THE PROCEEDINGS

Student National Symposium IR4.0 (SNSIR4.0)

18 June 2019 | Higher College of Technology, Muscat

Research Papers

[1] **Title of Paper: Renewable Power Source Weather Station**
Author(s): Abdillah Said Salim, Saravanan Velusmy, and Alagammai Nachiayppan
Affiliation: Higher College of Technology, Oman

Abstract: *Due to huge significance of climatic changes in various field, weather forecasting and monitoring plays a big role in day to day life. These atmospheric changes like temperature, pressure, and humidity are critical elements to be checked regularly as they can help to either plan activity like agriculture, likelihood of raining, or they can warn and protect human life from serious issue that can happen including floods and extreme heat. There are numerous instruments and online applications that are able to monitor and give weather forecasting information, yet these methods do not provide accurate weather readings at a local area but instead they give readings of the nearby station where they receive the information. This paper gives an outstanding solution of monitoring weather conditions accurately at a local area, by utilization of electronic sensors and equipment like DHT11 for sensing of the data and display them on the LCD screen.*

[2] **Title of Paper: IoT Sleep Detector for Drivers to Increase Road Safety in Oman**
Author(s): Naema Ali Al-Mamari , Hayat Bader Al-Saidi, and Wafa Abdullah Al-Buriki
Affiliation: Shinas College of Technology, Oman

Abstract: *Based on National Center for Statistic and Information "The goals of sustainable development include an objective of reducing the number Deaths and injuries due to traffic accidents for half by 2020 ". The newly statistics show that A 39.5 percent decline in the number of road accidents registered in the Sultanate of Oman. Also, according to statistics issued by the National Center for Statistics and Information, based on preliminary data from the Royal Oman Police, North Al Batinah was the second Governorate logged the highest number of road accidents. We all believe the fatigue and tiredness is one of the reasons behind the accidents because fatigue and sleeplessness may cause sleepiness in very short sleep periods of between two seconds and four seconds. This leads to the deviation of the vehicle's path and collisions, so how can we avoid that? There are many advanced technologies targeted at vehicles such as: "Routing system monitoring system", "traffic control system and other systems"," which are also aimed at the driver such as: Vigo system: a headset connected (by car) via Bluetooth technology for wireless communication", and identify any signs but this technology is common between the vehicle and the driver. This is not very safe because it is possible to have a sudden failure in the system of the car that supports this technology. Accordingly, the driver might fail to check the system or recognize the defect. So we aim to detect sleep while driving in short or long distances by creating a sleep detector which can detect the (sleepy) closed eyes changes of the drivers then make alarm to alert them.*

[3] **Title of Paper: Internet of Things based Application titled Remote Health Monitoring Application (RHMA)**

Author(s): Saliha Abdullah Khamis, Sumaya Khamis Hilal, Asma Nasser Khalaf, Zainab Saif Ahmed, and Dr. Rasha Shakir AbdulWahhab
Affiliation: College of Applied Sciences, Oman

Abstract: *The Ministry of Health is the main body in the Sultanate of Oman responsible for providing health care to the population and it was interested in providing hospital and medical staff everywhere. Older people and people with disabilities face difficulties infrequently going to hospitals. Therefore, recently many researchers have drawn their attention to developing a remote health system. Therefore, in this project, we propose to design new monitoring of healthcare and timely warning to ensure that patients are diagnosed in a timely manner without compromising their convenience of living titled Remote Health Monitoring Application (RHMA). RHMA is an intelligent system developed to monitor health quality and enabling elderly and disabled people every day in Sultanate of Oman to check health quality. Add to that, RHMA uses internet technology with smart devices to support elderly and disabled people with continuous information about their health and the ability to have a quick solution if they need medical attention or hospitalization. The architecture of RHMA is designed in a level model comprising of four main units. RHMA is developed with one database which is built within MyphpAdmin, Arduino, Java, Java script, html, MySQL and C++.*

[4] **Title of Paper: Object Detection and Recognition for Smart Retail Checkout**

Author(s): Basma Zubair and Dr. Vijaya P.
Affiliation: Waljat College of Applied Science, Oman

Abstract: *A system trained using Object Detection and Recognition has the ability to view and recognize surroundings. In this work, we attempt to address the limitations of the current product-scanning mechanisms by such a system. You Only Look Once Version 3 (YOLOv3) deep-learning based Object Detection algorithm trained on the Common Objects in Context (COCO) dataset has been employed to achieve Smart Retail Checkout. By the application of Object Detection and Recognition, QR codes, Barcodes and RFID tags can be eliminated. This has the potential to simplify the monotonous work of cashiers, eliminate long customer-waiting queues and offer a faster error-free checkout experience. As part of the research, a survey was also performed to analyze customer preferences for automatic detection of products.*

