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Forthcoming Tech Events

- 8th Invention to Innovation Summit, Punjab
- World Congress on Cell & Tissue Science
- International Conference on Mechanical And Automobile Engineering
- International Academic Conference on Engineering Technology & Innovations
- Prime Expo Canada 2019
- International Conference on Engineering & Technology
- Wind Energy Science Conference 2019
- International Conference of Electrical and Electronics Engineering

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RFID-Based Automated Shared Drop Box for Laundry Business: A Process Model

Collection and delivery of laundry is an important process in the laundry business. The laundry businesses have adopted diverse models such as over the counter collection/delivery, online booking etc. The laundries are collected or delivered from customers' doorstep or from customers' desired location at a convenient time. In this paper, business process re-engineering concept has been incorporated to improve the collection and delivery process of laundry using RFID (Radio-Frequency Identification) tagging and Automated Laundry Collection Drop Box. The Devil's Quadrangle has been used as a tool for evaluation.

The proposed model will result in reduction in cost, time and improvement in service quality. It ultimately results in customers' loyalty, economic efficiency and gain of a competitive advantage over competitor. Other advantages for laundry business include automatic collection and delivery, enhanced customer convenience, enhanced flexibility and industry economic savings, enhanced customer satisfaction and decreased labor work.

In the proposed automated laundry collection model, reputed laundry businesses will make a consortium and outsource collection and delivery process to a courier company. Different collection and delivery options are proposed in the model.

Source:

IQBAL, Sarwat et al. RFID-Based Automated Shared Drop Box for Laundry Business: A Process Model. Mehran University Research Journal of Engineering and Technology, 2019 January 3(1) 37-52

PASTIC-UAF ICT-EXPO ON INNOVATIVE TRENDS IN SCIENCE & EDUCATION

In the 21st century, technologies particularly Information and Communication Technologies (ICTs) are considered to play a critical role in the evolution of societies by converting them into the digital economy. Pakistan Scientific and Technological Information Centre (PASTIC) in collaboration with University of Agriculture, Faisalabad (UAF) organized one day PASTIC-UAF-ICT-EXPO titled “Innovative Trends In Science and Education” at Expo Centre, UAF on February 20th, 2019.



Glimpses of stall visit and prize distribution during PASTIC-UAF ICT Expo held at UAF, Faisalabad on February 20th, 2019.

The objectives of the workshop were to aware the audience on latest ICT tools/technologies and application, ICT opportunities and challenges in different sectors, provide an opportunity to the youth to meet/discuss/review their ICT developments with experts and more importantly to provide an opportunity to academic innovators to showcase/ marketplace their ICT projects/innovations/products and enhance networking opportunity and creativity among ICT professionals. The various universities, colleges and institutes displayed their innovative ideas related to ICT and comprising National University of Computer and Emerging Sciences (former FAST) Faisalabad Campus, NFC, Govt. College University for Women, Govt College University, University of Engineering & Technology (UET) Faisalabad campus, Khawaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, University of Sargodha, University of Central Punjab, National Textile University, UAF Sub-Campus Burewala and UAF. The exhibitors also discussed their modes and means of innovations with the visitors. A total of 130 ICT and related projects were displayed at the Expo.

Mr. Zia Alamdar, President, Faisalabad Chamber of Commerce and Industry (FCCI) and Chief Guest of inaugural ceremony extended cooperation for promoting ICT at all levels through the forum of FCCI. Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC sensitized and motivated the students to develop innovative and state of the art projects for showcasing in such exhibitions while PASTIC is organizing same events in other cities of Pakistan. He also appreciated ORIC-UAF for providing technical and logistic support to make this exhibition a success story. Prof. Dr. Aftab Maroof, Director, FAST Faisalabad Campus emphasized business community to take up best of the best idea being displayed in this Expo for the benefit of the end user. Dr. Ahsan Latif, Chairman, Department of Computer Sciences spoke about the objectives of this Expo with anticipated outcomes for the students, faculty and industry personnel. Guests visited the stalls and discussed technicalities, economic feasibilities and long term benefits of the innovative ideas. Four members from PASTIC, UAF, NTU, FAST evaluated the ICT innovations displayed at stalls under a prescribed mechanism. At the end of concluding ceremony, cash awards were distributed among 10 best innovators from different Universities. Moreover, shields were distributed among the organizers of the ICT Expo from PASTIC and UAF.

