Disruptive Innovations Towards ICT Convergence

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Abstract: The writing of the chapters in the book entitled Disruptive Innovations Towards ICT Convergence came from the Technical Report of the Final Project Student Semester 5 December Session 2019, Diploma in Information Technology (Digital Technology), Department of Information and Communication Technology, Politeknik Muadzam Shah. This book is consists of 10 chapters and the production of the chapters in this book is an initiative implemented by the department in providing exposure to students in scholarly writing. This exposure is expected to cultivate their interest in research and publication activities.

Keywords: Innovation, initiative, implement, exposure

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PREFACE

The writing of the chapters in the book entitled Disruptive Innovations Towards ICT Convergence came from the Technical Report of the Final Project Student Semester 5 December Session 2019, Diploma in Information Technology (Digital Technology), Department of Information and Communication Technology, Politeknik Muadzam Shah. This book is consists of 10 chapters and the production of the chapters in this book is an initiative implemented by the department in providing exposure to students in scholarly writing. This exposure is expected to cultivate their interest in research and publication activities. Special thanks to the Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn, Malaysia on the assistance provided and collaboration opportunity.

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AR C++ Checkerboard

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1.1 INTRODUCTION

Technology has advanced to the point where augmented reality application is very achievable everywhere anywhere. Augmented reality will truly change the way education presented in the teaching and learning session. Augmented reality (AR) is a technology which provides real time integration of digital content with the information available in real world (Dhiraj Amin and Sharvari Govilkar, 2015). Augmented Reality (AR) is combination of technologies used to blend computer generated information with the viewer's natural senses. An interactive learning project is developed to provide a platform for user to interact more in the learning environment compared to conventional learning environment as well making learning process more interesting (Jonna Koivisto et al., 2019).

The AR C++ Checkerboard was developed to assist student in learning programming fundamentals subject. This project benefits both lecturers and students. It provides teaching support and makes learning sessions more interactive, interesting and effective. It helps students develop their imaginative minds, enhance their understanding and change their learning model especially for IT students. This application assisted students to understand the programming fundamentals course rapidly

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IOT Based Wake Up Alarm Clock Application

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2.1 INTRODUCTION

With the emergence of Internet of Things (IoT) technology, new applications and research related to IOT are thriving. Hence, technology has proven to make people's life more comfortable. It's a concept that not only has the potential to impact how we live but also how we work. Nowadays, many industries used IoT as a major factor of progress in their industry.

This technology basically can connect with any device with an on and off switch to the internet. Many devices in this world can use for this IoT such as smartphones, any kind of machines, lamps, wireless earphone and anything that you can imaging of. IoT also applied to components of machines such as a car had an engine control by computer, airplane etc (Morgan, J.,2014). The analyst firm Gartner said over 26 billion will connect by devices on 2020. That's a lot of connections. Some even estimate this number to be much higher, more than 100 billion. The IoT is a biggest network of connected "things"; which also includes people too in daily life. The relationship was happened in between people-people, people-things, and things-things (Morgan, J., 2014).

Nowadays, many people used IoT as a major factor of progress in their industries. For example, in students' life; who hard to wake up in the

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Development of IOT Baby Care to Enhance Infant Safety

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3.1 INTRODUCTION

Current scenario in abandoning the baby and infanticide is amongst the most heinous and inhumane crimes in this world. Baby dumping has not only serious problems in Malaysia but globally. This is due to the fact that such cases may occur in the society but they may be unreported. According to the statistic, there was a total of 577 cases of baby dumping from 2014 till 2018 (Anbia, Dass, Salberi, & Bahudin, 2019). Stated in record, from 2010 to May 2019, there have been 1,010 recorded cases of baby dumping and 64 per cent of babies were found dead, and a majority of them died shortly after they were rescued (Cho, 2019; Tang, 2019). The fact that the newborn babies are dumped at the most inappropriate places such as toilets and junkyards is such a heinous crime and cannot acceptable. Even various steps taken by the government and the society, the statistics of baby dumping is continuing to increase.

Therefore, the government has shown their concern towards this trend because of the phenomenon involves younger generation who is hoping to take the role in governing and shaping the country in the future. As a result, the government has encouraged non-profit organizations (NGOs) to curb this social illness. To overcome the issues, baby hatch has been

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Smart Strawberry Farm Application Using Internet of Things

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4.1 INTRODUCTION

A greenhouse is where plants such as flowers and vegetables are grown, by allowing a mixture of evaporation and condensation process in a more well-organized method (Zaragoza et al., 2007). Greenhouses warm up during the day when sunray penetrates through it, which heats the plant, soil and structure. Numerous farmers fail to get good profits from the greenhouse crops for the reason that they can't manage two essential factors, which determines plant growth as well as productivity. Greenhouse temperature should not go below a certain degree, high humidity can result crops high in transpiration, condensation of water vapour on various greenhouse surfaces, and water evaporation from the humid soil.

Weather in the lowlands are not the same as the weather in the highlands, which are more suitable to plant trees or flowers that require a stable temperature and humidity. Stable in terms of growing trees and the planting process should be in accordance with temperature and humidity needed by plants in order to produce a fresh and beautiful plants. Meanwhile, strawberry fruits are one of the most sensitive plant to grow. In addition, most farmers are still using manual system, thus

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A Development of Smart Automated Roof Prototype for Small Medium Enterprise (SME) Businesses

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5.1 INTRODUCTION

Food drying is one of the methods that are used to preserve some perishable food crops (Agoreyo et.al, 2011). Drying inhibits the growth of bacteria and yeasts. The main process of food drying is food water removal. The most commonly used drying method in Malaysia is using sun drying. Food Small Medium Enterprise (SME) industries such as fish cracker, dry fish, anchovies and some snacks use this preparation technique. With small capital of SME food industries, this becomes most popular techniques because sun drying is an economical way among SME entrepreneurs in preparing their dried food.