[5] **Title of Paper: IOT Based Smart Waste Management and Monitoring System for Oman**

Author(s): Asma Al-Nabhani and Syed Imran
Affiliation: Middle East College, Oman

Abstract: *Waste management is one of the primary problems faced in Oman. The garbage bins at the city or at the public places are overflowing, which presents an unpleasant sight; it is unhygienic for the community and it causes a bad smell which is, in fact, harmful for the community. The aim of the research paper is developing a smart garbage network and monitoring system for Be'ah Company in Seeb Municipality to provide intelligent benefits for the network. This system will detect the level of the garbage bin with the help of the ultrasonic sensor and if it is full, a notification is sent to the truck driver*

by both cloud and Wi-Fi. The truck driver can then collect the waste and transfer it to the main storage. Additionally, this research will benefit the community as it will keep the cities clean and healthy.

[6] **Title of Paper: Comparative Study on Firewall and Intruder Detection and Prevention System**

Author(s): Ohood Ahmed Sulaiman Al-Azri, and Khawla Hamed Al-Sulimani
Affiliation: Nizwa College of Technology, Oman

Abstract: *Internet usage has highly increased in the recent years. So, network and system security become as an essential requirement while designing a network. It is essential to develop a network with system security due to the growth of the usage of computer networks. Firewall is a primary device, which is used to protect an organization from various hazards on the Internet. It has been deployed as a primary requirement for providing access control to network resources and users. IDPS – Intruder detection and Prevention system enhance the security implementation. The main functions of IDPS devices employ technology, which analyses traffic flows to protect the resources in order to detect and prevent exploits or other vulnerability issues. In this comparative study, the deployment of firewall and IDPS are studied and a how the security requirements of an organization shall be fulfilled at a lower cost is analyzed. In addition, we investigated that how the firewall and IDPS are providing security in an active systems and how both are equally important.*

[7] **Title of Paper: The Impact of Different Design Styles of Training on Plickers App to Improving E-Assessment Skills of Teachers of Al-Manara School and Their Attitudes Towards Using of Mobile Learning**

Author(s): Amr Abdelazim Elsayed Ibrahim
Affiliation: University Science, Malaysia

Abstract: *The purpose of this study was to measure the effect of different design patterns on Plickers' training in improving the electronic assessment skills of Al Manara School teachers and their attitudes towards the use of mobile learning. The researcher used the semi-experimental method on a sample of 30 teachers, randomly divided into two experimental groups The training program was the main tool in the study with a note card to measure the improvement in electronic assessment skills and a measure of direction to measure the attitudes of school teachers towards the use of mobile learning of all kinds, The results of the study showed a clear improvement in the electronic assessment skills of the two experimental groups, with a slight difference to the training according to the inverted learning strategy, which is a positive trend Towards mobile learning for both experimental groups.*

[8] **Title of Paper: IoT Smart Water Tank Monitoring System**

Author (s): Omar Mohamed Ibrahim Elshafie
Affiliation: Arab Open University, Egypt

Abstract: *Unexpected shortage of water supply is common phenomenon especially in dense population areas such as in buildings, hotels, hostels and others. For example, water supply at the students' hostels is usually drawn from tank at the rooftop of the building. Apparently, there is no early warning system to monitor the tank water level when it has reached the critical level. The situation becomes worse when*

there is no personnel or technician in-charge to do the maintenance at the time it is needed. It becomes worse especially at the weekends and public holidays. Students have to wait for couples of days for the water supply to resume.

This study presents the development of water level monitoring system with an integration of Wi-Fi module to alert the person-in-charge through Email notification. The water level is monitored and its data sent through SMS to the intended technician mobile's phone upon reaching the critical level. The prototype was tested and functioned properly as a mean to reduce the risk of unexpected shortage of water supply.

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[9] **Title of Paper: Internet of Tourism Things (IOTM)**
Author(s): Halima Al-Mamari, SumayaAl-Balushi, Fatma Salah Rashid Al-Ghaithi, Afrah Al-Ghadani, and Dr. Rasha Shakir AbdulWahhab
Affiliation: College of Applied Sciences, Oman

Abstract: *Today, tourism is one of the most important areas for all countries and one of the most important sources of growth in the world. Today, the commercial volume of tourism same or surpasses that of food product, automobile or oil experts. However, it is one of developing countries ' core revenue sources. With respect to Sultanate of Oman is one of the developing countries and there are many of attractive places that make the number of tourists increased every year. With respect to Sultanate of Oman, many of attractive places are available which make the number of expected tourists increased every year but still the numbers of websites or applications to support tourists, as well as advertisements about tourism locations, important events, and information about hotels and hospitals, are very insufficient. Therefore, to reduce come up with the above problem here in this paper we develop a new application which is serving tourism in the Sultanate of Oman titled INTERNET OF TOURISM THINGS (IOTM). IOTM integrates IOT in its components. IOTM is an intelligent application developed to support different actors such as tourists, Ministry of Tourism and users who have their own business-like restaurants, hotels, and hospitals. The architecture of IOTM application is designed in a level model covering Data Producer (DP), Middleware Computing (MC) and Database (DB). IOTM will be developed with one database which is developed by using different languages such as C++, Arduino, Java, Java script, html and MySQL.*