Source: <https://www.pastic.gov.pk>

Wave Device for Clean Energy to Thousands of Homes

A wave energy technology is being developed that could help generate low-cost electricity for thousands of houses. The device costs less than conventional designs, has fewer moving parts, and is made of durable materials. It is designed to be incorporated into existing ocean energy systems and can convert wave power into electricity.

Small scale experiments in an ocean simulator show that one full-size device could generate the equivalent of 500kW, enough electricity for about 100 homes. Engineers say that their design could be used in fleets of low-cost, easily maintained structures at sea within decades, to take advantage of powerful waves in Scottish waters.



Scale trials are held in the FloWave facility at the University of Edinburgh of a wave energy converter device that could provide power to thousands of homes. Photo: Universities of Trento, Bologna and Edinburgh and Scuola Superiore Sant'Anna Pisa

Engineers from the University of Edinburgh and from Italy developed their device known as a Dielectric Elastomer Generator (DEG) using flexible rubber membranes. It is designed to fit on top of a vertical tube which, when placed in the sea, partially fills with water that rises and falls with wave motion.

A scaled-down version of the system was tested in the FloWave facility at the University of Edinburgh, a 25m diameter circular tank that can reproduce any combination of ocean waves and currents. The system could replace conventional designs, involving complex air turbines and expensive moving parts.

The study, published in Proceedings of the Royal Society A, was carried out in collaboration with the Universities of Trento, Bologna and Scuola Superiore Sant'Anna Pisa in Italy. It was supported by the European Union Horizon 2020 program and Wave Energy Scotland. "Wave energy is a potentially valuable resource around Scotland's coastline, and developing systems that harness this could play a valuable role in producing clean energy for future generations," said David Ingram, of the University of Edinburgh's School of Engineering, who took part in the study.

Source: <https://www.laboratoryequipment.com/news/2019/02/>

Flaxseed Fiber Ferments in gut to improve Health, reduce Obesity

Research in mice suggests that fermentation of flaxseed fibers in the gut changes the microbiota to improve metabolic health and protect against diet-induced obesity.

The organisms that live in the digestive tract (gut microbiota) play a role in regulating weight and the way the body processes sugar (glucose tolerance). The breakdown of dietary fiber in the gut -- a process called fermentation -- can produce favorable changes in the digestive system, such as an increase in beneficial fatty acids, which may reduce the production of fat tissue in the body and improve immune function. Flaxseed is a fiber-rich plant that has been shown to improve cholesterol levels and inflammation in the colon. However, there is little research on the fermentability of flaxseed and how flaxseed fiber affects gut microbiota.

Researchers studied mice assigned to four different diets:

- a standard diet that contained 4.6 percent soy-based fiber ("control");
- a high-fat diet that contained no fiber ("high-fat");
- a high-fat diet that contained 10 percent indigestible cellulose fiber ("cellulose"); and
- a high-fat diet that contained 10 percent flaxseed fiber ("flaxseed").

The research team measured the amount of oxygen the mice used, carbon dioxide produced, food and water consumed and energy expended. Glucose tolerance was also measured near the end of the trial. At the end of 12 weeks, the researchers examined the animals' cecal contents -- bacteria and other biological materials in the pouch that forms the beginning of the large intestine (cecum).

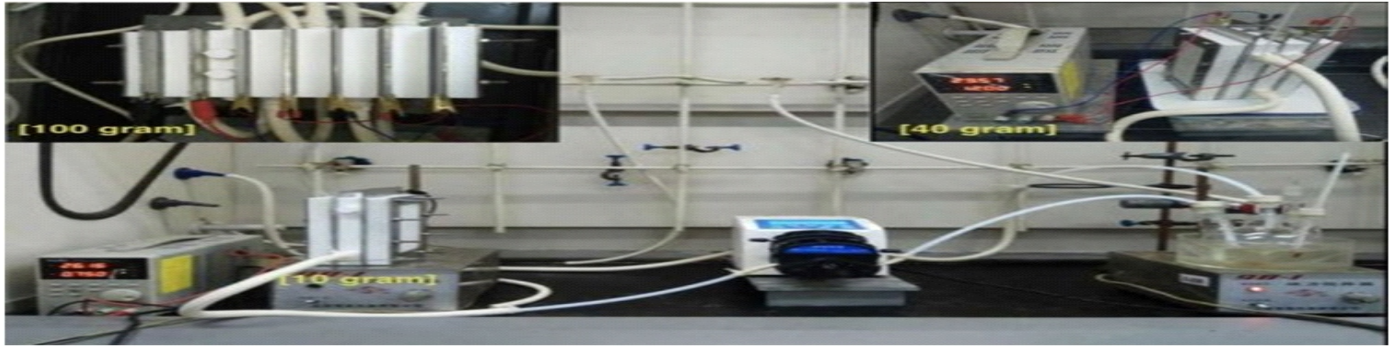
The high-fat group had fewer bacteria associated with improved metabolic health, lower levels of beneficial fatty acids and more of a bacterium linked to obesity when compared to the other groups. Bacteria levels in both the cellulose and flaxseed groups returned to healthier levels when compared to the high-fat group. The flaxseed group was more physically active and had less weight gain than the other high-fat diet groups. The mice that received flaxseed supplements also had better glucose control and levels of beneficial fatty acids that were comparable to the healthy control group. When examining the cecal contents, the research team found evidence that the bacteria present ferment fibers from the thick, glue-like layer of the flaxseed shell. The bacteria that perform fermentation then produce more beneficial fatty acids.

