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शोधसिन्धु @ CSIR-CSIO

A Periodic Newsletter of CSIO, Chandigarh

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INSIDE THIS ISSUE

"If you want to shine like a Sun, first burn like a Sun."

- Dr. A P J Abdul Kalam

A word from the Director...

I am delighted to present the first issue of शोधसिन्धु, a periodic newsletter of CSIR-Central Scientific Instruments Organisation. The newsletter aims to present various scientific activities, major events and media coverage of the institute to its readers.

As we continue our journey on the path of scientific excellence driven by the needs of the nation, it has become extremely important for the scientific community to provide advanced technological solutions to various problems affecting our society and nation as a whole. CSIR-CSIO, being a premier R&D institute in the areas of Instrumentation, Sensors, Optics and Photonics, needs to further strengthen its industry-academia linkage to leverage emerging opportunities to carve a niche for its scientific expertise and skills. In this line, large number of instruments ranging from simple to highly sophisticated ones, have been designed and developed by the Institute and their know-hows have been passed on to the industry for commercial exploitation. Having contributed substantially towards the growth of the scientific instruments industry in the country, CSIO now enjoys high degree of credibility among the users of the instruments as well as the instrument industry.

I sincerely thank our R&D partners and other stakeholders for their continued support and cooperation in the growth of the institute. I also thank our dedicated team of scientists, technical and administrative staff for their untiring efforts to achieve our collective scientific objectives.

(Prof R K Sinha)

CSIR-CSIO receives major grants under Mission Mode Programme

Priyanka Raghav

In line with Government of India's priority as Mission Mode delivery to serve the people of the nation, CSIR-CSIO Chandigarh has conceived various research projects under Mission Mode which aims towards achieving their objectives and mandate during the two year period (March 2018 - March 2020). The various themes under which projects have been sanctioned to CSIR-CSIO are as below:

(i) Intelligent System (IS) - Intelligent Technologies and Solutions

CSIO based on its expertise in the area of activity recognition and with financial support of Rs. 5.41 crores will focus towards the development of computational techniques and algorithms for developing: a) An automatic vital signs monitoring and alarming system. b) Intelligent arrhythmia detection and alert system. c) Analysis of generated EEG System data in the interface development of MAV/Drone control using BCI methods.d) Development of Internet of Things (IoT) based seismic system.

(ii) Food & Consumer Safety Solutions (FOCUS)

This project titled FOCUS will address the unmet needs of various stake-holders in the food value chain such as farmers (producers), industry, regulator and the consumer with a total support of Rs. 5.77 crores.The various research activities envisaged are as below: a) Development and validation of packaging integrated biosensors for fruit juices b) To develop rancidity indicator strip for edible oils c) To develop a system for detection of polyaromatic hydrocarbons in edible oils d) Design and development of Electrostatic coating system for fruits & vegetables e) Multi-detection methods for pesticide residue in food matrix and f) To develop an optical VOC sensor for monitoring fruit ripening and food spoilage.

(iii) Safety & Security of Vital Installations

This project aims to cater the complete strategic domain of the nation by providing state-of-art technological solutions for the instrumentation needs of the defense forces of the country with a grant of Rs. 8.61 crores. The main objectives of the project are: a) Advanced Sensors & Systems for Border security management. b) Information Sensing (Seismic, Acoustic, Imaging) detection and localization of border activities. c) Vulnerability - zoning of perimeter with sensor networks: Remotely and/or autonomously manoeuvred multiple sensing platforms. d) Coordinated Command & Control (C3) to optimize border security management performance.

(iv) Drone Based Electromagnetic And Magnetic System (DREAM)

This project is a multi-laboratory initiative with an objective to indigenously design and develop Drone based Electromagnetic and Magnetic system for geophysical exploration. The entire project has been divided into different modules and CSIO will be partnering for the development of its Data Acquisition system with a total support of Rs. 1.57 crores.

(v) Development of Fast, Durable and Energy Efficient Mass Housing Scheme

(vi) Technologies for Robust Structural Health Monitoring of Critical Infrastructure and Conservation & Restoration of Heritage Structures

CSIR-CSIO organizes The Grand Finale of Smart India Hardware Hackathon (SIHH) 2018 during 18-22 June 2018

Sandeep Singhai

Grand Finale of Smart India Hackathon 2018 - Hardware edition was inaugurated at CSIO amid fanfare and enthusiasm. It is the first of its kind innovative methodology adopted in India that will provide an opportunity to young technical minds to showcase their creativity in the form of hardware products that can solve some daunting problems faced by India such as need of clean water, waste management, creation of Smart vehicles and Smart Communication, and so on. 13 teams of six students each from different parts of the country participated in the themes of medical devices, healthcare and bio-sensing technologies.

Award Ceremony of SIHH2018 held at CSIR-CSIO

The inaugural event was graced by Sh. Prakash Javadekar, Honorable Minister of Human Resource Development, Govt. of India through video conferencing, Prof S.S. Patnaik, Director NITTTR Chandigarh and Prof R. K. Sinha Director CSIR-CSIO. Honorable Minister in his opening address encouraged the students to put in their best effort so that the country can benefit from the innovative ideas that they realize using the infrastructure made available to them through this unique initiative.

Prof. R. K. Sinha in his welcome address said that as a country of 1.25 billion people, the responsibility for sustainable development lies on the shoulder of the scientific community to work for the benefit of the masses. Such affordable technologies must include grass-root innovation and out-of-box thinking by young minds to tap their immense intellect into useful ideas and technological leads. As envisaged by our Honorable Prime Minister, 'Digital India' mission is an attempt to bridge the digital divide in our country and to promote digital literacy for sustainable development.