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[10] **Title of Paper: Stock Market Forecasting using Long Short-Term Memory (LSTM)**
Author(s): Rawan Al-Awlaqi, Aisha Al-Nabhani, and DanyaAbdul-Ghani
Affiliation: Sultan Qaboos University, Oman

Abstract: *Nowadays, machine learning techniques are used to predict future stock prices, we built a stock market forecasting model using Long Short-Term Memory (LSTM) Recurrent Neural Network. It has been shown that LSTM performs better with time series problems and noisy data, both of which are features of financial data. We trained and tested our model using Anadarko Petroleum Corporation daily stock from year 2000-2019, our best outcome was this combination of hyper-parameters (batch size=20, epochs=300, learning rate=0.001, time steps= 60) with a loss function of 0.0010.*

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[11] **Title of Paper: The Role of Marketing by Social Media in Promoting Brand Awareness Field Study in the Hotel Sector in Dhofar Governorate**
Author(s): Fatima Mohamed Awad Barham, Moaz Nagib Gharib, and Adima Khater Al-Saadi
Affiliation(s): Dhofar University, Oman / Mardin University, Turkey

Abstract: *The current study aims to identify the role of marketing by social media in promoting brand awareness in the hotel sector in Dhofar Governorate. The study population includes hotel employees in Dhofar Governorate. The researchers chose a random sample of 200 employees from four-and five-star hotels. The questionnaire was distributed to the study sample. A total of (184) valid samples were retrieved for statistical analysis, representing (92%) of the study sample. Study results showed that all dimensions of marketing by social media and brand awareness were available at high levels. The existence of a statistically significant impact of the dimensions of marketing by social media (offering services in social media, social service, and virtual society) in enhancing awareness of the brand. While there was no statistically significant impact of advertising on social media in promoting brand awareness.*

[12] **Title of Paper: Music Generation using Neural Networks**
Author(s): Kevin Jacob Thomas and Dr. Vijaya P.
Affiliation: Waljat College of Applied Sciences, Oman

Abstract: *Using Neural Networks as Music composition tools is an area where much research hasn't taken place, although machine learning has been applied to the final stages of audio production such as Audio Mixing and Mastering. The objective of this project is to implement two models that tries to make use of neural networks for automatic music composition. The first model uses Recurrent Neural Networks and Machine Learning for successful automatic music composition by Using Tensorflow and Keras with Music21 library in python, to create and train a model, to generate a complete musical melody which is as close as possible to an instrumental which a musician or non-musician will be able to use in reality. Basically, we create a standalone application that can generate MIDI file(s) from an input set of MIDI files, which the musician gives. We also apply Google's magenta.js to compose music within a browser itself.*

[13] **Title of Paper: Marketing Creativity and its Impact on Customer Relationship Management Electronically: Field Study of Oman Air Company**
Author(s): Salem Al Ansi and Dr. Ahmad Taha Kahwaji
Affiliation: Dhofar University, Oman

Abstract: *Air companies in the world have increasingly spread its operations in electronic way. In Sultanate of Oman also, companies try to strengthen the relationships with customer electronically. This research aim at examine the effectivity od customer relationship management at Oman Air, and at identify the impact of marketing innovation (R&D, Marketing Database, and Job Climate) on customer relationship management electronically in Oman Air. The research Population consisted of 112 employees of Oman Air. The researcher selected a soft random sample of (80) employees. We distributed the questionnaire to the sample and retrieved (79) valid questionnaire for statistical analysis. The most important findings of the research are: the existence of a relationship of a direct link*

between research and development and the working environment and management of customer relations electronically. We found a lack of correlation between the marketing information base and customer relationship management electronically. A statistically significant impact on research and development, and an environment for managing customer relations electronically in Oman Air. And the absence of a statistically significant impact of the marketing information base on customer relationship management in Oman Air. The research recommendations include: Maintaining research and development through the use of modern technology in the research process to develop the services provided to customers and maintain the levels of marketing information available to the company from multiple sources.

