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IIT Madras, Chennai.

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International Journal of Pharma and Bio Sciences
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ABSTRACT-1

Influence of Music on Post-operative Pain in Cardiac Surgery Patients

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Stress can be reduced by either removing the source of the stress or by mediating its effect through supportive interventions. Pain and anxiety are two common stressors in cardiovascular conditions. The objective of this study was to analyze the influence of music on post-operative pain in cardiac surgery patients. Thirty-six patients undergone cardiac surgery were randomly divided into three groups, each containing twelve patients. Post-operative patients in Group A (control) received no music, Group B listened to instrumental music and those in Group C listened to patients choice of music from one of the three styles (devotional, classical and old Hindi film songs). The Hamilton Anxiety Rating Scale (HAM-A), Visual Analogue Scale (VAS) and physiological measures (respiratory rate, heart rate and mean arterial pressure) were evaluated before and after music intervention. Post-therapy HAM-A scores were significantly ($p < 0.05$)lower in Group B and Group C. Level of respiratory rate was significantly ($p < 0.050$)reduced in Group C and Group B. Heart rate does not change significantly after post-operative music therapy in all three Groups. Mean arterial pressure values were significantly reduced in Group B and Group C.Post-operative pain level was also reduced significantly in Group B and Group C. The post-operative music therapy improves the stress response in cardiac surgery patients. Music intervention improved the physiological parameters significantly as compared to control group. However, the heart rate does not show any significant difference over control. Thus in this randomized control trial music intervention was effective in decreasing anxiety and pain in cardiac surgery patients.

Keywords: Music therapy, Stress response, Physiological measures, Cardiac surgery.

International Journal of Pharma and Bio Sciences
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ABSTRACT-2

A Communication Tool for Physically Disabled Based on Mechanomyogram

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Communication with others is the most important need that we perform in our everyday life. When people become disabled as a result of a road traffic accident, stroke or another condition, they may often lose their ability to control their environment and communicate with others by conventional means. This work focuses on how to help the persons who has lost their speech (aphasia) and locomotion abilities (paralysis). Most paralyses caused by nervous-system damage are constant in nature. Often people who are disabled will still be capable of making flickers of movements e.g. with a finger or a toe. From these movements, MMG signals are picked up by using an accelerometer or a capacitive pressure sensor. MMG can provide information about alterations in motor unit activity and the mechanical properties of the contracting muscle during and after low-force fatiguing contractions. The sensors must be placed in appropriate muscular sights to pick up the MMG signals. The sensing bands are kept stable on the subject's leg or hand during the procedure. This MMG signal is processed then read into the computer through RS232 and the data is given to the VISUAL BASIC. Using Graphical User Interface in the VISUAL BASIC, the basic needs of the patients such as water, food, and dressing are displayed.

Keywords: Disabled people, Sensor, MMG, Visual Basic.

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-3

Comparative study of PHBV Scaffold and PHBV coated Magnesium Alloy AZ-31 by Electrospining

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Biodegradable polymers have been widely used for scaffolds in tissue engineering which aims to form completely natural tissues without leaving permanently synthetic element(s) in the human body. Poly (hydroxybutyrate-co-hydroxyvalerate) (PHBV) is a natural and biocompatible biodegradable polymer suitable for tissue engineering applications. The Magnesium Alloys have higher mechanical properties and polymer coated alloys can be used as implant materials with decreased degradation rate. In this present study, poly (3-hydroxybutyric acid-co-3-hydrovaleric acid) having 12% hydroxyvaleric acid content by weight was used to make scaffold and was compared with annealed AZ-31 magnesium alloy metal coated with PHBV polymer using electro spinning such that the PHBV fibres covered the entire metal (AZ-31 magnesium alloy plate) after electro-spinning process. The coated metal samples and the scaffold were characterised to be FE-SEM, XRD and FTIR and the results showed coating over the metal (AZ-31 magnesium alloy plate) has been effective. The behaviour of the scaffold and coated metal samples were investigated through the potentiodynamic polarization studies in simulated body fluid (Hanks' solution) and the coated metal samples exhibited better corrosion resistance compared with plain metal.

Keywords: Mg alloy (AZ-31), electro-spinning, nanofibers, PHBV scaffold

International Journal of Pharma and Bio Sciences
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ABSTRACT-4

A novel approach in balance recovery to maintain stability and prevent falls in the geriatric population

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The main aim of this project to require the balance lost by moving either of the legs to the position where the subject is stable. The design of balancing insole to rectify the problems for elderly people. Balancing insole is nothing but back to balance. Balancing insole should be worn on both the legs, so that, the unstable leg, depending on the fall condition, is brought back to the normal position. An accelerometer is used to detect the imbalance position, which is fed input to the microcontroller. The microcontroller is programmed in such a way that it runs the DC motor, which rotates the motion devices that are fixed to it, to retain the balance. Thus the motion devices finally move the leg to which the corresponding Insole is worn providing stability to the subject, hence overcoming the fall.

Keywords: Accelerometer, DC motor, Geriatric fall, Balance recovery

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-5

Design and control strategy of the Reciprocating gait orthosis in above knee amputees

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An amputation is the removal of part of the body, such as an arm or leg by trauma or surgery. This type of amputee is caused by loss of blood supply to the body's tissue. Over 185,000 amputation surgeries were performed each year in the United States. In that 90% caused due to vascular disease especially in people with diabetes. Many exoskeleton, wheelchairs, crutches, bionic legs were introduced for leg amputees for their mobility and daily activities. Our work is mainly focused on the single leg amputees. To design a system that could mimic the normal leg function this makes the amputee to achieve normal gait. This process is achieved by considering a 13cm above knee amputee placing a sensor in his normal leg and through wireless module the detected data's is sent to the amputee leg and through controller the calibrated data's will sent to the motor which will achieve their normal gait cycle.

Keywords: 13cm above knee amputee, RGO, Sensor, Zigbee transceiver.

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-6

Design and development of an automatic bed to assuage snoring and sleep apnea

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Snoring is the affliction caused by the relaxing of the muscles located around the upper respiratory tract. The collapsed tissues reduce the cross-sectional area available for the air to flow during breathing. The relaxed tissues start to vibrate from the increased airflow speed, producing the low-frequency sound that characterizes snoring. Obstructive Sleep Apnea (OSA) is provoked by the relaxing of the same muscles, but it is a more disruptive and dangerous condition. OSA can cause the interruption of breathing for minutes, significantly reducing the restfulness of sleep. In extreme cases, OSA can even cause death. The main goal of this project is to design a prototype of an adjustable bed-frame which gently encourages the patient sleeping in the supine position to turn 90◦ to one or the other lateral positions, if he is snoring or having an OSA event. This will reduce the tendency of the throat muscles to collapse, thus preventing any obstruction of the airway. This physical encouragement should be gentle and discreet so as not to wake the patient up, or at least make it easy to fall asleep afterwards.