The event witnessed enduring effort by the participants and their mentors

thereby coming up with interesting innovations like Asthma Trigger Detection System, System for Non-invasive Measurement of Glucose and Hemoglobin, Automatic Medicine Dispensing System, Continuous Passive Motion Device for Stroke Patients and so on.

Alike every exciting journey this event also culminated with the valedictory function in the auspicious presence of Prof. A. R. Rao, Director NIPER who distributed the prizes to the champion teams of Brainstorm Troopers, TechEEE1 and Imed Dispenser who won the first, second and third position respectively. The passion and excitement in the starry eyes of the young minds for the future endeavors was worth noticing and promising.

CSIO gears up to solve the problem of persons with disability

Ritika Singh

VIHBRA (Virtual Intelligence in Home Based Rehabilitation) is a solution for comprehensive physical rehabilitation of persons with disability. This is for the persons who might have suffered stroke and their physical movements are no more normal. The system improves standing and sitting balance and neuromuscular functions with minimal need for an instructor which had been the case in earlier treatment mechanisms. The experience and practical training provided by the system enhances the response time and quality from the nervous system. Moreover, it uses interesting and friendly ways in a game and play mode to engage the persons which increases their willingness to use the system. Apart from the above features, the system is also cost-effective.

The system uses advanced technologies such as Virtual Reality, Machine Learning, Stimulating sensory feedback to promote motor learning and Virtual Function Reach Test to measure augmented rehabilitation.

The system was developed at the CARE Lab, Biomedical Instrumentation Unit of CSIR-CSIO.The developed system has been installed at Prayaas Rehabilitation Centre for Handicapped Children in association with Post Graduate Institute of Medical Education and Research, Chandigarh and Indian Spinal Injuries Centre, New Delhi for clinical evaluation and use. The indigenously developed technology is available for commercialization.

VIHBRA System Interface and Patient Trials

Display of innovative technologies during the PSA visit

Priyanka Raghav

Principal Scientific Advisor to Govt. Of India Prof. K. Vijayraghavan visited CSIR - IMTECH campus in the event organised by CRIKC Chandigarh. CSIO being an important research partner participated in the event under the leadership of Prof. R.K.Sinha. Prof Vijayraghavan visited the CSIO gallery and interacted with scientists.

Prof. Vijayraghavan visiting CSIO Stall

The various technologies that had been showcased were Iodine Value Analyzer, Grain Moisture Analyzer, Pesticide Sprayer, VIBHRA, Postural stability Assessment System (Industry Version), Laser Lithotripsy System, Aircraft Instrumentation, Anti Glare Filter (AGF), Snow Avalanche Sensors, Portable Analog Seismograph, Earthquake Early Warning System (EES) modules, Divya Nayan, Separation of Glass and Phosphor from Waste CFLs and Technology for Production Of High Cost Porous Adsorbents from Zinc Scraps.

Ongoing Research Activities of CSIR-CSIO

A. Sponsored / Externally Funded

New projects taken up (Mar-Sep '18)

1. DSIR Common Research & Technology Hub (CRTH) in the sector of 'Electronics/ Renewable Energy'.
2. Pilot Deployment of Intelligent Elephant Movement Detection and alert system near Kansrao railway track, Rajaji Tiger Reserve, Dehradun.
3. Design and Development of a System for Climb Free Coconut

Harvesting.

4. Development of 3D Printed Lattice Structured Hip Implant.

MOVE ON: CSIO is manufacturing patient-specific bone implants

5. Solid Tumor Targeting using homing Peptides and Plasmonic Photo-thermal Technique.
6. Design, Development & Delivery of Pilot Display Unit (PDU) for HAWKi aircraft.
7. All Dielectric and Hybrid Nano antennas for Multifunctional Sensors.
8. Design & Development of LED based Drogue Light for LCA AF Mk1.
9. Design and Development of Optical Gun Sight (OGS) for Dornier Aircraft.
10. Cattle Health Monitoring and Disease Early Warning System.
11. Metal Organic Framework (MOF) based fluorescence -SPR dual mode sensing platform for explosive detection.
12. Design, Development & Supply of Telescope with Mounting Assembly.
13. Design, Development & Supply of Optical Block Assembly.
14. Development of Off Axis Aspheric Mirrors and their Fabrication & Testing.
15. Development of Aspheric Mirrors and their Fabrication and Testing.
16. Twinning on Capacity Building to Transform Metal Industry Development Institute (MIDI).

B. CSIR Funded Projects

New projects taken up (Mar - Sep '18)

HCP Projects

1. Nano Biosensors and Microfluidics for Healthcare
2. Intelligent System (IS) - Intelligent Technologies and Solutions.
3. Development of Fast, Durable and Energy Efficient Mass Housing Scheme.
4. Food & Consumer Safety Solutions (FOCUS)
5. Safety and Security of Vital Installations
6. Technologies for Robust Structural Health Monitoring of Critical Infrastructure and Conservation & Restoration of Heritage Structures.
7. Drone Based Electromagnetic And Magnetic System (DREAM)