[14] **Title of Paper: Smart School Bus Tracking System Using GPS, GSM Modem, and RFID Reader**

Author(s): Bhairvi Singh and Dr. Satish Chander
Affiliation: Waljat College of Applied Sciences, Oman

Abstract: *This paper carries out studies on bringing further improvements in school transportation system and reducing the number of deaths of children caused due to bus accidents or due to being left unattended in school bus. We have come up with a solution by designing Smart School Bus Tracking System installing devices like GPS which will send location updates to parents & school authorities by sending SMS using GSM MODULE. And to make it further advanced, RFID tag reader will be installed at entrances of school bus door, which will mark their attendance when they'll scan their ID cards against RFID reader installed at entrance of bus doors. All these devices (GPS, GSM MODULE &RFID reader) will be programmed using Arduino.*

[15] **Title of Paper: Are Omani Retailers Reluctant to Adopt Online Services? - An Insight into the Magnitude of Acceptance of Online Shopping in Sultanate of Oman**

Author(s): Zeyana Rashid Al Rawahi, Iman Hisham Ba Omar, Manar Habib Al Hasani, and Dr. Vinu Sherimon
Affiliation: Higher College of Technology, Oman

Abstract: *Online services are a great solution to many trendy businesses and individuals if adopted and used properly, and if not, it will cause many interruptions to the businesses and end-users. Online shopping is one of the biggest revolutions in Internet. Convenience, possibility of price comparisons, more variety of available products, shopping comfort, etc. are the main advantages of online shopping. As per Statista, the statistics portal by 2021, it is expected that over 2.4 billion people worldwide are expected to buy products online. In Oman, even though there are many public and private organizations that provide online services, yet the usage and progress of online services is very limited and slow due to the absence of a number of the influential factors like quality, ease of use, cultural and social issues, awareness, trustworthiness, security, and privacy. The proposed research will study the customer behavior and will investigate why online shopping is not so popular in the Sultanate. Considering Oman's high penetration rates in the usage of Internet & mobile phones, this research will investigate the rate of acceptance of Online shopping in Oman. Case studies of Omani companies Mandoob and Thawani Pay will be included in this research to understand the degree of acceptance of online shopping in Oman. The study will focus on the reasons of reluctance of local retailers to adopt online shopping as additional dimension to modern shopping. To achieve this, survey questionnaire and interviews are*

planned as research instruments. The findings, recommendations, and suggestions for future work are presented. With the high penetration rates of Internet & mobile, setting up an online business is a major avenue for Omani retailers.

[16] **Title of Paper: Google Assistant Supervised Smart Home**
Author(s): Neha Sunil, Nikhil Sunil and Dr.Vijaya P.
Affiliation: Waljat College of Applied Sciences, Oman

Abstract: *The idea behind Home Automation is to be able to model any home into a 'smart' home. A smart home is basically a network of devices, interconnected to give users full authority over the operability of a device. Over the years, numerous home automation technologies have been familiarized, from Zigbee automation to Google Home, Home from Apple as well as Amazon Echo. This paper recommends a Home Automated System with the aid of the Google Assistant which regulates up to 8 appliances. The system is implemented using regular household appliances. Natural language, speech instructions are provided to the Google Assistant. With the aid of the IFTTT (If This Then That) and Adafruit applications, the instructions are decoded and directed to the microcontroller which switches the device linked to the respective relay ON or OFF according to the user's appeal to the Google Assistant.*

[17] **Title of Paper: Analytical Study of Knowledge Sharing among Universities Students: Case Study of Mardin University**
Author(s): Zahran Alshaqsi, Omar Durrah, and Dawoud Almohammad
Affiliation: Dhofar University, Oman / Mardin University, Turkey

Abstract: *The research aims to identify the current reality of the activities of sharing knowledge and exchange of information between students and the most important obstacles that hinder the process of sharing knowledge, in a number of colleges of the University of Mardin in Turkey, which adopts Arabic language teaching language for the entire course. The analytical descriptive approach was adopted in this research. A questionnaire was designed based on previous studies in this field. The subjects covered the attitudes of the students who responded to the knowledge sharing process and distributed to 235 students. The results showed that the goal of most students to share knowledge is to clarify issues The majority of students are aware of the value of knowledge and the usefulness of their participation and consider it to help improve the learning process, where most of them are encouraged to share knowledge and consider it good. The study also presented a set of recommendations that would contribute to improving the process of sharing and sharing knowledge among students in the university.*

[18] **Title of Paper: A Study on the Impact of WhatsApp Messenger in Learning and Usage on Academic Performance of Students in Higher College of Technology in Oman**
Author(s): Fatma Saif Al-Battashi, Aya Abdulaziz Al- Mawali, Siham Mohamed Al Balushi, and Dr. Vinu Sherimon
Affiliation: Higher College of Technology, Oman

Abstract: *The negative effect of social media is a major concern of the day. It overweighs the positive effects on all community of life. Nowadays our lives are more controlled by social networking sites.*