The data suggests that flaxseed fiber supplementation affects host metabolism by increasing energy expenditure and reducing obesity as well as by improving glucose tolerance. Future research should be directed to understand relative contribution of the different microbes and delineate underlying mechanisms for how flaxseed fibers affect host metabolism," the researchers wrote.

Source: <https://www.sciencedaily.com/releases/2019/02/190205090541.html>

Electric Car Batteries inspire Safer, Cheaper way to make Compounds used in Medicines

Inspired by the refined electrochemistry of electric car batteries, scientists have developed a battery-like system that allows them to make potential advancements for the manufacturing of medicines. Their new method avoids safety risks associated with a type of chemical reaction known as dissolving metal reduction. Their method would offer significant advantages over current methods of chemical manufacturing, but until now, has largely been sidelined due to safety considerations.



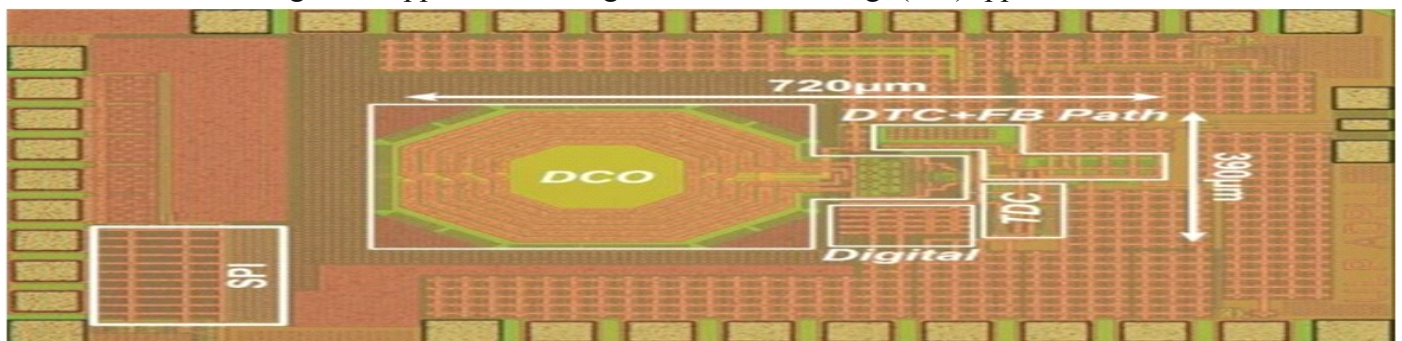
Scientists at Scripps Research, inspired by the refined electrochemistry of these batteries, have developed a battery-like system that allows them to make potential advancements for the manufacturing of medicines. Their system avoids safety risks associated with a type of chemical reaction known as dissolving metal reduction, which is often used to produce compounds used in the manufacturing of medicines. Credit: Baran lab

Recent advances in battery technology, from the engineering of their cases to the electrochemistry that takes place inside them, has enabled the rapid rise of Teslas, Leafs, Volts and other electric cars. The Scripps Research team collaborated on the project with researchers at Pfizer Global Research and Development, the University of Utah, the University of Minnesota and Asymchem Life Science in China.

Source: <https://www.sciencedaily.com/releases/2019/02/190221141501.html>

Digital Phase-Locked Loop achieves a Power Consumption of 0.265 MW

Scientists have developed an advanced phase-locked loop (PLL) frequency synthesizer that can drastically cut power consumption. This digital PLL could be an attractive building block for Bluetooth Low Energy (BLE) and other wireless technologies to support a wide range of Internet of Things (IoT) applications.