MLP Projects

1. Technological solutions for contactless alive/dead detection of victim soldier in battle field.
2. Precision instrumentation towards whole-slide digital microscopy for high-throughput analytics.
3. Ligament Injury Assessment & Therapy Device for motor-rehabilitation of Soldiers "L-GEAR".
4. Online Monitoring System for Detection of Night-time Poor Visibility Areas in Urban Settings.
5. Harvesting of Electrical Energy using geared AC Synchronous Motors to Charge Batteries of Mobile Phones.
6. Design and Development of Airfield Ground Lighting Systems (AGLS).
7. Design and development of Enhanced Vision System for Military Surface Transport Vehicles.
8. Design & Development of Head Up Display for Passenger Aircraft.
9. Divya Nayan: A Personal Reading Machine for visually impaired.
10. Scale-up of Autoceph: A software for 2-D Computerized Cephalometric analysis as a web service.
11. Image Guided Vascular Vein Visualizer: VeinViz
12. Electromyogram (EMG) controlled below elbow prosthesis.
13. Design and Development of indigenized lyophiliser for preservation of Indian fruits and vegetables.
14. Development of multifunctional care device for army personnel.
15. Energy Management using Non-Intrusive Load Monitoring (NLIM) Technique.
16. Design & Development of angle Independent Multilayer Thin Film Filter (AIMTF) on Foldable and Military Grade Optical Substrates.
17. Design and Development of precision optics for soft X-Rays.
18. Magnetic Graphene coated Polymeric Stationery Phase Ion-Exchangers for Ion Chromatography Column Separations.
19. Low cost functional Material for Selenium Detection in water.
20. Photonic Meta-surfaces for smart applications.
21. Smart Electrochemical Tongue (e-Tongue) to detect heavy metal ions in potable water.

C. Major Ongoing Projects

1. Development of wireless sensor network for the detection of explosive.
2. Design & development of LED based NVG compatible Wing & Fin Navigation Lights for LCAAF Mk-2.
3. Design & development of LED based Taxi & Landing Lights for LCAAF Mk2
4. Design Innovation Centre, Chandigarh.
5. All Dielectric, Plasmonic and Hybrid Photonic Nanostructures.
6. Design and Development of Digital Holographic Camera for Non-destructive Testing Applications (HoloCam).
7. Development of Ferrite Based Magnetic Nanocomposites for Microwave Absorption Applications.
8. Optical Fibre Nano Antenna Assisted Sub-micron Resolution Common Path Optical Coherence Tomography Instrumentation.
9. Design & Development of Cost Effective in-situ & non-intrusive Motor Stethoscope (MSCOPE) for Monitoring the Health of Induction Motor using the latest Art of Instrumentation.
10. Nano-encapsulation of Herbal Extracts using Sonochemical Technique.

11. Design & Development of low cost Air Conditioner Efficiency Meter (ACE Meter).
12. Kinetics of Initial stages of InxGa1-xN Growth on low and high miller indexed Si surfaces followed by InN QDs in application towards tandem solar cells.
13. Nano sculptured thin films based enhanced plasmonic phenomena and their applications for clinical diagnostic and water sensing.
14. Design and Development of Smart Monitoring System for Livestock Emissions.
15. Design, Development and Supply of HUD MK 2 units for LCA AF Mk2 & LCA Navy Mk2.
16. Graphene Based Electrochemical Detection of Breast Cancer Biomarkers.
17. Publication of Directory of Scientific Instruments and Components Manufactured in India.
18. Development of an Automated Soil Nutrient Sensing System.
19. Design & Development of Visual Odometry System.
20. Multi Functional High Range Electrostatic Sprayer.
21. Low Cost Implant Functionalization material for biomedical applications in Hospital.
22. Organ-Low Cost Bio-mechatronic Rehabilitation Solutions for Children with Congenital Hemiparesis.
23. Smartphone imaging aided point-of-care dipstick platform for heavy metals sensing in Water.
24. Engineering a magnetically stimulated implantable hydrogel patch for Localised tumour therapy.
25. Development of Novel Fluorescent Platforms for the Detection of Heavy Metals in Water.
26. Design and development of detection and extinguishing systems for forest fire using sensor network.

"Ask the right questions, and the nature will open the doors to her secrets."

-Sir C V Raman

The Editors Speak

CSIR-CSIO is a vibrant laboratory with multidisciplinary activities and advances in the vast panorama of instrumentation engineering sector spanning from strategic, public safety, biomedical, computational and so on. Further the pivotal role CSIO has been playing in the fulfillment of the Human Capital needs of these specialized sectors through Indo Swiss Training Centre is also worth mentioning and is widely acknowledged. The dissemination of the information pertaining to various activities of the laboratory has always been given priority keeping in view the motto of serving the society and the primacy of outreach to the public with the happenings. In addition to the traditional channels of dissemination viz. scientific journals, annual reports & newspapers, the laboratory has been proactive in utilizing the digital mediums including social media platforms for advancing the information from its end. However a need was felt and echoed under the guidance of our Honorable Director Prof. (Dr.) R. K. Sinha to come up with a periodic comprehensive digital newsletter to disseminate the scientific and skill related activities at the institute as well as a platform to showcase its capabilities and facilities. This newsletter is expected to serve the dual purpose of providing a comprehensive information resource for various sources as well as an institutional mouthpiece for the society thereby also ensuring that the stakeholders are kept updated with the recent activities. This will definitely go a long way in serving our social and national responsibilities.

We were entrusted with fulfilling these endeavors with a team of Scientists and Technologists. We have worked hard to come up with this inaugural newsletter with a visualized periodic frequency depicting the landscape of activities being held at CSIR-CSIO covering the time period since 01/04/2018. In addition we have also showcased the facilities at the institute as well as the available technologies for transfer. Finally a part is dedicated to the coverage of the CSIR-CSIO activities in prominent newspapers. We sincerely hope that this newsletter would be able to meet the expectations of one and all and would be an awaited information source and authorized piece of record in the years to come. The next editions of the series would also feature readers' comments which would be a guiding force for the continuum.