Among the community, students are the more affected ones by the impact of social media. Several studies have pointed out that, those students who are addicted to WhatsApp lacks concentration in studies and achieve low grades in exams. They are tempted to abandon their studies and prefer to chat online with their friends. But at the same time, there are positive impacts of using WhatsApp for educational purposes. This research study aims to practically identify the intensity and the impact (positive and negative) of WhatsApp Messenger in learning, the commonly used social media application and how its usage affects the academic performance of students in Higher College of Technology. Four research questions and five research hypotheses are formulated for this study. To achieve this, a descriptive survey and a questionnaire are proposed as research instruments. This study focusses on students of Higher College of Technology. A total sample size of 141 students of different study levels will be selected from the student population using simple random sampling techniques. A self-constructed questionnaire will be used in collecting the data. Later the findings, recommendations, and suggestions for future work will be presented.

[19] **Title of Paper: LBS (Location Based Service) based Taxi Tracking Application for Oman**
Author(s): Fatma Yousuf Rashid Al-Shidi, Hassa Hassan Ahmed Al-Shahia, and Ghitha Said Muslem Al-Badi
Affiliation: Shinas College of Technology, Oman

Abstract: *Location-based services (LBS) are computer applications that provide information depending on the location of the device and the user. Recent years witnessed rapid advances in LBS with the continuous evolution of mobile devices and telecommunication technologies. They were applied in emergency services, tourism services, navigation guidance, intelligent transport services, entertainment (gaming), assistive services, healthcare, social networking etc. LBS based taxi operation is the more attractive advancement in the technology. The taxi service helps the people of Oman to easily move to every place without worrying of own vehicles or waiting for the crowded bus. The taxi service also creates job opportunity to the Omani peoples, act as a driver as well as own business. Even though taxi service creates job opportunity, economic development and convenience for people transport, but also has some difficulties. This paper pointed out the some of the problems in taxi transportation services in Oman. Proposed system is a mobile-based application which will help the passengers and the taxi drivers to find each other's and book the trip in an easy way.*

[20] **Title of Paper: The Smart Water Meter Reader and Notification using Raspberry PI**
Author(s): Hajer Al-Sinani, Aysha Al-Mamari, Sheikha Al-Kaabi and Amna Al-Kaabi
Affiliation: Shinas College of Technology, Oman

Abstract: *The economic crisis affected people greatly and their way of life, which led to a rise in living expense and one of these expenses is electricity and water. About five years ago, the Ministry of Manpower (MoM) issued decision number 222/2013, which determines the minimum salary for Omani nationals employed in the private sector," This Ministerial decision sets the minimum salary for full-time Omani nationals at the level of OMR225, as well as an allowance of OMR100, which in total amounts to OMR325 per month so, the lowering salary is one reasons. The cost of living affects the life of the individual. The income of the individual does not fit with the high cost of living and the high prices, especially in the water bills. The individual must pay the water bill every month and sometimes the price of the water bill is very large unexpectedly and because of this some people do not pay the water bill directly because of the lack of money to them which is led to cut off the water and accumulate bills. The*

smart water meter reader and notification using Raspberry PI is a solution to alert people of the amount of water they used. Water meter set up to a specific amount of money, the sensor has three colors each indicate to the amount of the water bills prices. green color indicates to a good usage of the water which not exceeds the money which you allocated for the water bills. yellow color indicates to average expenses and the final amount as a red expense. The meter readers will send notifications for each level based on the price that you allocated before. After this research people will know how much water they spend and by that people will become more economical and start controlling their expenses. And they can meet the expectations of the amounts of the bill every month. Also, if the price of the invoice rises significantly in a certain amount, it indicates that there is a leak or a malfunction in the water, and the notification appears early, thus leads to avoid the problem earlier.

[21] **Title of Paper: Smart Buildings and Living**
Author(s): Usama Alesry, Mohammed Al-Balushi, and Dr. Warda Al-Hoqani
Affiliation: Higher College of Technology, Oman

Abstract: *Smart Cities play a vital role in managing and automating day to day tasks that serve the citizens of the city, and in these cities, there are smart buildings that are fully equipped with IoT Technology that helps with certain tasks to be automated. In this paper we present the general concept of Smart Technologies in Buildings as well as smart devices such as wearable, security devices, tracking devices. The research is carried out using questionnaires to specify which target audience is interested in the concept of "Smart Buildings". The analysis of the research would be carried out in Google Forms to gather and analyze the results of the questionnaires.*

[22] **Title of Paper: Environment Exploring using IOT Based Robot-Car**
Author (s): Abdullah Saif Muhamed Al-Jabri and Hassan Salmeen Salim Al-Hamdani
Affiliation: Shinas College of Technology, Oman