Keywords: Snoring, Obstructive sleep apnea, adjustable bed frame, respiratory tract

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-7

Design and Development of a robotic system to translocate patients from bed to wheelchairs

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Almost 4% of every 2.5 million elder people are bedridden. It is stated that 54 % of manual labors were need to taken care of bedridden patients through out the world. The exciting systems available for shifting bedridden patients is not effective. Without manual helpers there is no excisting system available for shifting bedridden patients. This design focuses on the action performed by the robotic system which will helps the patient to lift their body weights from their sitting position through a simple control like a joystick or swicthes. This process is achieved by the help of the pneumatic cylinders which is controlled by the air flows from the air compressor through the solenoid valves. The pneumatic cylinders can be operated in both ways to pull the patients in forward direction from bed to the robotic system and pull the patients in backward direction to reach the wheel chair with the help of switches.

Keywords: Bedridden, Translocate, Robotic system, Pneumatic cylinders

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-8

Heating-Gloves and Socks for the Treatment of Surgical Hypothermia in Theatre Conditions

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The thermoregulation of a surgical patient's body is impaired under anesthesia, leading to an accelerated heat loss to the environment, thereby, causing surgical hypothermia. It is a condition wherein the core body temperature falls below 95ºF and hinders the wound healing process of the surgical site, leading to cardiac and cerebral dysfunctions. When the patient starts developing mild hypothermia, his hands and feet are manually rubbed to keep them warm, but this is tedious and may not be very effective. Therefore, heating gloves and socks which produce a small amount of heat to the patient's hands and feet, respectively, have been developed to keep them warm during the surgery. The gloves and socks have temperature sensors embedded in them to measure the core body temperature. Based on the temperature measured, a heating element connected to a voltage regulator based heating circuit is used to produce a controlled amount of heat to keep the hands and feet of the patient, warm.

Keywords: hypothermia; heating-gloves; heating-socks; temperature sensor

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-9

Syndrome Examine Methodology With Scaled and Fragmentation Psoriasis Skin Image

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Skin disease affect around 3% of the population worldwide. They tend to be itchy and spread over the body easily. Among them, Psoriasis is a common chronic, inflammatory skin disease characterized by scaly patches. It causes severe skin inflammation and the treatment for such cases are determined based on the severity evaluated by Psoriasis Area Severity Index (PASI) scoring system. Currently, these scores are estimated visually and hence suffers from inter and intra-observer difference. This severely affects the way, the disease is treated. Our proposed system focuses on segmentation and scaling of 2D digital images of Psoriasis. This computer assisted system removes erythematic from the selected psoriasis image and considers other skills cells for analysis and treatment. The "Feature Space Scaling Algorithm" uses color, contrast and image texture along with a combination of SVM classification filters and Markov random fields to come up with a treatment solution. The algorithm is tested with different skins under different lighting condition and is proved to be reliable.

Keywords: Feature Extraction, Image Segmentation, Markov Random Field (MRF), Psoriasis, Support Vector Machine (SVM).

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-10

Elephant's stress detection from urine

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The main objective of the project is to provide the help of peoples from elephant's attack. This is a portable electronic device for measuring the stress of elephant's from urine. For this study urine collected from 15 elephants and tested Stress sensor is equipment for the analyses of biological reaction. It is a reader device and user friendly associated with electronics and signal processing units. One common example of a Stress sensor is like a glucometer.

Keywords: Urine, stress sensor, LED.

ABSTRACT-11

Sensor network for health parameters wireless received from elephant

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Recent all technologies are including in various types of sensor networks these sensor networks are affected in all area of human life for personal health care unit. But I am introducing a sensor network system for health parameters wireless received from elephant. Pulse, temperature, humidity, pressured. All parameters sent remotely located decision makers (elephant doctors).

Keywords: Pic, Anode, LED

International Journal of Pharma and Bio Sciences
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ABSTRACT-12

A Study on application of wearable printed antenna in MBAN

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Today ‘s one of most challenging field in bio medical engineering is medical body area network (MBAN).In this network printed antenna with less radiation effect on human body and with better performance in transmission becomes important parameter in antenna design .This paper presents different types of printed antenna on different materials for use in medical body area network. In such a case the micro strip patch antennas, micro strip monopoles, reflector patch radiator, etc are discussed with their advantages and its limits based on input reflection coefficient and maximum realized gain. Also the low cost Inkjet-Printed antennas, antenna on textile for wearable is discussed. The application of electromagnetic band gap structure (EBG) in reduction of body specific absorption ratio (SAR) in wearable printed antenna is discussed.

Keywords: SAR- specific absorption ratio, EBG -Electromagnetic band gap structure, MBAN-Medical body area network

ABSTRACT-13

A novel method for heart rate monitoring

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This paper describes about a device that senses a heart rate from the finger tip using IR reflection method and displayed in a monitor. The technique used here is called photoplethysmography. That is used to estimate volumetric measurement of an organ. When the heart expands volume of blood inside the finger tip increases and when the heart contracts the volume of blood inside the finger tip decreases. Resultant pulsing of blood volume is directly proportional to the heart rate. For this IR transmitter /receiver pair is placed in close contact to the finger tip. The pulsating reflection in the receiver is converted into a suitable current or voltage by the sensor. The sensor output is processed by suitable electronic circuit to obtain a visible indication.

Keywords: Non-Invasive, Volumetric Measurement, IR Module

International Journal of Pharma and Bio Sciences
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ABSTRACT-14

Application of peptide molecules in Atherosclerosis

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This is a hypothetical paper presented to bring forth the Nanobiotechnological treatment for acute myocardial infarction - a leading cause of death for both men and women all over the world. Acute myocardial infarction (AMI or MI), commonly known as a heart attack, is a disease that occurs when the blood supply to a part of the heart is interrupted, causing death of heart tissue. The most common cause of heart attack is atherosclerosis, a gradual buildup of cholesterol and fibrous tissue in plaques in the arterial wall, typically over decades. The paper reveals a treatment method that involves a system that transports the pharmaceutical substances to its target in a goal-directed manner. The pharmaceutical substance being a synthetic polymer derived from a class of biomaterial that exhibits receptor dependent lipase activity. The Nanoparticles as carriers for active ingredients are supposed to help guide the pharmaceutical substance and release them at the desired pharmaceutical target i.e., Atheromatous plaque is a buildup of fatty deposits within the wall of a blood vessels of the heart, with the goal of increasing therapeutic effectiveness and to improve substance tolerability. The potential of such molecules with lipase like activity is being used in the treatment against the lipid or cholesterol accumulation. The product of degradation is being returned to normal metabolic activity in the blood.

Keywords: Atherosclerosis, Nanobiotechnology, Biomaterial.

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-15

Detection of tumor using texture feature and Grow-cut method

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This paper proposes an automatic support system for stage classification using probabilistic neural network based on the detection of cancer region through thresholding method for medical application. The detection of the breast cancer is a challenging problem, due to the varying structure of the cancer cells. This project presents a segmentation method, wavelet based threshold method, for segmentation of the mammographic images to detect the Breast cancer in its early stages. The artificial neural network will be used to classify the stage of image that is abnormal or normal. The manual analysis of this samples are time consuming, less accurate and also requires intensive trained person to avoid diagnostic errors. The results of segmentation will be used as a base for a Computer Aided Diagnosis system for early detection of cancer from mammographic images which will improves the chances of survival for the patient. The experimental result shows that the threshold based segmentation results are more accurate and reliable than other methods in all cases. Discrete wavelet transform technique is used for extracting texture features and it decomposed the image into four levels for getting the edge details in horizontal and vertical direction. The co-occurrence matrix will be determined for these two high frequency sub bands for finding the texture features.