It is requested to kindly update us at sandeeps@csio.res.in or priyanka.raghav@csio.res.in for comments and suggestions.

Enjoy Reading!

Jai Hind, Jai Vigyan, Jai Bharat!

Editorial Team (Dr. S S Saini, Sandeep Singhai, Dr. Ritika Singh, Priyanka Raghav, Mukesh Kumar)

Pictures Speak - Smart India Hardware Hackathon 2018

Director CSIO welcoming the Chief Guest during inaugural function

Honorable minister for HRD Sh. Prakash Javadekar inaugurating through Video Conferencing

Director CSIO felicitating the Chief Guest during the valedictory function

Dignitaries with the participating team during the event

Pictures Speak – Major Events

Director CSIO Prof. R K Sinha delivering the Independence Day 2018 address

Director CSIO with the participants during specialized training program for Armed Forces

Director CSIO Prof. R K Sinha unfurling the National Flag during Independence day 2018 celebrations

Team ISTC excels in Chandigarh Skill Competition - 2018

CSIO Transfers Technical Know How to M/s Atsuya on Smart Meters

सीएसआईआर--सीएसआईओ, चण्डीगढ़ - एक अवलोकन

- नवनीत आनंद

उपकरण-विन्यास अपने आप में ही एक बहुमुखी विषय है, जिसमें न केवल तकनीक के गहन ज्ञान अपितु अभियांत्रिकी निपुणता की आवश्यकता होती है। अत्यंत गर्व की बात है कि सीएसआईआर-सीएसआईओ, चण्डीगढ़ वैज्ञानिक एवं अभियांत्रिकी उपकरण-विन्यास के यथार्थ स्वरूप को अभिव्यक्त करता है। सीएसआईआर-सीएसआईओ अपनी स्थापना के समय से ही सामाजिक एवं सामरिक अनुप्रयोगों के लिए उपकरण-विन्यास समाधान उपलब्ध करवाने के लिए प्रयासरत है। कृषि क्षेत्र में पादप रोगों के लिए पूर्व चेतावनी प्रणाली; बीजों का नियंत्रित भंडारण, प्रतिरक्षण एवं गुणवत्ता विश्लेषण; आर्टिफीशियल आर्गेनोलेप्टिक्स; कीटनाशकों, गैस, जैवरासायनिक पहचान के लिए संवेदी एवं तकनीकों का विकास जैसी परिशुद्ध कृषि प्रौद्योगिकियों के विकास की परियोजनाओं पर कार्य किया जा रहा है। स्वास्थ्य क्षेत्र में, भविष्य की प्रौद्योगिकियों यथा सर्जिकल रोबोट, शारीरिक रूप से विकलांगों के लिए एक्सोस्केलेटन उपस्कर, तथा नैनोपदार्थ आधारित रोग निदान एवं संवेदी आदि के विकास पर कार्य किया जा रहा है। जन सुरक्षा अनुप्रयोगों के लिए भूकंपीय उपकरण-विन्यास, सतत् परिवहन, संरचनाओं की स्वास्थ्य-निगरानी, चर्म अपशिष्ट से स्वच्छ ईंधन तथा ऊर्जा प्रबंधन पर अनुसंधान कार्य किए गए। सामरिक क्षेत्र में, फैरो फ्ल्यूइड्स, फ्रीफॉर्म एवं हायब्रिड ऑप्टिक्स, ऑप्टिकल थिन फिल्म एवं ऑप्टिकल नैनो फिनिशिंग विषयों पर अनुसंधान कार्य प्रारंभ किए गए।

विगत की कुछेक उपलब्धियाँ/योजनाएँ हैं - हैडअप डिस्प्ले व अन्य कॉकपिट प्रणालियों का विकास हेतु ड्रॉग लाइट्स, हॉक-आई के लिए हैडअप डिस्प्ले एवं ऑप्टिकल गन साइट जैसी नवीन परियोजनाएँ। दिल्ली मैट्रो हेतु विकसित भूकंप के लिए पूर्व चेतावनी प्रणाली को नोएडा में भी लगाया जा रहा है। प्रथम रोगी विशिष्ट भारक्षम हिप इम्प्लांट जोकि सीएसआईआर-सीएसआईओ में डिज़ाइन तथा प्रिंट किया गया एम्स, नई दिल्ली में सफलतापूर्वक लगाया गया। सिफैलोग्राफिक सॉफ्टवेयर की ऑनलाइन सेवा का व्यापारिकरण करने हेतु सीएसआईआर द्वारा एफटीसी परियोजना प्रदान की गई। देश की पहली इंटैलीजेंट ऑफ रूट माइन का कार्य सफलतापूर्वक पूरा हुआ और भविष्य में सामरिक क्षेत्र में इसका उपयोग होगा। बार्डर सुरक्षा के लिए नई प्रौद्योगिकी विकसित की जा रही है जोकि मानवीय हलचल से वाहन और मवेशियों की हलचल में फर्क बता सकेगी जिसका पहला प्रोटोटाइप सीएसआईआर-सीएसआईओ कैम्पस में स्थापित किया गया है।