Abstract: *Robots remain the focus of researchers and developers, and now they are moving towards IoT based devices and mobile robots to take advantage of the different sensor enables facilities. A robot is a machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer. A robot can be controlled by a human and can be modified by its functionality at runtime by the operator. From past few decades, researchers are contributing towards Robotics. There is no end of technology, creativity, and innovation. The project is designed to develop a robot for remote operation attached to the wireless camera for monitoring purpose. Surveillance using the camera can help the soldier team to make strategies at run-time.The main moto of this project is to explore the environment which are hazards to human with the support of different sensors and devices which are all being connected and sharing information with each other through Internet.*

[23] **Title of Paper: Bio Revendo Machine**
Author(s): Zuwaina hamed Al-Wahaibi, Noor Yousif Al-Fori, and Amna Rashid Algahadni
Affiliation: Higher College of Technology, Oman

Abstract: *Taking action against rising plastic pollution. This examines the main causes, challenges, and effects which going to focus on people who are responsible. These days, people have a culture which*

centered on throw away. In contrast, this thesis illustrates there are many actions that need to be taken to put a stop on the dependency on plastic. the poor management for plastic waste may effect of each corner of the earth. I got an opportunity to examine the problem which plastic pollution and provide technology solution. Also, my project name is Bio Revendo Machine. The solution may help us to recycle plastic in the correct way. According to my research, the growth of plastic pollution is happing because of wrong recycling in some place. Providing them a correct way to recycle and an opportunity to get some reward points may encourage them to put their plastic waste into our machine.

[24] **Title of Paper: Evaluating Mobile Smartphone Screen Time iPhone for HCT Female Students**

Author(s): Kauthar Al-Hashmi and Ahad Al-Rawahi
Affiliation: Higher College of Technology, Oman

Abstract: *The use of iPhone (IOS 12) among university students not only for chatting but also for learning and socialization. Socialization through WhatsApp, Instagram, Twitter, and Snapchat are often used by students. Tools like Online tutorials in YouTube are extensively used for learning.*

The present study aims to investigate the effects of smartphone use by HCT female students on their perceived academic performance, study the most application used among female HCT student from age (17-24) and what is the maximum time they spend on it per a day and per one week Using six hypotheses derived from the literature related to smartphone use.

In this research we did different method to reach our goal firstly, we did pilot study were we randomly collected about 107 screen time shoots from different specializations by HCT female students and we find out the 5 top application used WhatsApp Occupies first place, second Instagram, Snapchat third, BBM and fourth and Twitter fifth. IN addition, we did survey questionnaire it received interaction from 122 students from different disciplines and levels of study. We find that the first most application used were Instagram, second WhatsApp, third SnapChat, fourth YouTube, and fifth BBM. the pilot study and the survey questionnaire get almost the same results.

[25] **Title of Paper: An Evaluation of Impact on Mobile Banking in Relations to Customer Satisfaction in Bank Nizwa, Oman**

Author(s): Al 'Shifa Mohamed Saud Al-Harthi
Affiliation: College of Banking and Financial Studies, Oman

Abstract: *Banking business in Oman has flourished greatly due to technological adoption and customer service. Mobile Banking can make banking transaction comfortable and customers can access any financial resources even from distant areas. Technology can have a significant impact on customer service and satisfaction. The mobile banking revenues have reached to $ 8.3 billion in 2015 and have penetrated deeper into the customer mind and market. The mobile banking makes differences in meeting customer satisfaction. The main objective of the research paper is to evaluate the usage of mobile banking at Bank Nizwa. The research was evaluating the impact of mobile banking on customer satisfaction at Bank Nizwa in Oman. The researcher has used Quantitative and qualitative research design as it is aimed to measure the impact of mobile banking on customer satisfaction and to get quantitative data from respondents with accuracy. Two sources of data have been used like Primary data through questionnaire with 24 questions and it has difference class of questions and secondary*

sources like bank web site, articles, annual report, bank statements and circulars. The data was collected through an electronic survey and list of respondents were obtained by the Bank Nizwa data base. The number of customers responded were 122 of different age group. Response rate was 80%. Data was analyzed by using Statistical Packages for Social Sciences (SPSS) software. Both single variable, double variable and cross tables have been prepared. The statistical tests like chi-square and correlations have been applied. However, research shows excellent result in meeting the objectives of the study. Nonetheless, it revealed that there were factors influenced on the satisfaction of mobile banking customers. Satisfaction and the problems that made customers un-satisfaction also been studied. The attempt of this study was to examine the impact of mobile banking factors and services at Nizwa Bank in Oman.