This is the proposed fractional-N DPLL occupies an area of 0.25 mm² in 65-nanometer CMOS. Credit: Kenichi Okada

As a key building block of wireless communication systems, frequency synthesizers need to satisfy demanding requirements. Although analog PLL frequency synthesizers have been the standard for many years, engineers in the IoT industry are increasingly turning their attention to so-called digital PLLs (DPLLs) to achieve ultra-low power operation.

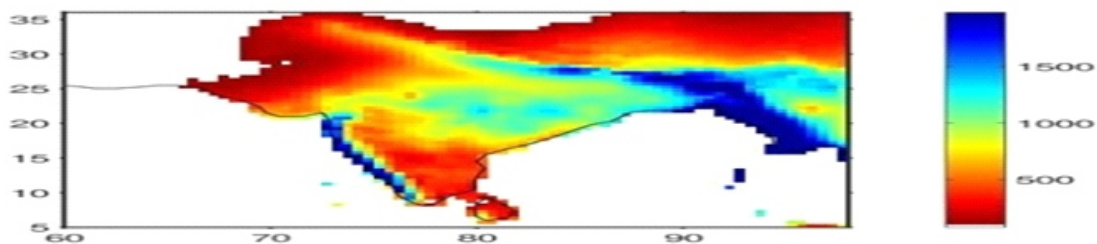
Kenichi Okada, associate professor at Tokyo Institute of Technology's Department of Electrical and Electronic Engineering and his group now report a fractional-N DPLL that achieves a power consumption of only 265 microwatts (μ W), a figure that is less than half the lowest power consumption achieved to date (980 μ W).

The researchers found that overall power consumption could be greatly reduced by using an automatic feedback control system. "This automatic-switching feedback path consumes a power of $68\text{ }\mu\text{W}$, which leads to a power consumption of $265\text{ }\mu\text{W}$ for the whole DPLL," Okada says. The promising DPLL could go on to be used as a component for processors, memories and a vast new range of IoT devices that will be expected to be both cost-effective and eco-friendly by running on ultra-low power. Okada notes that early experiments show the DPLL could extend battery life by four times.

Source: <https://www.sciencedaily.com/releases/2019/02/190219111646.html>

Predicting the Monsoon a Year Ahead

With average precipitation of 35 inches per four-month season over an area encompassing most of the Indian subcontinent, the South Asia summer monsoon is intense, only partly understood, and notoriously difficult to predict until now.



Mean monsoon-season (June-September) precipitation (mm) for South Asia, 1901-2016. Land grid cells where this was under 100 mm are left unshaded and were not included in the study domain. Credit: Nir Krakauer

The impact of this research could be applied at a range of activities, including agriculture, industry, fishing and hydropower. A frequent visitor to the region, stretching from Nepal to Sri Lanka, Krakauer has devised a methodology that allows forecasts potentially up to a year in advance. Currently, most predictions are made about two months in advance of the South Asia monsoon season that runs from June to September, but it is not known how far ahead skillful forecasts might be possible. "People usually use one or two predictors for forecasts," said the Grove School of Engineering associate professor who is also affiliated with the CCNY-based NOAA-CREST. "Many of these predictors are one or another pattern of sea surface temperatures. My question was how do you find which patterns are important for forecasting the monsoon -- the amount of rain and where it will be?"

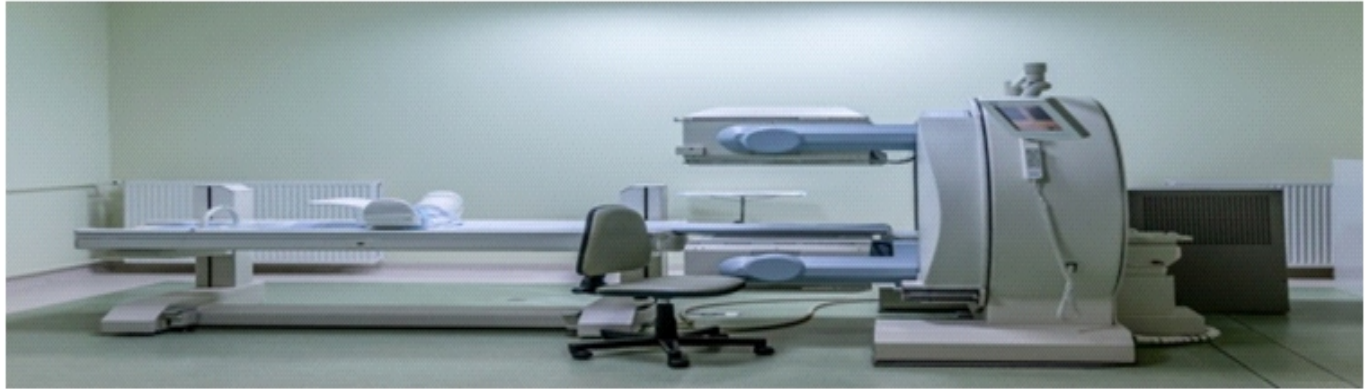
Unlike other forecasters who use only the sea surface temperature readings from neighboring waters, Krakauer looked at the predictive potential of all the common patterns in the sea surface temperature map. He developed prediction methods using global sea surface temperature and monsoon precipitation data from between 1901 to 1996, and tested the performance of his prediction methods on data from 1997-2017. "He found that two methods seem to do a good work of forecasting the monsoon. The sea surface temperatures were observed at the beginning of the monsoon, and then going back as far as four years before."