Keywords: Tumor, Segmentation, Texture feature, Matrix.

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-16

Design of Medical Expert System for Clinical Diagnosis

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This paper is the combination of Hospital Management System (HMS), Hospital Information System (HIS), Medical Information System (MIS) and Fuzzy Expert System (FES). The information about the patients admitted in the hospital is maintained manually, and such information is not always easily accessible. There is growing realization that the more widespread use of information technology to increase efficiency and enable changes in health care delivery processes could do much to improve the performance of the health care system, within the bounds of appropriate measures to protect the confidentiality of private health information. Hence the obvious choice of hospital authorities is to have a computer based hospital system which includes all the elements that facilitate the capture, storage, processing, communication, security, and presentation of computer-based patient information and other medical and hospital data. The integrated computerization of all the functions carried out in a hospital right from employee and physical management (HMS), patient administration (HIS), medical data manipulation (MIS) and medical report generation (FES), with the help of effective Graphical User Interface (GUI), Dynamic Database Manipulation and Fuzzy Expert System is proposed.

Keywords: Health information system, fuzzy system, authentication, expert system.

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-17

Recent advancement in wound healing process

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Wound healing is a process where the skin repairs itself after injury involving various complex factors. In normal skin the epidermis and dermis exist in equilibrium and forms a protective carrier agent. The most commonly used topical and microbial medications for the treatment of burn wound infection are Mafenide, acetate solution, silver sulfadiazine solution, silver nitrate solution, and silver-impregnated dressings. These various therapies differ in their ability to penetrate the skin layers and advance wound healing process .Its also important to consider the potential for recovery of antimicrobial resistant bacteria among patients with prolonged stays in the hospital. In initial stages antimicrobial therapy is used to treat multidrug-resistant infections which can result in higher mortality if fungus is detected on histopathology. The culture samples are used to detect the infecting species. Systemic and local antibiotics have limited effect in improving the morbidity and healing rate. In advanced stages of infection it should be used in combination with adequate surgical care. The physical and occupational therapy of extremity injuries are necessary to prevent long-term morbidity also.

Keywords: protective carrier, impropriated dressing, burn patients, microbial medications, histopathology

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-18

Green Synthesis and Characterization of Silver/Herbal/Polyethylene Glycol Nanomaterial

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Nanoscale materials are ranging from 1 to 100 nm,Nano materials often have a significant difference in physico-chemicaland biological properties to their macro scale counterpart in spite of the similar chemical compositionsthey possess.Silver nanoparticles (Ag NPs) have emerged as one of the most intensively studied material in the fieldof nanotechnology due to their well-known effectiveness in biomedical application. Many methods have been established in preparing metal nanoparticles, suchas chemical reduction, electrochemical, irradiation and thermal decomposition, as well as the greensynthesis method. The green synthesis is a concept that is introduced to define the method used in synthesis,which is favored over solvent medium. This is because it is environmentally friendly and contains areducing agent that is benign to the environment.This paper presents the green synthesis of silver nanoparticles (Ag NPs) inaqueous medium. It was performed by reducing AgNO3 in different concentration of herbal extract and polyethylene glycol (PEG) at a moderate temperature. In this method, silver nitrate (AgNO3) was used as the silver precursor while Herbal extracts and PEG were used as the solid support and polymeric stabilizer. The properties of Ag/Herbal extracts/PEG were studied under different stirring times of reaction. The developed Ag/Extract /PEG NCs were then characterized by the ultraviolet-visible (UV-Vis) spectroscopy; X-ray diffraction (XRD), Scanning electron microscopy (SEM),Energy Dispersive X-ray analysis (EDAX) and Fourier transform infrared(FTIR) spectroscopy.

Keywords: silver nanoparticles; polyethylene glycol; green chemistry, SEM, FTIR, XRD, UV-Spectroscopy.

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-19

Development of Internal Transcribed Spacer (ITS) – DNA bar coding for *Solanum* Species

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With a great demand for the traditional herbal medicines, we need to ensure and maintain the authenticity of the various botanical entities used as raw material. However, there are some limitations with the conventional quality assurance tools which lead to critical identification of raw materials derived from closely related species, substitutes or adulterants. Different species of the same genus might have totally different or weaker pharmacological action as compared with the authentic counterpart of the selected plant. The present investigation is carried for the development of Internal Transcribed Spacer (ITS) based DNA bar coding for *Solanum* species. The Internal Transcribed Spacer 2 (ITS 2) region which is a nuclear ribosomal DNA is the important candidate for DNA barcodes due to its valuable characteristics such as its availability, the ease of its amplification and its diverse nature to distinguish even closely related species. In the current study, three sample plants which were morphologically claimed as *Solanum xanthocarpum* species were collected from different location (Tiruvannamalai, Vellore and Kanchipuram district). DNA was isolated and ITS region (ITS2) was amplified using the primer sequence (Forward Primer GGAAAGCGCCAAGGAATACT and Reverse Primer CGCGACACAAAGAGAGTTGA).The resultant amplified product of partial sequence (ITS2 region 345bp) was sequenced and analyzed by MEGA BLAST analysis. From the ITS2 barcoding and MEGA BLAST analysis it was identified as *Solanum capense* instead of *Solanum xanthocarpum.* This will help to identify the plant species for the standard authentication of medicinal plants.

Keywords: ITS- Internal transcribed region, Authentication, *Solanum capense*

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-20

Converting Biomechanical Energy into Electricity by a Muscle-Movement-Driven Nanogenerator

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A living species has numerous sources of mechanical energy, such as muscle stretching, arm/leg swings, walking/running, heart beats, and blood flow. We demonstrate a piezoelectric nanowire based nanogenerator that converts biomechanical energy, such as the movement of a human finger and the body motion of a live hamster (Campbell's dwarf), into electricity. A single wire generator (SWG) consists of a flexible substrate with a ZnO nanowire affixed laterally at its two ends on the substrate surface. Muscle stretching results in the back and forth stretching of the substrate and the nanowire. The piezoelectric potential created inside the wire leads to the flow of electrons in the external circuit. The output voltage has been increased by integrating multiple SWGs. A series connection of four SWGs produced an output voltage of up to 0.1−0.15 V. The success of energy harvesting from a tapping finger and a running hamster reveals the potential of using the nanogenerators for scavenging low-frequency energy from regular and irregular biomotion.