संगठन में हिंदी पखवाड़े का आयोजन

- नवनीत आनंद

हिंदी को बढावा देने के लिए 1 - 14 सितम्बर, 2018 के दौरान हिंदी पखवाड़े का आयोजन किया गया। हिंदी पखवाड़े का शुभारंभ 4 सितम्बर, 2018 को डॉ. उषा दत्ता, प्रोफेसर गैस्ट्रोएंटरोलॉजी, डॉ. विशाल शर्मा, एसिस्टेंट प्रोफेसर, गैस्ट्रोएंटरोलॉजी विभाग, पी. जी. आई., चण्डीगढ़ के चिकित्सीय व्याख्यान द्वारा किया गया। क्रमशः 'पित्ताश्य एवं लीवर संबंधी बीमारियाँ' विषय पर हिंदी में व्याख्यान आयोजित किया गया। हिंदी पखवाड़े का समापन दिनांक 14 सितम्बर, 2018 को हिन्दी दिवस समारोह से किया गया। इसका मुख्य आकर्षण पर्यावरण चिंतन विषय पर हिन्दी में लोकप्रिय व्याख्यान तथा निदेशक, सीएसआईआर-सीएसआइओ द्वारा पुरस्कार वितरण था। डॉ. जय शंकर पाण्डेय, चीफ वैज्ञानिक, नीरी, नागपुर ने 'इलैक्ट्रॉनिक्स, पर्यावरण और अध्यात्मिकता' विषय पर सारगर्भित व्याख्यान दिया तथा प्रो. आर. के सिन्हा, निदेशक, सीएसआईआर-सीएसआइओ ने हिंदी पखवाड़े के दौरान आयोजित विभिन्न प्रतियोगिताओं के प्रतिभागियों को पुरस्कार प्रदान किए । संगठन में प्रतिमास आयोजित की जा रही हिन्दी में वैज्ञानिक सेमिनार श्रृंखला योजना के विजेताओं को भी इस अवसर पर पुरस्कृत किया गया। संगठन के दो कर्मियों को हिंदी में उल्लेखनीय कार्य करने के लिए निदेशक पुरस्कार से पुरस्कृत किया गया। साथ ही इस अवसर पर राजभाषा विभाग, गृह मंत्रालय द्वारा हिंदी के विकास के लिए चलाई जा रही विभिन्न प्रोत्साहन योजनाओं के अंतर्गत भी अनेक पुरस्कार प्रदान किए गए। संगठन में गत कई वर्षों से स्टाफ के बच्चों द्वारा कक्षा 4 से 12 में हिंदी विषय में निर्धारित अंक प्राप्त करने पर पुरस्कार प्रदान करने की योजना भी लागू की गई है।

हिन्दी पखवाड़े के दौरान गतिविधियां

दिनांक 04.09.18 को पित्ताश्य एवं जिगर संबंधी रोगों पर डॉ. उषा दत्ता, प्रोफेसर गैस्ट्रोएंटरोलॉजी एवं डॉ. विशाल शर्मा, एसिस्टैंट प्रोफेसर, गैस्ट्रोएंटरोलॉजी, पीजीआईएमईआर, चण्डीगढ़ द्वारा हिन्दी में व्याख्यान से शुभारंभ

हिन्दी श्रुतलेख प्रतियोगिता में प्रतिभागी

आईएसटीसी भाषण प्रतियोगिता के विजेता छात्र प्रशासन नियंत्रक एवं निर्णायक मंडल के साथ

दिनांक 14.09.18 को हिन्दी दिवस समारोह में 'इलैक्ट्रॉनिक्स, पर्यावरण एवं अध्यात्मिकता' विषय पर डॉ. जयशंकर पाण्डेय, चीफ साइंटिस्ट, नीरी, नागपुर द्वारा हिन्दी में व्याख्यान से समापन

CSIR-CSIO in Media

Hindustan Times e-Paper - Chandigarh - 30 Jun 2018 - Page #48

TECH INNOVATION

Denied information on high-tech fighter jet equipment, India develops its own

Jatinder Kaur Tur

CHANDIGARH: Any gaming aficionado would love it: A space-age fighter jet cockpit with information on weapons locking systems, enemy planes and flight information flashing on the windshield.

This high-tech system is likely to be adapted soon for fighter aircraft in India with technology developed indigenously. The head-up display (HUD) has been developed by the Central Scientific Instruments Organisation (CSIO) in Chandigarh, a constituent unit of the Council of Scientific & Industrial Research (CSIR).

The technology, which CSIO started developing from scratch after the UK, USA, France and Israel declined to share it with India, was first adopted for the indigenous light combat aircraft Tejas, says director, CSIO, Prof RK Sinha.

Now, a pilot display unit

Vinod Karar with the head-up display, designed by CSIR-CSIO, in Chandigarh. SIKANDER SINGH CHOPRA/HT

UNDERSTANDING HEAD-UP DISPLAY

Flying a fighter aircraft at supersonic speeds is no easy task. Unlike conventional cockpits with traditional styled analog dials which diverted a pilot's attention as he had to take his eyes off the skies to monitor flight information, the glass cockpit eases his workload by

OTHER TECHNOLOGIES BEING DEVELOPED

Gunsight for Dornier aircraft: CSIO is also developing a customised gunsight used for accurately aiming a weapon, for surveying and for sight setting on a particular range.

advantages include high off boresight (aligning barrel of a firearm with sight) capability for fighter aircraft, first-look, first-shoot, air-to-air visualisation, improvement in pilot situational awareness,

Hindustan Times e-Paper - Chandigarh - 15 Jul 2018 - Page #5

AI-based movement detection system to boost border security

Jatinder Kaur Tur

CHANDIGARH: The Border Security Force (BSF) is set to secure the border along Pakistan in Punjab and Jammu and Kashmir, besides the border with Bangladesh, with high-tech seismic sensors buried underground to detect human movement.

THE TECHNOLOGY THAT CAN DIFFERENTIATE HUMAN MOVEMENT FROM THAT OF VEHICLES AND CATTLE IS PART OF A PILOT PROJECT OF BSF.