The crux of the research is that "closer to the beginning of the monsoon season, the more accurate forecasts that are based on sea surface temperature can be." But predictions with some accuracy can be made as far as a year in advance. Getting a better sense of how much water will be available is particularly important given that the rainfall is getting more intense in South Asia while the total amount remains constant, meaning that more rain is falling in a shorter period. This could be problematic for farmers in the region.

Source: <https://www.sciencedaily.com/releases/2019/02/190222143342.html>

Colorectal Cancer Test Kits Could Speed Up Screening Process

A recent review of 31 studies found that fecal immunochemical test or FIT has identified 75 to 80 percent of people who have the disease. This suggests that the at-home screening test can be an alternative to colonoscopy for individuals who have an average risk of colorectal cancer.



At-home cancer screening kits can effectively detect colorectal cancer among patients, according to a recent analysis. Researchers discovered that fecal immunochemical tests have 75 to 80 percent sensitivity compared to 90 percent from colonoscopy. (Michal Jarmoluk | Pixabay)

The FIT works by detecting the presence of blood in an individual's stool that otherwise might not be visible to the naked eye. One of the telltale symptoms of colorectal cancer is blood in or on the stool, according to the Centers for Disease Control Prevention.

To use the test, the patient places a paper sling that catches a sample of the stool on the toilet seat. The sample is then sent to a lab for analysis. The results are forwarded to a physician who will communicate the findings back to the patient. If the stool sample tested positive for colorectal cancer, the patient is advised to have a colonoscopy.

The recent analysis, which was published in the *Annals of Internal Medicine* on Tuesday, Feb. 26, suggests that FIT is a very acceptable alternative to screen for colorectal cancer for people who have an average risk or those who do not have a family history of the disease nor inflammatory bowel disease. Unlike colonoscopy, the at-home screening test is not invasive and does not require preparation in advance.

However, those who opt to use FIT at home will have to be screened more frequently. The researchers said that the test must be carried out once a year. In comparison, a colonoscopy is recommended every 10 years.

While effective, FIT does not completely remove the need for colonoscopy. The invasive procedure still has a 90 percent sensitivity according to the analysis. This means that it has identified cancer in 90 percent of people who have the disease.

Source: <https://www.techtimes.com/articles/238985/20190227/colorectal-cancer-test-kit-could-speed-up-screening-process.html>

Forthcoming Tech Events

National

8th Invention to Innovation Summit, Punjab

2-3 April, 2019

University of Punjab Lahore

www.pastic.gov.pk/newsdetail.aspx?newsID=245

World Congress on Cell & Tissue Science

28 April, 2019

Lahore Continental Hotel

www.iiter.org

International Conference on Mechanical And Automobile Engineering

29-30th May, 2019

Rawalpindi

www.allconferencealert.net/eventdetails-arda.php

International Academic Conference on Engineering Technology & Innovations

28-29 June, 2019

Rawalpindi

www.academicworld.org/Conference2019

International

Prime Expo Canada 2019

24-26 April 2019

Mississauga, Canada

www.10times.com/expo-canada

International Conference on Engineering & Technology

1st-2nd June, 2019

New York USA

www.wrfconference.com/event/index

Wind Energy Science Conference 2019

17-20 June, 2019

Cork Ireland

www.wesc2019.org

International Conference of Electrical and Electronics Engineering

03-05 July 2019

London UK

www.10times.com/conference-electrical-electronics

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