Keywords: Nanogenerator, Nanowire, SWG

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-21

Xanthine oxidase inhibitory activity of Hydro-Ethanolic extracts of Indian plants

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The search for novel xanthine oxidase (XO) inhibitors using an optimized protocol we have screened the Hydro - Ethanolic extracts of 15 medicinal plants belonging 10 families, regardless of their claimed ethanopharmacological and /or food uses . The Super oxide, Nitric oxide, hydrogen peroxide radical scavenging activity and Total antioxidant activity of these extracts were investigated employing various established *in vitro* systems. Total phenolic and flavanoid content were also determined. The Xanthine oxidase enzyme inhibitory and the antioxidant activity of Hydro -Ethanolic plant extract were found to be in the following order, *Trigonella foenum* > *Nigella sativa* > *Piper longum*> *Brassica juncea* > *Piper nigrum* > *Cuminum cyminum* > *Cinnamomum zeylanicum* > *Zingiber officinale* > *Foeniculum vulgare* > *Cinnamomum tamala* > *Coriandrum sativum* > *Murraya koenigii* > *Syzygium aromaticum* > *Elettaria cardamomum* >*Prunus amygdalus*. Among them the extracts such as *Trigonella foenum* , *Nigella sativa* , *Piper longum*, *Brassica juncea* , *Piper nigrum* and *Cuminum cyminum* showed above 80% inhibition of Xanthine oxidase. The quantitative estimation of these plant extracts revealed the considerable amount of phenols and flavanoids which may be attributed for its antioxidant activity through the inhibition of Xanthine oxidase enzyme. The study showed that many of the tested plant species are potential sources of natural XO inhibitors that can be developed, upon further investigation, into successful herbal drugs for treatment of gout and other XO-related disorders.

Keywords: Free radical scavenging, Total antioxidant, Xanthine oxidase

International Journal of Pharma and Bio Sciences
ISSN 0975 - 6299

ABSTRACT-22

Sintered PLGA Scaffolds for Bone Regeneration

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In this work, multidimensional poly (lactic-co-glycolic) acid (PLGA) scaffolds were prepared for tissue engineering applications. PLGA microspheres were prepared using single emulsion solvent evaporation method and then PLGA scaffolds were fabricated via microsphere sintering technique. The morphology of samples prepared at different polymer concentrations and different stirring speeds were observed under the Scanning Electron Microscope (SEM). The microspheres in all trials showed a smooth morphology. No pores could be detected on the surface of the spheres. The effect of sintering temperature and sintering time on the PLGA scaffolds of different size range shows that an increase in sintering temperature and sintering time resulted in better merging of individual spheres with neighbouring spheres with decrease in interconnected pores. The influence of sintering temperature and sintering time on the PLGA scaffolds shows an increase in compressive modulus with respect to increase in the sintering temperature and time. The compressive modulus and compressive strength of the PLGA scaffolds are in the range of trabecular bone making them suitable as scaffolds for load-bearing bone tissue engineering.

Keywords: Poly (lactic-co-glycolic) acid, Sintering, Compressive modulus, Compressive strength

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ABSTRACT-23

Polymeric Scaffolds for Tissue Engineering Applications

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A three-dimensional scaffold (3-D) is one of the most important components for tissue engineering strategy. Scaffold based tissue engineering approach has become important for tissue repair and regeneration. It is based on the use of polymeric scaffolds for mechanical support, structural integrity, tissue guidance and cell-material interactions such as cell attachment, differentiation and proliferation. Scaffold design is an important criteria which determines its structure, porosity and interface with cells and the surrounding materials. . Scaffolds provide 3-D framework for organisation of developing tissue as well as provide mechanical stability to support the growing tissues. Moreover these mechanical properties of scaffolds were determined by the choice of polymer and fabrication techniques. Many techniques have been used for scaffold fabrication such as solvent casting and particulate leaching (SCPL), thermally induced phase separation (TIPS), microsphere sintering, electrospinning and hydrogel. The choice of polymer plays an important role in degradation of scaffolds. The scaffolds degradation rate should be adjusted to match the rate of tissue regeneration, so that it has disappeared completely once the tissue is repaired.

Keywords: Three-dimensional scaffold, tissue repair, regeneration, polymeric scaffold

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ABSTRACT-24

Antibiotic Coated - Surface Modified Implants for Antibacterial Activity

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Despite of sterilization and aseptic procedures, bacterial infections remain a major limitation in the utility of medical implants. Antibiotic-loaded implant coatings present a straight forward approach for the prevention of implant-associated infections. They provide an immediate response to the threat of implant contamination without any additional carrier for the antibacterial agent, other than the orthopaedic implant itself. The utilization of a bioactive ceramic coating containing hydroxyapatite (HA), calcium phosphate and other osteoconductive materials as antibiotic carriers offers the added value of providing the physiochemical environment and structural scaffold required for bone-implant integration. The main objective of this study is to create antibiotic loaded implants, which releases antibiotics and thereby prevent the formation of biofilms and thus increasing the treatment efficiency. The polymer -drug solution was prepared using calcium hydroxyapatite and ofloxacin in the ratio of 5:1 respectively. Stainless steel plates were coated with this solution by dip coating method. Then sodium formate was spray coated over the polymer coating. Coated plates with uniform thickness of 9µm were obtained. In bacterial strains such as Staphylococcus *aureus*, Clostridium *sporogens*, Pseudomonas *aeruginosa*, the zone of inhibition was noticed. Antibiotic coated plate's offers a new perspective for treating implant related infections and also overcoming formation of biofilms.

Keywords: calcium hydroxyapatite, biofilms, ofloxacin, antibiotic loaded implants.

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ABSTRACT-25

Synthesis and Applications of Iron Oxide Nano Particles

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Iron oxide nanoparticles with appropriate surface chemistry exhibit interesting properties that can be exploited in a variety of biomedical applications such as tissue repair, hyperthermia, targeted drug delivery, magnetic resonance imaging contrast enhancement and in cell separation. This review focuses on the recent development and various strategies in preparation, surface functionalization and magnetic properties of iron oxide nanoparticles and their corresponding application briefly. In order to implement the various biomedical applications, the particles should have properties such as high magnetic saturation, stability, biocompatibility and interactive functional moieties at the surface. Moreover, the surface of iron oxide nanoparticles could be modified by coating organic materials or inorganic materials such as polymers, silica, bio molecules etc. The major challenges in synthesis and surface functionalization of iron oxide nanoparticles are considered.

Keywords: Iron oxide Nanoparticles, MRI, Hyperthermia, Drug delivery, Magnetic saturation.

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ABSTRACT-26

Potential role of polymeric nanoparticles in brain drug delivery

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Blood Brain Barrier is the protective layer of brain which restricts the transport of various substances that circulate in blood stream. BBB is the major obstacle in the delivery of potential drugs such as antineoplatic agents, CNS active drugs, neuropeptides and antibiotics across the brain. Due to insufficient bioavailability of drugs, therapeutic efficiency to treat brain disorders is diminished. One of the possible ways to overcome this barrier in brain drug delivery is by using nanocarriers. In current strategies, polymeric nanoparticles provide a significant advantage as potential drug delivery system due to its biocompatibility, biodegradability and it targeting ability. Moreover it provides clinical benefits such as reduced drug dosage and side effects. Coating the nanoparticle with polysorbate 80 enhances the drug transport to brain. Mechanism of nanoparticle transport across brain is via receptor mediated endocytosis. Protein ligands such as transferrin, apolipoprotein possess high selectivity and affinity for receptors and therefore widely used for targeting the brain. This review provides the recent advancements in various strategies of brain drug delivery systems.