In order to dry food, it needs to have both high temperature and a constant breeze. The high temperature will extract the moisture while the breeze would help to dispel it into the surrounding air. A low level of humidity is also essential for successful sun drying. The high humidity levels in the South make sun drying difficult. Humidity of below 60 percent is ideal.

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Home Water Flow Monitoring and Controlling Mobile Application

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6.1 INTRODUCTION

As we know, water is one of the most important substances on earth for humans, animals and plants. Water is a limited resource and is essential for agriculture, industry and for creature's existence on earth including human beings. More water is wasted by many uncontrolled ways like poor water allocation, ineffective use and lack of adequate and integrated water management (Turral, Zadeh, Mateo & Burke, 2017). Therefore, effective use and water monitoring are potential restriction for water controlling system.

Nowadays, people are having a regular tendency on leaving or forgot to close the tap water at home. Other than that, water tap faulty can cause leakage problem and can be a factor for water wastage occurs. Pipeline systems can be caused of leaking and responsible for transporting vital materials such as water, oil and gas. Any leakage caused by pipeline can cause major financial losses and possible environmental damages (Deepiga & Sivasankari, 2015). Old and worn tap washers and gaskets frequently cause leaks in tap. Even though, dripping water from the faulty water tap seems like simple leak but it can be major water wastage when water is dripping for a long duration. Additionally, wasted water from tap leakage can increase monthly bill, electrical short circuit and

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Development of Integrated Augmented Reality Treasure Hunt Game and Internet of Things

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7.1 INTRODUCTION

Internet of Things (IoT) has been the object of various studies in the past two decades but have seen a meteoric rise recently, spurs by the Industry 4.0 trend. A device is considered IoT-enabled if it can be connected to the internet creating a hive of interconnected device capable of communication with each other. IoT applications has impacted various domain such as industrial automation, healthcare and transportation (Al-Fuqaha et al. 2015). Meanwhile, augmented reality (AR) allows user to view the real world that are superimposed with virtual objects (van Krevelen and Poelman 2010). Although AR actually dated back to the 1960s, only in the recent two decades that it garnered worldwide attention due to improvements in enabling technologies such as display, tracking and calibration (R. Azuma et al. 2001). Technological advances in communication, computing and electronics also contributed to the implementation of AR application in various fields such as education and training, leisure, engineering, manufacturing, marketing, tourism and others (Santos et al. 2015; Westerfield, Mitrovic, and Billinghurst

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Smart (LPG) Leakage Detector

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8.1 INTRODUCTION

In this globalization, today's society is often confronted with gas leaked problems. The usage of Liquefied Petroleum Gas (LPG) in Malaysia is mainly used in many fields such as in homes, restaurants, industries and in automobiles as fuels. LPG is well-used fuel for cooking, drying and heating. Although LPG and natural gas are known as a friendly environmental but still those gaseous can instigate a serious effect in case of leakage or disclosure. Gas leaks can cause high pressures in enclosed spaces that can result in disruption of electrical products leading to fire or explosion that can result in many deaths (Ahmad Ismail, 2015).

Based on an interview with fire fighter in Muadzam Shah, Pahang, we were told of two major causes of leakage of gas, which is a gas leak that has been leaking for a long time and the negligence of consumers when using gas at home causing gas leaks. If leaked gas fills the entire area of the home, those in the house will suffer shortness of breath and cause it to collapse and not only that, the gas that has accumulated in the home can be the cause of the fire when the user turns on the house switch (Ahmad Ismail, 2015). We came up with the idea to create a "Smart (LPG) Leakage Detector" prototype to solve the problem.

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Internet of Things Based LPG Detector with Telegram

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9.1 INTRODUCTION

One of the most common types of energy source used in domestic is propane in which liquefied gas contains. Though the safety issues are considered by the company, leakage of gas has become very common accident which can cause damage to human lives and property. Protecting lives and property is a top priority for every households and industry, particularly the detection of hazardous gas leaks that can lead to significant damage and threaten personnel.

Accidents caused by LPG leakage can resulting casualties. Accidental explosions in homes are not uncommon which may be associated with gas leaks, the storage of explosive material such as propane. LP Gas cylinders are commonly used in the household as a cooking gas and also as fuel in motor vehicles. In spite of safety guidelines accidents occur which are fatal. In order to release high pressure LP gas, the blast effect becomes destructive and in severe cases can cause fatal. (Tabin Millo, M. Sunay & A.K JaiswalFatal., 2009)

The selection of the right gas detector for a given application and topology can reduced risks and saves life. In addition, by choosing

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Smart Detection Recycle Bin (SDRB)

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10.1 INTRODUCTION

As urbanization is spreading rapidly, there is an increase in production of waste. Waste management is a crucial issue to be considered at public places where waste is overflowed from the bins and may cause different diseases (G.S Rohit et al., 2018). According to B. Chowdhury and M. U. Chowdhury (2007) means that active urbanization and industrialization in Malaysia causing massive waste generation. Environmental problems are raised by modern cities for waste collection and disposal (B. Chowdhury & M. U. Chowdhury, 2007). Therefore, smart waste management systems became essential for cities that aim to reduce cost and manage resources and time (A. Zanella et al., 2018). Therefore, mostly the trend nowadays is to shift the solution towards smart devices and internet of things (IOT) for overcomes this problems issues. The main purpose of the smart solutions provided by industry is to optimize the process of trash collection.

Efficient waste management and disposal is required to maintain safe and green environment. As a result, this necessitates the need for waste bins with lids to contain unpleasant sights and odors and to minimize contamination. Almost the waste is from the items that we can be recyle. Recycling is the process of converting waste materials into new

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