The technology, which can differentiate human movement from that of vehicles and cattle, is part of a pilot project of the BSF, the Comprehensive Integrated Border Management System (CIBMS), in J&K, and will now be replicated along the rest of the border to check terrorism, drug influx and ensure foolproof border security, it is learnt.

The technology has been developed by Chandigarh-based CSIR-Central Scientific Instruments Organisation, and talks are now on between the CSIO and BSF for large-scale application. It must be mentioned here that BSF director general KK Sharma on a recent visit to the city had said that the pilot projects under CIBMS in the valley will comprise a wide array of latest sophisticated surveillance devices, including the sensors, ground-based radar systems and lasers.

The warning time is in tens of second, depending on the installation of sensors with respect to vital installations. It generates an alarm and sends key information of the event via email and text message to the registered users.

The system is based on artificial intelligence (AI)-driven earthquake warning system developed by the CSIO, which has also found takers for such sensors in Delhi Metro. While it already has copyright for this indigenous technology, it has also applied for patent.

CSIO director RK Sinha said the organisation has been engaged in design, development and batch production of these seismological instruments "taking India on the international map of a selected few countries in possession of this technology". He said it has "direct operational value" and is being used by various user departments, such as the Defence Research and Development Organisation , IMD, IITs Kurukshetra University, and the Railways.

Satish Kumar, senior principal scientist, CSIO department of advanced materials and sensors, said the institute has taken a quantum jump towards the system development around AI-driven seismic signal analytics. Ripul Ghosh , scientist with the organisation's department of computation instrumentation and a member of the team which developed the Earthquake Warning System based on this technology, said it is aimed at activating appropriate actions for safety.

As per Dr Aparna Akula, another scientist, it is currently involved in a pilot deployment of Intelligent Elephant Movement Detection and Alert System near railway tracks in Rajaji National Park, Dehradun, in collaboration with WII, WWF-India and Uttarakhand forest department.

Printed from
THE TIMES OF INDIA

CSIO develops first-of-its-kind Smart electricity meter

TNN | May 3, 2018, 06.56 AM IST

CHANDIGARH: Central Scientific Instruments Organisation (CSIO) here has developed first-of-its-kind indigenous self-monitoring, analysis & reporting technology (Smart) electricity meter.

The new meter costs five times less than the existing meter and is best suitable for Indian climate. This meter gives a real-time hourly reading as well.

THE TIMES OF INDIA
Shared from the 2018-06-17 The Times Of India - Chandigarh eEdition

At CSIO, recovery from trauma is three-dimensional

MOVE ON: CSIO is manufacturing patient-specific bone implants

POTABLE INTEGRATED OPTICAL SYSTEM

CSIO develops technology to detect water pollutants

AKANKSHA BUDHIRAJA
CHANDIGARH, APRIL 24

NOW MAJOR water pollutants like arsenic, nitrate and fluoride can be detected in the field. Thanks to Central Scientific Instruments Organisation (CSIO), under Council of Scientific and Industrial Research (CSIR), which transferred its potable integrated optical system for in the field detection of the three major water pollutants to M/s Ambtek Innovations Pvt. Ltd, Ambala, on Tuesday.

Widespread availability of such a system will reduce dependency on lab-based expensive equipments for monitoring these pollutants before consumption and identifying their source of origin so as to facilitate government bodies for strict regulation and remedial actions. This can avoid diseases like fluorosis (dental, skeletal and non-skeletal), arsenosis, cancer and blue baby syndrome.

The device can also be further extended to other major pollutants within the developed hardware with small modifications, said Babankumar, Project Leader and Principal Scientist at CSIO.

At the transfer of technology event at CSIO, Chandigarh, on Tuesday. *Jashi Malhi*

"The developed technology can be an integral part of smart city initiative," he said.

The device's trial run has been done with limited real water samples and validation performed with lab-based reference techniques under controlled test-bed conditions at CSIO, Chandigarh.

Prof R K Sinha, Director of CSIR-CSIO, said the developed potable integrated optical system could be customised as per demand. "This is a humble contribution by the CSIO scientists for betterment of common man and has been made possible with the support provided by the CSIR through Fast Track Translation scheme. The technology will find place in laboratories for industrial, ground and river water testing as well as for common users in affected areas of the country, thus saving considerable foreign exchange," he said, adding the research team at the CSIO is also actively involved in developing a range of technological solutions for environmental monitoring, including soil and water.

Sinha added initiatives like this are imperative considering India ranks low at 120 worldwide in terms of the quality of potable water.

With increasing industrialisation and unregulated anthropogenic activities, several states like Rajasthan, Gujarat, West Bengal, Andhra Pradesh, Haryana and Punjab are worst hit with high level of different chemical pollutants such as arsenic, nitrate, fluoride, chromium, iron, etc, affecting more than 100 million people.

The Indian EXPRESS epaper editions Wed, 25 April 2018 epaper.indianexpress.com/c/28151623

CSIO develops water pollution testing system

CHANDIGARH, APRIL 24

With heavy presence of pollutants in water due to increasing industrialisation and anthropogenic activities becoming a cause of concern, the Central Scientific Instruments Organisation (CSIO) here has developed a portable "integrated optical system" for field detection of major water pollutants such as arsenic, nitrates and fluoride.

The system can be deployed in varied urban, rural and industrial settings for detection and monitoring of these chemical pollutants in ground water, waste water, river water and industrial effluents. These pollutants are known to cause fluorosis (dental, skeletal and non-skeletal), arsenosis, cancer and blue-baby syndrome on consumption beyond permissible limit.