Keywords: Blood brain barrier, polymeric nanoparticle, polysorbate 80, transferrin, apolipoprotein

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ABSTRACT-27

Role of SPIONS in cancer therapy

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Super paramagnetic iron oxide nanoparticles (SPION) have great potential in biological applications due to their unique magnetic properties (super paramagnetism, High magnetic susceptibility, low curie temperature) and non-toxicity. It is clinically used as contrast enhancing agent in magnetic resonance imaging (MRI). An indebted property of SPION is their ability to generate heat when subjected to an alternating magnetic field. Magnetic alternating current hyperthermia (MACH) is a method of treating cancer by preferentially heating the tumor to a temperature of about 42 to 48 $^{\circ}$C to induce cell stress or apoptosis. However, delivery of sufficient heat to damage tumors without harming healthy tissue remains challenging. SPIONS can be coated with biocompatible materials to avoid the action of reticuloendothelial system (RES) and thereby increasing their half life in circulation. Further surface modification such as attachment of functional ligands and drug molecules is possible. The main advantage of SPION is that they can be visualized, targeted to particular site and can be heated in magnetic field to produce drug release or ablation of tissues.

Keywords: SPIONS, contrast enhancing agent, MACH, cancer

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ABSTRACT-28

Benificial role of Cissus quadrangularis in medical field

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Cissus quadrangularis is a medicinal plant of India. The use of this plant are followed from olden days in the treatment of wound healing of fractured bones. The stem of Cissus quadrangularis is also mentioned in Ayurveda as antihelmintic, antiulcerative, analgesic in eye and ear diseases and in the treatment of irregular menstruation and asthma, It mainly play an effective role in proliferation of osteoblasts. Acetone and dichloromethane extract of the plant possess proteolytic activity against cysteine protease .It improves digestion and helps in Obesity. Cissus quadrangularis contains high amount of ascorbic acid ,hence can acts as antioxidants.It also contain carotene A, anabolic steroidal substances and calcium. These anabolic steroidal principles from Cissus quadrangularis showed to increase the rate of fracture- healing by influencing early regeneration of all connective tissues of mesenchymal origin, namely the fibroblasts, the chondroblasts and osteoblasts involved in the healing and quicker mineralization of the bones. It has greater impact on osteoblastic proliferation than other cellular responses.It is mainly used for treatment and management of osteoporosis ,rheumatoid arthritis and other related disorders such as bone loss, bone fracture, osteoarthritis,osteogenesis . Cissus quadrangularis is very high in Vitamin C and helps to reduce inflammation and acts as antiinflamatory agent . Inflammation can cause pain, swelling and numerous other health problems.It can also used in obesity and helps in the treatment of Type-2 Diabetus.

Key Words: Osteoblast, Mineralisation, Chondroblast**,** Regeneration.

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ABSTRACT-29

Different types of cancer therapy

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Cancer is a disease caused by an uncontrolled division of abnormal cells in the part of body and made up of trillions of cells. Old cells die automatically and new cells take path. Cancerous tumors are malignant which can easily spread into or invade, nearby tissue, where benign tumors do not spread. Chemotherapy is the use of medicines or drugs to treat cancer. The combination of drugs used in chemotherapy are MIC, M – mitomycin, I – itostamide, C – cisplatin. And CHOP C – cyclophosphomide, H – doxorubicin, O – vincristine, P prednisolone etc. Radiation therapy uses high energy particles or waves to destroy or damage cancer cells. medical linear accelerator is used to deliver radiotherapy treatments. Targeted therapy is a new type of cancer treatment which uses drugs or other substances to more precisely identify and attack cancer cells, usually doing little damage to normal cells. Immunotherapy is a treatment that uses body's own immune system that helps to fight cancer. Stem cell, peripheral blood, bone marrow and cord blood transplants are possible recently. Photodynamic therapy or PDT is a treatment that uses special drugs called photosensitizing agent along with light to kill cancer cells. Laser are powerful, precise beams of light, can be used instead of blades for very careful surgical work, including treating some cancers.

Keywords: Uncontrolled division, drugs, high energy particles and photosensitive agent.

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ABSTRACT-30

MEMS based assistance for physically challenged people using Zigbee – technologies

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MEMS (Micro Electro Mechanical System) are systems which are similar to conventional electromechanical systems but are built in the size of a few microns. They can perform the functions of electromechanical systems like motion or acceleration detection. The added advantage with MEMS is that the size of such systems is very compact and hence can be used for a lot of applications . The system is built which will enable them to control the most frequently required things which could be devices like the lighting in the room or other electrical devices. Also, a voice processor is used in which programmed voice response can be stored. The responses from the fingers of the person can be used to play any of these pre programmed voice response. It could also able to control a wheel chair using just a few fingers. Multiple fingers can be used for such distinct response from which many devices can be controlled. Further, if the person can control the intensity of tapping, the different intensities can be used to control many more devices. This helps the physically challenged person greatly, since he will be restricted to a confined place. Additionally, the voice processor helps in storing the programmed voice response. It can also record and playback the voice.The ZIGBEE trans-receiver is a single-chip wireless transmitting device that can send and receive signals without using wires. It is dependent on the surrounding environment to a certain extent. It has a transmitting range up to about 75 meters.Thus, the physically challenged person is well equipped to lead a life, being less dependent on other people.

Keywords : Voice processor, Zigbee, MEMS, intensities.

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ABSTRACT-31

Stroke rehabilitation through physiotherapy- a review

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Most of the members of the therapeutic team in stroke rehabilitation use physiotherapy as an effective treatment for stroke. Hence it does imply that stroke patients benefit from rehabilitation with physiotherapy. This benefit may be small, but for a given individual, chance of relief from the stroke is high. The evidences are available today about effect of physiotherapy in treating stroke using which the normal life of the stroke's patience is brought back, even though many treatments exist for stroke. Physiotherapy is the most effective one. Like other treatments it does not need any clinical trials. Since we are in need of selecting therapies that are most cost-effective and also to be given to the largest number of patients this physiotherapy satisfies both the needs.

Keywords: Physiotherapy, Exercises, Stroke

ABSTRACT-32

Neurological assessment device for brain trauma

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Neurological assessment is one of the important medical advancement technique which can be brought to hourly assess for the traumatic patient. The physical assessment for several clinical indications that can influence patient's care and medical management hourly neurologic assessment for traumatic brain injury (TBI) in the critical care setting are common practice but prolonged use may actually be harming patients through sleep deprivation. The Glasgow scale (GCS), length of stay (LOS) and disposition are the things to be analysed for the patient. This is an unpainful process that helps to cure the traumatic brain injured patients. This may reduce the death factors in traumatic patients. The advancement in this is the hourly automated assessment of the neural function and thus immediate results may be obtained.

Keywords: Hourly neurologic assessment, Traumatic brain, sleep deprivation

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ABSTRACT-33

Recent advancements in ECMO

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ECMO is also known as Extra Corporeal Membrane Oxygenation. ECMO is the use of a modified extracorporeal circuit to provide temporary mechanical support (respiratory and/or cardiac) to patients failing conventional intensive therapy. ECMO has brought the technology of cardiopulmonary bypass to bedside under the management of Perfusionist and intensive care physicians. It is used when both Circulatory and respiratory support needed patient. It is mainly might need to Adult Respiratory Distress syndrome, Post Cardiac Surgery & Bridge to Transplant. It is operative by Occlusive Roller Pump & Constrained Vortex Pump. It is rotated by centrifugal motion method of Cardio Pulmonary Bypass flow rates at 150 ml/kg/min. The Co2 exchange depends on blood & gas. Basically it can be divide into two types Veno - Arterial ECMO & Veno -Venous ECMO. During ECMO the Ventilator setting should be minimised as per CPB Weaning Off.