[26] **Title of Paper: Visual Impairment Desktop**
Author(s): Khaoula Ben Bechir
Affiliation: Higher College of Technology, Oman

Abstract: *People (students) with disabilities have been always suffering while studying because of the following reasons: the used studying desks are manufactured as "one size fits all" and not customized to the specific needs of these people; the used studying desks are uncomfortable and, generally, unpleasant studying environment; dependability of these people on other persons while studying (family members or others); they are not autonomous; these persons feel excluded and different which cause frustration while studying; and the existing studying desks are not encouraging these people to study. To solve these problems, we will integrate the latest cutting edge emerging technologies to transform the classical studying desk to an intelligent/smart one for special purpose (iDesk), we will use sensors/IoT devices to manage and adjust the desk (height, width, smart lamp, etc. through an app integrated within the desk. This will make the desk more customized to the needs, more comfortable, and make the student more autonomous and independent, smart drawers to organize intelligently the studying books/notes/pens, etc. using sensor pleasant and physically healthy, the desk contains smart talkative calendar to remind and notify them. The student will never miss a quiz/test. The use of assistive technology enables students with visual impairment to better adjust to regular learning processes and academic domains. It is an important tool in the inclusion process. It allows health and education professionals to develop combined actions and to promote knowledge sharing and quality of life for visually impaired students.*

[27] **Title of Paper: Smart Cities and Sensors**
Author (s): Mubarak Al Mubsali
Affiliation: Majan College, Oman

Abstract: *The transition from a traditional city to a smart city is the dream and requirement of many governments around the world. With the help of new technologies, this dream may be real, depending on the will of the government, whether it is the ICT infrastructure or the acceptance of the community into a smart city. One of the most important goals in building a smart city is to promote and provide services that are closer to citizens and improve living standards and prosperity. It is a misunderstanding that many smart cities are defined as electronically dependent on smartphones and all cities. Smart City is the product of government and society cooperation in the fields of industry, transportation, life, environment, governance and human capital development using smart IC T. It is a misunderstanding that many smart cities are defined as electronically dependent on smartphones and all cities. Smart*

cities are the product of government and society's cooperation in the use of intelligent ICTs in the fields of industry, transportation, life, environment, governance, and human capital development. This study will illustrate the smart cities in the world and what are most sensors, can be used to help develop smart cities and provide a practical example of how to control some devices with help of sensors.

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[28] **Title of Paper: Measuring Password Strength by using Different Applications for HCT Students**

Author(s): Afraa Ahmed Al-Amri and Intisar Mansoor Al-Owaisi
Affiliation: Higher College of Technology, Oman

Abstract: *Passwords are still one of the most common ways to secure computer systems. It is very important for students to force them to have strong passwords. Text-based passwords remain the dominant method of authentication in computer systems, despite significant advances in attacker capabilities to perform password cracking. In response to this threat, password-creation policies have become increasingly complex. When the password is evaluated as a weak word, the user can replace the password with a stronger or safer one and if reused, the stolen password can be used to access multiple authenticated sites. There are many methods or website that help hackers to get a password and it happens when the password has been developed very poorly and does not have the characteristics that make it strong and difficult to hackers.*

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[29] **Title of Paper: Smart Shopping Trolleys for Hyper Markets using Raspberyy pi**

Author(s): Younis Khamis Al-Jabri and Ameer Rashed Alnaqbi
Affiliation: Shinas College of Technology, Oman

Abstract: *The pattern of the human race has changed radically over the past years. Everything around us is fast and no one likes any system that is slow. Shopping is one of the most important mundane activities that have seen change over the years. The era of traditional shopping has developed into super markets, e-shopping and online shopping. Shopping for people has become a recreational way of forging all the problems and sorrows. Especially women, prefer to spend more time in supermarkets. They shop mostly for themselves, such as holidays and all occasions. Men shop for home. In either case, there are some problems that are bothering including the shopper while going to the market. Some annoying customer positions find a product in huge malls, not knowing the total cost of buying before going to the bill table. Finally, the main problems are waiting in the queue during peak hours, weekends and during the festival season. In order to address these problems, this research suggests shopping carts for supermarkets using Raspberry Pi. These innovative vehicles will help the customer in three ways: find and locate a product, calculate certain products and calculate the total bill before going to the cash counter. The client does not need to spend more time with the treasurer. They pay and leave as soon as possible. The objectives of smart vehicles are: To bid for a particular product placed inside the vehicle in a small digital display. Displays the total amount of funds for all products within the Smart Trolley. To provide each product's location within the excess market to help the customer recover or return. To provide information about each detail (colors, sizes, quantity, similar products, etc.) of the product on the screen. Smart shopping carts provide solutions to many customer problems and difficulties. Make it easier for the customer to shop better and more comfortable, leading to increased shopping for these smart shopping carts, so that the supermarket service is more popular, popular and profitable.*

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[30] **Title of Paper: Smart Watch to Monitor Blood Sugar Using Graphene Skin Patch Method**