Prof RK Sinha, CSIO director, said the availability of such a system would reduce dependence on laboratory-based expensive equipment used by state and private testing labs for monitoring of these pollutants before consumption and identifying its source of origin so as to facilitate government bodies for strict regulation and remedial actions. — TNS

CHANDIGARH Tribune Wed, 25 April 2018 epaper.tribuneindia.com/c/281510

CSIR-CSIO in Media

किसानों का पैसा और समय दोनों बचेगा : डॉ. मनोज

किसानों के लिए पेस्टीसाइड को लेकर इनाए उपकरण के बारे में बताते वैज्ञान साइंटिस्ट डॉ मनोज कुमार ●जागरण

सीएसआइओ के वैज्ञानिक साइंटिस्ट डॉ मनोज ने किसानों के लिए ऐसा उपकरण बनाया है जिसकी मदद से फसलों में पेस्टीसाइड की उतनी ही मात्रा लगेगी जितनी कि जरूरत है। पौधे से बचाने के लिए इसका इस्तेमाल किया जाता है लेकिन पेस्टीसाइड फसलों में इस्तेमाल के लिए कोई प्रभावी तकनीक नहीं थी लेकिन इलेक्ट्रॉनिक स्प्रेटिंग स्प्रेयर से यह संभव है।

गृहिणी को तेल की गुणवत्ता 3 मिनट में पता चलेगी

अनुपमा शर्मा ने ऐसा उपकरण बनाया है जो कि तुरंत बता देगा कि खाने में इस्तेमाल तेल की गुणवत्ता कैसी है। तेल में इसका पता लगाने में करीब पौना घंटा लगता है लेकिन इसकी मदद से यह काम 3 मिनट में होगा।

तेल की गुणवत्ता मापने के उपकरण के बारे के साथ जानकारी देती साइंटिस्ट अनुपमा ●जागरण

चंडीगढ़ में भी भूकंप का पता लगेगा तुरंत

सीएसआइओ के डॉ सिद्धार्थ और डॉ त्रिपुत ने भूकंप डिटेक्टर उपकरण बनाया है जिसका इस्तेमाल दिल्ली मेट्रो प्रोजेक्ट में भी किया जा रहा है। पिछले महीने सोनीपत में आए भूकंप का पता इसी यंत्र से चला था। दिल्ली में 5 जगह इसको लगाया गया है। यह 3 से लेकर 6.5 रिएक्टर पैमाने वाले भूकंप को बता सकता है।

खीकत की लाइट आंखों में लगने से दुर्घटना नहीं होगी

रात को सामने से आ रहे खीकत की रोशनी आंखों में लगने से दुर्घटना होती है। साइंटिस्ट डॉ विनीत और डॉ एक सक्सेना ने एंटी ग्लेयर फिल्टर एटीजी) बनाया है जो रात को सामने से आ रहे खीकत की लाइट की रिफ्लेक्शन को करीब 70 एसेन्ट तक कम करेगी। एटीजी की टेस्ट में सडीगढ़-दिल्ली, पुणे-मुंबई, शिमला-चंडीगढ़ और पुणे-नासिक लखनऊ पर टेस्टिंग हो चुकी है।

Dainik Jagran, 15 July 2018

चंडीगढ़ केसरी

डा. पटेल को यूनियन मिनिस्टर ने किया सम्मानित

चंडीगढ़, 20 मई (पाल): सैंट्रल साइंटिफिक इंस्ट्रूमैंट्स ऑर्गनाइजेशन के साइंटिस्ट डा. मनोज कुमार पटेल को उनके इनोवेशन इलैक्ट्रोस्टैटिक स्प्रेयर्स ई. स्प्रे कंप्लीट कवरेज नामक डिवाइस बनाने के लिए सम्मानित किया गया है। डा. पटेल को एन.आर.डी.सी. नैशनल सोसाइटियल इनोवेशन अवॉर्ड 2017 से नवाजा गया है। यूनियन मिनिस्टर डा. हर्षवर्धन ने डा. पटेल को दिल्ली में यह सम्मान दिया। डिवाइस बनाने वाले डा. मनोज कुमार पटेल ने बताया कि वह इस प्रोजैक्ट पर काफी समय से काम कर रहे थे।

CHANDIGARH Tribune

National award for CSIO scientist

TRIBUNE NEWS SERVICE

CHANDIGARH, MAY 15

The NRDC National Societal Innovation Award-2017 has been conferred on Dr Manoj K Patel of the Central Scientific Instruments Organisation, Chandigarh, for his contribution to the development of the advanced electrostatic pesticides spraying technology for an efficient use of agrochemicals by farmers.

The technology helps in cutting down the amount of pesticides to be sprayed on crops by reducing the droplet size and ensuring even distribution of spray, thereby mitigating health hazards for humans as well as soil contamination.

Dr Patel is a project leader of various research ventures in the area of agriculture, environment and food.

Smart India hackathon finale inaugurated at CSIO

CHANDIGARH: The grand finale of 'Smart India Hackathon 2018' (SIH2018) was inaugurated at Central Scientific Instruments Organisation (CSIO), Chandigarh, on Monday. The event was organised with an aim to provide the young minds with an opportunity to showcase their talent by making use of hardware components to solve daunting problems such as waste management, clean water and smart communication. **HTC**

The Indian EXPRESS

Chandigarh Newsline

Vol XVI No. 173, SATURDAY, MAY 12, 2018

CSIO celebrates National Technology Day, gets new lab

EXPRESS NEWS SERVICE
CHANDIGARH, MAY 11

THE CENTRAL Scientific Instruments Organisation (CSIO) celebrated National Technology Day' on Friday by holding an 'open day' here. A 'National Technology Day Lecture' was also organised on the occasion.