Keywords: CPB, Transplant, Roller Pump, Veno- Arterial, Veno- Venous.

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ABSTRACT-34

Analysis the heart rate variability (HRV) using analyzer

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The heart rate analysis significant relationship between the autonomic nervous system and cardiovascular system, including cardiac death. Experimental evidence for an association between a propensity for lethal arrhythmias and signs of either increased sympathetic or reduced vagal activity has encouraged the development of quantitative markers of auto activity. Heart rate variability(HRV) represents of the most promising such markers. The easy derived formula of this measure has popularized its use. Recently many commercial analyzer devices and equipment now provide automated measurement of HRV, the cardiologist and physician has been provided with a seemingly simple tool for both research and clinical purpose. However, the meaning of the many different measures of HRV are more complex than generally appreciated and there is a potential for incorrect conclusions and analysis the Heart rate variability.

Keywords: HRV, analyzer tool, classifiers

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ABSTRACT-35

Sensing and transmission of biosignal using gsm module

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Heart disease& road accident is the most leading cause of death in India and also the leading cause of death in world-wide In this project various kinds of tools have been made to utilized to "PREVENT & REDUCE or AVOIDS" the disabilities as well as the death rate. ECG's basic function is used to sense the heart beat rate and transfer the signals to the control unit. Control unit analysis the bio-signals and it process the signals. If it is in abnormal condition, automatically it sends the information to concerned person and if it is in HIGHLY-ABNORMAL (ABOVE ABNORMAL-TACHYCARDIA, BELOW- ABNORMAL-BRADYCARDIA) condition, it sends the information to the concerned person through message & simultaneously call directly diverts to emergency care. While driving if the person gets Heart trouble or unconsciousness (Heart-patients), it affects the heart & it's bumping rate is slowly reduced and so that the body temperature will also be getting decreased gradually, as the result of the immunity loss happens & so that body condition becomes poor. To rectify the temperature loss, thermocouple is used to maintain the temperature at static level. GPS and recording system acts essential & divine role in this process. GPS is utilized to trace & isolates the place exactly where the person was in trouble through the signals. Ultimately Recording system plays important role which undergoes easy diagnosis as well as further progressions. All the components which mentioned above are implanted in to the leather jacket. In a nutshell first & final aim of this module to "PREVENT & SAVE" the people from their unexpected happenings**.**

Keywords: Real-time ECG monitoring system, Heart patients-telemetry, ECG-mobile sensing, Mobile sensing ECG, Wearable ECG

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ABSTRACT-36

Detection of neuro muscular changes while watching serial and television

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Stress is the main common factor in every human being. This problem is getting more serious as the percentage and amount of hours of television exposure among adults is increasing, especially with the growing production of more serial programs in India. Studies have found that television exposure to adults could effects their job and health, that causes behavior problems, attention disorder, aggression and obesity. This paper will discuss the issues of television exposure to adults, and the effects of promoting media literacy. We are going to measure the stress level of various subjects in different districts and states of India using EEG (Electro Encephalo graphy). The brain waves are taken from the subjects when they are watching serials,TV programs and also in normal condition. Brain waves are classified so that we could find the treatment for stress and serial addicts with the help of the psychiatrics.

Keywords: stress, serial addicts, EEG, psychiatrist.

ABSTRACT-37

Zigbee based Wireless Physiological Monitoring System using MATLAB

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Wireless physiological monitoring system (WPMS) and wireless wearable physiological monitoring system are widely used for the purpose of quick and remotely diagnosing method. From the last decade the usage of telemedicine system has increased moderately to reduce the physician requirement in the field of diagnosis. The currently available diagnostic methods are very expensive and rarely available in developing countries. The present experiment we have developed is to reduce the cost of the patient monitoring system and user friendly version of WPMS. To develop affordable low-cost wireless physiological monitoring system for patient diagnosis.

Keywords: WPMS, ECG, Zigbee, MATLAB

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ABSTRACT-38

Wireless system for health computing in hospitals

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In hospitals, where patient's body temperature needs to be constantly observed, is usually done by a doctor or other paramedical staff by constantly noting the temperature and maintaining a record of it. In this project, a wireless communication system is designed and developed for remote patient monitoring. The basic function of this system is to observe the temperature of a patient's body, and display the same to the doctor through RF communication. It is a very slow method. In this proposed system transmitting module continuously reads patient's body temperature through a digital temperature sensor, displays it on the LCD screen and sends it to the microcontroller which transmits the encoded serial data over the air by RF (radio frequency) through an RF module. At the receiving end, a receiver is used to receive the data, convert it and feed it to another microcontroller which is then displayed on an LCD screen. The receiver module is kept in the doctor's chamber to continuously display the patient's body temperature wirelessly. This project can be further amplified by sensing and displaying other vital statistics of a patient like blood pressure, pulse rate etc. Another feature can be added where a warning signal is generated if the parameters cross the safe limit.

Keywords: - Transmitting module, RF communication, Microcontroller

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ABSTRACT-39

Early diagnosis of cancer using nanoparticles

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Nanotechnology is a growing field of applied medical sciences, especially in the stream of cancer diagnosis at earliest stages. With the advancement of nanotechnology platform may provide to identify the neoplastic changes in the tissue level diagnosis on set of early detection of organ specific cancers. Conventional cancer diagnosis techniques provide information at tissue level and they have some limitations in detecting the cancer cells even at their early stages of occurrence. We synthesized the nanoparticles with fusion of suitable imaging agent for detecting the cellular signatures of cancer. The synthesized nanoparticles were characterized by UV Spectrometer, Fluorescent Microscopy and Scanning Electron Microscopy (SEM). We observed the nanoparticles have higher stability with respect to the size, morphology and plasmonic resonance and acted as an extreme sensing element along with an imaging agent. The developed nanoparticles acted in dual ways it act as a sensor and imaging agent. This study will help us to develop next generation cancer diagnosis as well as imaging process of cancer *in vivo.*

Keywords: Nanoparticles, Imaging agents, UV spectrum, Fluorescent microscopy, Cancer diagnosis

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ABSTRACT-40

Prosthetic control using electroencephalogram based brain computer interface

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An electroencephalogram (EEG) based Brain Computer Interface (BCI) measures the electrophysiological brain function that facilitate physically challenged individuals to communicate with the external environment. There are several investigators it has been reported that EEG based BCI can be used to control prosthetic devices. The existing EEG based prosthetic hand braces are quite expensive. Therefore in this study, we have developed indigenously a cost-effective and affordable prosthetic hand using EEG signal simulation. The advantages of our prosthetic hand may allow user to convert their thoughts to actions without involving any voluntary muscle actions. In addition, a motor is attached to this device, providing natural control for prosthetic hand; the motor associated with the device is actuated with the help of EEG signal of the individual. The current study showed that, our new prosthetic hand may improve the quality of life - and easily affordable to physically challenged individuals.

Keywords: Electroencephalogram, Brain Computer Interface, Electrophysiological Simulation.

