medium for recording and explain information; rechargeable battery; smaller and light size. PWIIS requires two main components which are PWIIS reader and the tag. The users simply need to affix adhesive RFID tag on each of the items they want. RFID reader will detect and catch each tag that has been affixed if they are in range of the detector. Next, they just need to record their voice based on the item information. Each of the detected signals will be processed by the micro-controller and play back the user's voice that has been recorded as feedback through the speakers. Commercial Potential:- Portable Wireless Items Identification System (PWIIS) is a compact wireless technology tool which can help the user (blind people) in efforts to accelerate identification of objects. This device can assist and facilitate the user to identify a stock that has been sealed in the box or other storage compartment. PWIIS equipped with built-in audio system so that users can record information using their voice through a microphone and speaker. The recordable voice that contains the items' information can be saved on an additional memory card.