"At the labs of CSIO were kept open for general public in the forenoon. Many visitors, including students from various schools, colleges, universities and general public were around the laboratories of the institute. They interacted with the scientists and were given exposure to the technologies, available and being pursued at CSIO," the CSIO said in a statement.

Former secretary, Ministry of Science and Technology, Dr T Ramasami, on the occasion inaugurated a new facility of 'Precision Optics Laboratory'.

"With this laboratory it will be possible to develop space-worthy integrated optics instruments for the armed forces and the strategic sector," the CSIO said in the statement.

Ramasami in a lecture said that the alternative models built on the three principles of societal relevance, long-term sustenance and collaboration are relevance are needs of the time. "Culture of development and deployment of technologies needs to take into account that more than 60 per cent of the world resides in low resource setting and that the current resource-intense models of R&D are failing to cover their needs (arising out of) technology-led development," he said.

Prof KK Saini, director, CSIO, on the occasion welcomed the chief guest and said that National Technology Day is celebrated in India on May 11 every year to mark the Indian technological advancement in order to commemorate the history of India's technological capability and expertise.

"On this particular day, India achieved a huge technological progression. The first, indigenous aircraft Hansa-3 was test flown from Bangalore; India performed successful testing of the Trishul missile on the same day and also executed three successful nuclear tests carried out at Pokhran, in Rajasthan," Sinha said.

During the National Technology Day celebrations at CSIO in Sector 30, Chandigarh, on Friday. Sone Imsic

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CHANDIGARH TIMES

CSIO celebrates National Tech Day

THE TIMES OF INDIA

CSIO develops tech for Tejas' air-to-air refuelling at night

TNN | Aug 20, 2018, 07:42 AM IST

CHANDIGARH: The Central Scientific Instruments Organisation (CSIO) laboratory has developed drogue illumination system for light combat aircraft Tejas, making India third in the world after the US and France to have this technology. This will enable airto-air refuelling, which is not possible during night/cloudy skies for fighter aircraft. The system is expected to be ready by year-end. Also, the indigenous lighting system will be one fifth of the cost available with offshore vendors and have greater illumination even than Rafael.

The Rs 2.51 crore project is funded by Aeronautical Development Agency, Bangalore. The illumination system is fitted outside the cockpit. Presently, the illumination system is undergoing rigorous certification tests by the 'Regional Centre for Military Airworthiness', an agency under the IAF.

ई वेस्ट प्रबंधन तकनीक को लेकर जानकारी देते डॉ. प्रवीण कौशिक ●जागरण

डॉ. कौशिक ने ई वेस्ट मैनेजमेंट की बेहतरीन तकनीक बनाई

डॉ प्रवीण कौशिक ने हर तरह के इलेक्ट्रॉनिक वेस्ट के निपटान के लिए तकनीक बनाई है जिसकी मदद से सारे वेस्ट को जिंक पाउडर, सीएफएल ट्यूब और खिलौने बनाने में इस्तेमाल किया जाएगा। रिसर्च पर करीब 2 लाख खर्च हुआ।

अब दिव्यांग भी पढ़ाई करेंगे

साइंटिस्ट रुबल और सिद्धार्थ ने रिसर्च से ऐसा उपकरण बनाया जो देख पाने में असमर्थ दिव्यांग को हर तरह के लिखित दस्तावेज हिंदी में पढ़कर सुनाएगा। दस्तावेज को उपकरण स्कैन करेगा। पहले इसको इमेज और फिर टेक्स्ट में बदलेगा और अंत में यह स्पीच में बदल जाएगा।

Dainik Jagran, 15 July 2018

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hindustantimes

htchandigarh

CSIR CSIO signs MoU for helicopter landing system

CHANDIGARH: The Council of Scientific and Industrial Research and Central Scientific Instruments Organisation (CSIR CSIO) has signed a memorandum of understanding with Elcome Integrated Systems Pvt. Ltd, Mumbai, for the development of compatible helicopter visual landing aid system on April 27. Besides, the CSIR-CSIO will develop night vision compatible lights to demarcate the deck boundary in ships.

HT Chandigarh; April 28, 2018

दैनिक भास्कर

30-Jul-2018
सूरत Page 16

मरीज के लिए तैयार करवाया टाइटेनियम मॉडल, वडोदरा में डॉक्टर ने किया सफल ऑपरेशन

विश्व में पहली बार सड़क हादसा पीड़ित को लगाया तालस हड्डी का 3डी मॉडल

किसे कहते हैं टैलस बोन?

इससे पहले कभी भी निर्धारित हुई सही में नहीं हुआ है थ्रीडी मॉडल का उपयोग

जापान-अमेरिका में टैलस बोन का थ्रीडी मॉडल बनाया गया है

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EOS collaborates with CSIO to maximize potential of additive manufacture for patient specific implants

Nandita Vijay, Bengaluru, Saturday, August 11, 2018, 08:00 Hrs [IST]

In a major effort to leverage the potential of additive manufacturing (AM) technology in the medical industry in India, EOS has collaborated with CSIO, the scientific and technological services arm of CSIR. EOS is the global technology leader for industrial 3D printing of metals and polymers.

Through metal additive manufacturing, EOS is helping to create patient specific implants (PSI) for using the EOS M 290 AM technology. The Chandigarh-based CSIO facility can help patients who have undergone any physical disfiguration. Using the EOS's industrial printer, the EOS M 290, orthopedic surgeons will be able to change their lives with these custom implants.

CSIR-CSIO: Scaling New Heights in Instrumentation

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