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ABSTRACT-41

GSM based needleless glucose monitoring system

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Diabetes is one of the leading non communicable diseases affecting public health. Though it is termed as a deficiency rather than a disease, uncontrolled diabetes will lead to complications resulting in renal failure / liver failure / heart-attack / loss of sight or foot problems leading to amputation if not diagnosed, monitored and treated on time. In order to avoid these complications blood glucose level should be periodically monitored. Conventional methods used for this purpose uses sharp needle which causes pain and irritation to the patients. Most importantly, pricking with sharp needle leads to loss of blood and has a risk of infections to the patients. In order to overcome such problems, a non-invasive glucose monitoring system is necessary. In this study, we propose to design a cost effective and non-invasive glucose monitoring device using near infrared spectroscopy techniques. In addition, GSM module attached to this device will enable wireless data sharing facility. The results can therefore also be transmitted easily to the doctor for examination. The results obtained can also be stored for future records and also to analyse variation in blood glucose level and adjustment of dosage of medicine. The current study shows that our device has accuracy level equivalent to that of conventionally available devices and also provides convenient, hassle free usage to the patients.

Keywords: Diabetes, glucose monitoring, non-invasive method, GSM module.

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ABSTRACT-42

Fusion Approach for Detection of Drowsiness

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This paper proposes a method to detect drowsiness in order to avoid major accidents that happened due to driver's distraction and drowsiness. Drowsiness can be detected using dermal activity, brain activity and visual activities of the subject. This paper provides a fusion approach which uses such activities for detection of drowsiness. Dermal activity is measured using polygraph, while brain activity is measured using single channel electroencephalography. For measuring visual activity electroocculograph is used by means of analyzing the blinking deviation. This fusion approach provides four classes alert, awake, drowsy and very drowsy states based on these activities using fuzzy logic to provide alerting alarm in the form of musical tones to make the driver awaken.

Keywords: Electroencephalograph, Electroocculograph, Polygraph, Drowsiness, Fusion approach

ABSTRACT-43

Patient Health Record System with Biometric Authentication

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Implementing a comprehensive healthcare security model is a difficult task due to the many complexities in the medical environment. Patient identification in accurate sense is often overlooked in the areas of security and privacy. Medical staffs require systems to permit secure authentication and authorization to patient medical records to assist in patient diagnosis and treatment. This paper aims at bringing out suggestive solutions of incorporation biometric fingerprints and photographs of patients in a strategic manner to help strengthen our healthcare security model. It also allows the patient to view, update or make changes to electronic Personal Health Records (PHR). The system is developed in .NET framework with MS access backend database. Our system proves to be more efficient towards serving an authorised system in Health Informatics.

Keywords: Health Informatics, biometric, authentication, fingerprint

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ABSTRACT-44

Analysis of Optical Coherence Tomography Images for Identification of Fluid filled Abnormalities

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The retinal fundus being one among the most sensitive part of the human body, any minor damages or disturbances in this region leads to partial or complete loss of vision. Such fluid-filled abnormalities like Cystoid Macular Edema (CME), Age related macular diseases (AMD) needs effective treatment. Retina with these abnormalities can be easily viewed with the help of Optical Coherence Tomography (OCT) imaging modality. Though OCT images are of high resolution, it could be seen that these images are more prone to speckle noises. We observed that wiener filter proved to be effective when compared to any other conventional filters for despeckling of these images. Various features like mean, variance, entropy, energy, contrast, homogeneity and standard deviation are extracted from the filtered images. Taking these parameters into consideration, images are then classified using Backpropogation network and the results are tabulated. Results show that the proposed method seems to be effective with 91.67% accuracy when tested with a database of 24 images.

Keywords: Tomography; Speckle noise; fluid-filled abnormalities; features; Classifiers

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ABSTRACT-45

Smart Navigation system for Visually Impaired

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Navigation without any physical dependency remains a challenging task for the visually impaired. Auditory assistance to give the directions of navigation for them is mandatory to overcome this challenge. This paper aims at designing a sensory substitution aid to provide assistance for the blind. The proposed system is based on the auditive localization of virtual sound sources. The present position and target position is given as voice input to the system, based on which preloaded graphical representations are recovered. These graphical representations are reconverted to voice guidance, which could be heard by the user. The proposed system is also integrated with an obstacle detector using IR Sensor. The proposed system seems to be more effective for people with partial and complete visual impairment. Also it could be applicable in public places by implementing online navigation tools for giving directions.

Keywords: Auditive localization, visual impairment, sensory substitution, navigation.

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ABSTRACT-46

Wavelet feature based detection of Diabetic Retinopathy in Fundus Images

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Diabetic retinopathy is the most common diabetic eye disease and remains a leading cause of blindness in adults. Any changes in the retinal blood vessels lead to diabetic retinopathy. Processing of these fundus images plays a major role in the earlier diagnosis of Diabetic Retinopathy. This paper proposes a methodology for automated identification of Diabetic Retinopathy in fundus images using retinal image analysis. The fundus images are preprocessed and the candidate region for processing is extracted. Discrete Wavelet Transform is applied over the region and the wavelet coefficients are collected for different scales. From the wavelet coefficients the invariant moment feature is extracted for normal and abnormal images and a binary SVM Classifier is trained. Given any test image, SVM Classifier is able to classify accurately. Results show that the performance of our system is appreciable.

Keywords: Diabetic Retinopathy; Discrete Wavelet Transform; Invariant moment; SVM Classifier.

ABSTRACT-47

Capsule Endoscopy

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This paper presentation tells about capsule endoscopy. This project contains rectifier, regulator, battery charger, and low dropout regulator. For charging the lithium ion battery the electromagnetic energy signal is received from a self-resonant coil it will rectify and then regulates it to generate a stable DC voltage. This stable DC voltage is provided for driving the capsule robot using LDO regulator. Capsule endoscopy can be easily swallowed, it is painless and sedation free during the procedure. The patient can relax in comfort and without any hospital stay exposure. It is usually used when other method such as gastroscopy, colonoscopy, enteroscopy, have failed in diagnosing.

Keywords: Endoscopy, Diagnosis, LDO Regulator

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ABSTRACT-48

Astaxanthin a supernatural therapeutic compound (a review)

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Generally the risk of disease (cancer and eye disease) is decreased by having carotenoids in the diet which is highly beneficial compounds that provide good health. Astaxanthin is one such carotenoid which is classified as a xanthophylls, a red pigment provides same benefit. It is found in many natural sources in many living organisms. It is commonly found in most of the sea organisms like crustaceans (e.g. shrimps, crawfish, crabs and lobster) and produced by microalgae. Additionally, it can also be added to the human dietary even though it is been already used as animal feed. Astaxanthin has unique chemical properties based on its molecular structure and being used in the prevention against Asthenopia, Cerebral Ischemia, Lipid Per oxidation and Atherosclerosis. It also has other application as anti-inflammatory agent, cosmetic enhancer and promotes healthy visual accommodation. The green algae named Haematococcus pluvialis which is unicellular algae accumulates, this astaxanthin, a highly valuable ketocarotenoid under various environmental stresses. Hence here needs a easy and cheaper method for isolation and separation of this compound from green algae which is difficult by current novel techniques. This review paper discusses about different sources of astaxanthin and alternate method to synthesis astaxanthin using genetic engineering techniques.