Author(s): Ahad Hamed Al-Sinani, Ayat Ahmed Al-Abdulsalam, and Reem Khalfan Al-Maktoomi
Affiliation: Shinas College of Technology, Oman

Abstract: *Diabetes mellitus (DM) is commonly referred to as diabetes. Symptoms of hyperglycemia include frequent urination, increased thirst, and increased hunger. Without treatment, diabetes can cause many complications. Diabetes is caused when body cell that does not adequately produce insulin because it does not respond to the pancreas. Diabetes is one of the most common diseases in the world. Diabetes is not only for adults but also for child. People think that Diabetes is a genetic disease, but that it is wrong because it has several other causes. In the past, the people who have diabetes go to the hospital to check the level of sugar in their blood. Later, due to technology growth appeared a new device which name Blood Glucose Meter to measure the sugar blood by the needle. This device is better than go to the hospital every day but has a disadvantage such as its take wrong read and difficult for use for some people. Actually, the main problem, display issues such as failure to display part or all of a result. After research, it was found many people tired of this device. It had found a good solution to measure blood sugar at any time without people forget to do the test. The solution is to find another gadget which is a smart watch to screen glucose without needle Using graphene skin fix strategy. In this research is present smart watch to monitor blood sugar without needle using graphene skin patch method where all blood sugar related information is in digital format. In addition, the doctor can see all the information or details of the patient. The primary feature for this smart watch works automatically; no specific time. Also when be abnormal level in blood sugar this watch will send the warning to person and doctor at the same time.*

[31] **Title of Paper: Smart Band using Raspberry Pi & ThingSpeak Cloud to Monitor Body Temperature for Patients in Intensive Care Unit in Oman**

Author(s): Hajer Khalfan Al-Shamsi, Zainab Matar Al-Jabri, Asma Khalfan Al-Zaabi, and Hasnaa Hamad Al Shibli
Affiliation: Shinas College of Technology, Oman

Abstract: *"Health is Wealth" is a famous saying that everyone will agree. Without good health no one will be happy. The reality is we cannot be healthy forever. There are times we fall sick and need proper medical administration either from a clinic or from a hospital. Doctors and Staff Nurses play an important role in providing timely health care to patients. Hospitals overflow with patients during winter and also during summer. Another major difficulty in hospital is taking care of patients in Intensive Care Unit (ICU). In ICU patients have to be monitored 24 hours a day. ICU in a hospital is where more critical patients are monitored 24 hours. Usually patients who have undergone a major surgery or patients who met with an accident with major injury and blood loss or patients who have had sudden heart attack are admitted in ICU. Dedicated Doctors and Nurses work in shift basis so that the patients are monitored 24 hours. All the patients in ICU are continuous monitored by recording key functionalities of body organ. One among the key monitoring is the Body Temperature of the patient. The body temperature of the patient should be kept stable. In order to maintain a stable temperature, nurses have to check the patient's temperature every 30 minutes. Measuring body temperature of every patient is taking much of the time of ICU Staff. In order to better utilize the expertise of the Staff in ICU, this research proposes an innovative Smart Band that along with providing basic patient information it measures the body*

temperature using sensors and record them in each patient's report. The Smart Band is made with the latest technology RPi and ThingSpeak cloud. This study attempts to know how this smart band will measure the body temperature of the patients in ICU and how it will be useful.

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[32] **Title of Paper: Analyzing the Impact of using Wearable Computing in ShCT**
Author(s): Hanadi Salim Al Riyami, Moza Zaid Al-Shihi and Abir Said Mohammed Al-Mamari
Affiliation: Shinas College of Technology, Oman

Abstract: *Many chances offered by wearable computing have triggered the imaginations of designers and scholars in a wide variety of fields. The inevitability of computers and interfaces, which are small enough to be worn on the hominid body has inspired the creation of devices and applications which can assist with a specialized professional, and personal activities, as well as aiding and augmenting everyday life in the modern world. Wearable computing well helps IT students in Shinas College of Technology for easy access students onto college portal. In addition, it is a good development for students and as well as the college. It shortens the communication time with the students by sending them automatic notifications.*

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[33] **Title of Paper: The Impact of Artificial Intelligence in the Fields of Education, Medicine and Business**
Author(s): Muneer Nasser Saif Al-Abri
Affiliation: Al Mussana College of Technology, Oman

Abstract: *Artificial intelligence (AI) applications has been in the upfront in the latest technological developments in almost all the sectors. AI is a part of technologies upon which other technologies and applications are built. In addition, an increasing availability of computer power, improved connection, and data, offer huge possibilities for AI applications in promoting economic growth and in improving the ease of work and functionality. This research will study and identify the benefits of artificial intelligence on life style of Omani people and study the implication of artificial intelligence.*

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