Keywords: Astaxanthin, Therapeutic Agent, Green Algae, Genetic Engineering Techniques.

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ABSTRACT-49

A study on lung cancer: causative factors and advanced treatment strategies

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Lung cancer is an abnormal and uncontrolled growth of cells and leading cause of cancer related deaths in men and women. There are several risk factors may cause lung cancer in human population. We explored main causative factors which induce or development of lung cancer. Furthermore, we classified risk factors associated with signs and symptoms of lung cancer throughout its progression. Then we studied the assessment and diagnostic information of lung cancer in patient data. We classified two types of lung cancer Non-Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC). In addition, we analyzed patient history and life-style of the patient to find out the risk assessment and causative factors for initiation and development of lung cancer. We also determined cancer diagnosis using pathological stages and different grades of cancer. In this study we will discuss the treatment strategy and its side-effects of lung cancer. We concluded that our study showed several risk factors may help us identify the initial stages of cancer and development of advanced treatment options in Indian population.

Keywords: Lung cancer, risk factors, Biopsy

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ABSTRACT-50

Study of Reasons and causes of Diabetes Mellitus

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This paper explains about disease called DIABETESMELLITUS which is characterized by many symptoms has now became a deadly disease. What actually we know is diabetes is due to increase of glucose in our blood. But what CAUSE INCREASE OF GLUCOSE. The main reason for that is deficiency of insulin hormone in our body which is produced by PARATHYROID glands in our body .Even if the hormone cause some delay it might lead to this disease .The diabetes is caused due to two reasons- One due to Insulin deficiency and one due to Insulin Resistance .There are different types of Diabetes Mellitus- A)Type 1 B)Type 2 C)Secondary Diabetes Mellitus. There are many medical precautions for this diabetes and even treatment is available for this disease .many people do not know that there is a treatment with Ayurvedic herbals using SAPTRANGI and BITTER MELON, there is cure for diabetes. There are also Three Do's That we should follow for treatment of Diabetes Mellitus- A)Diet B)Exercise C)Insulin Therapy.

Keywords: Insulin Therapy , Type 1 and Type 2 diabetes, Secondary Diabetes Mellitus, Diet, Exercise, Ayurvedic Medicines

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ABSTRACT-51

Review on homecare respiratory devices

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Respiratory care services may involve diagnostic and therapeutic modalities such as observing the patient pulse oximetry and transcutaneous carbon dioxide (CO_2) values and performing airway clearance therapy ,by using CPAP and BIPAP machines .CPAP machines is indicated for reversal of sleep induced abnormal upper airway behaviour which results in disruption of sleep with negative day time consequences .BIPAP machines is used where a breathing is difficult. It is used when a patient is suffering from pneumonia, chronic obstructive pulmonary disease, asthma. The goals of home care for individual with respiratory disorders are to increase survival decrease morbidity, improve function and quality of life support independence and self management encourage positive health behaviours and for children with lung disease to promote optimal growth and development.

Keywords:- CPAP,BIPAP, Oximetry, therapeutic modalities

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ABSTRACT-52

Saline Flow Rate Measuring System Using GSM

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The history tells us that there is a transition from science to technology and this transition matures over decades before it starts to influence the society in fundamental manure. As the world population grows, there is a need for increase in the health care as everyone appears to be busy with their works. The doctor is to move a move every new and then to monitor the patients. For that this paper describes the development of an automatic saline flow rate monitoring system using a low cost and indigenously developed sensor and GSM [Global System for Mobile Communication modem]. This will enables the doctor or nurse on duty to monitor the saline rate from the distance. An IR sensor also used here it is fixed at the neck of saline bottle to measure the flow rate of liquid. The output obtained from the sensor of saline drop rate, medium or fast and liquid going to finish this same transmitted through GSM technology to a doctor or nurse distance mobile/cell phone for future action.

Keywords: Saline, IR module, GSM Module.

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ABSTRACT-53

Realtime recording of bowel sounds in upper abdomen region

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Bowel sounds is an indicator for the motor activity of the various segments of the gastro-intestinal tract.The sounds seem to be very simple but generally it is empirical and too subjective.Endoscopy and radiological investigations are the current techniquesused to diagnose the disorders of the gastrointestinal tractbut auscultation is the traditional technique.But most physicians and nurses carry out a cursory listen to bowel sounds hence resulting in misinterpretation. Our main aim and objective is to record and analyse the bowel sounds inthe right and left upper quadrant of the abdominal region using electronic stethoscope.The characteristics of recorded sounds are processed and analysed using LabVIEW. Hence this proposed idea will support the doctors in proper diagnosing and also in interpretation the functions of the gastrointestinal tract.

Keywords: Bowel Sound, Auscultation, Gastrointestinal Disorder,Electronic Stethoscope, Laboratory Virtual Instrumentation Engineering Workbench (LabVIEW).

ABSTRACT-54

Handlebar Heart Rate Monitor

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Exercise is essential for healthy life, one way to train safely is to keep track of our heart rate to make sure we are not overdoing it and that is why many athletes decide to use a heart rate monitor. This type of device is used to keep track of the intensity of our exercise. It is convenient to use for heart patients. Heart rate meter is also used by obesity patients. Top handlebar heart rate monitor of 2015 is MIO ALPHA I and its drawbacks are high cost, rechargeable battery with life upto only ten hours. My innovation is to enhance the battery life. For that I replaced the lithium polymer battery with Ni- Cd in transmitter and receiver . Ni-Cd is made up of Nickel oxide hydroxide and metallic Cadmium. After several testing I recharged the battery and used the kit. It stands more than 24 hours without any problem. And the main advantage of Ni-Cd battery is its wide range of size and capacity. Charging time is also fastest than Lithium polymer battery.

Keywords: Heart Rate, Non-Invasive, Power Supply

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ABSTRACT-55

Muscular Bio Stimulator

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It is a small portable electronic device which is used to relieve muscular pain by stimulating the muscles. This mainly aims those who look at muscular improvement. Two electrodes are taped at the chosen muscle area and it gives a light itch sensation when a knob is rotated (p1). The use of this device is avoided for certain conditions like pacemaker patients, pregnancy, cuts, wounds, and injuries. It does not prove any therapeutic purposes. A timer generates pulses about 80hz frequency. There are two transistors where one acts as a buffer and the other inverts the pulses polarity and drives the transformer. output pulses are set by potentiometer and displayed in led. An another diode protects the transistor against high voltage peaks by transformer inductance during switching.

Keywords: muscular pain, light itch sensation, therapeutic purpose, transisto

ABSTRACT-56

Movement of Robotic arm using EEG signals for paralyzed patients

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Over 5.6 million peoples are affected by paralysis which is 1 in 50 of India's total population, in which 1.27 million peoples live with paralysis due to spinal cord injuries which is five times more than the previous estimation. The patients suffering from paralysis have no control over the movement of the muscles. To overcome this major problem we have designed a robotic arm which can be used for paralyzed and disabled persons. The conventionally available device are found to be expensive the method suggested by us is a cost effective and can be affordable by all. The actuation of human arm is done with the help of EEG signal. This robotic arm functions similar to the human arm. The motor attached to the robotic arm helps in its movement based on the EEG signal.

Keywords: paralysis, EEG, Actuation