Dr. N.G.P. INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
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Coimbatore - 641 048, Tamil Nadu, India.

RADAIS-2K18

National Conference

on

Recent Advancements

In Design, Automation And Intelligent Systems

Organised by

DEPARTMENT OF MECHANICAL ENGINEERING

Date : 8th March 2018

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PROCEEDINGS

Organised by
DEPARTMENT OF MECHANICAL ENGINEERING

Chairman's Message

Dr. Nalla G. Palaniswami
Chairman, KMCRET.

I am happy to know that the Department of Mechanical Engineering is organizing the National Conference on Recent Advancements in Design Automation and Intelligent Systems (RADAIS2k18) on 8th March 2018.

I am pleased to note that this conference aims to disseminate information on the recent advancements in varying Engineering field in association with academic and industry partners.

I greet every one behind this worthwhile venture and wish them all success.

Secretary's Message

Dr. Thavamani D. Palaniswami
Secretary, Dr. N.G.P. Institute of Technology.

I am delighted to know that the Department of Mechanical Engineering is organizing the National Conference on Recent Advancements in Design Automation and Intelligent Systems (RADAIS2k18) on 8th March 2018. In this context, I appreciate the objective of Mechanical Engineering to conduct this conference. I am sure, this event will facilitate collaboration and sharing of information on leading to improvement of product quality and productivity.

I wish the RADAIS2k18, a grand success.

Chief Executive Officer's Message

Dr. O.T. Buvaneswaran
Chief Executive Officer, KMCRET.

I am very glad to know that the Mechanical Engineering Department of Dr. N.G.P. Institute of Technology is organizing an National Conference on Recent Advancements in Design Automation and Intelligent Systems (RADAIS2k18) on 8th March 2018.

RADAIS2k18 will provide a forum for delegates to exchange and share their experiences, new ideas, and outcome of their research about all aspects of engineering discipline.

I sincerely wish the success of the conference and appreciate the organizers for their efforts.

Principal's Message

Dr. K.Porkumaran
Principal, Dr. N.G.P. Institute of Technology.

I am really delighted and honored to invite you all to the National Conference on Recent Advancements in Design, Automation and Intelligent Systems (RADAIS2k18) organized by the department of Mechanical Engineering of our college on 8th March 2018 . Knowing yourself is the beginning of all wisdom. This wisdom at the experimental stage is seen in the innovation and new ideas that needed to be explored or they will be lost. This conference identifies and explores the upcoming potential to empower the globe for a greener world. It also provides brainstorming sessions to further enhance technologies in these areas. I am happy to note that such an important event is being organized in the institution imparting technical education primarily to students of various disciplines.

I wish and every contributor who has spent their tireless effort in moulding this conference to greater success.

Head of Department's Message

Dr. V.S. Sreebalaji

Convener - RADAIS - 2k18,
Professor and Head, Department of Mechanical Engineering,
Dr. N.G.P. Institute of Technology.

SEASONS GREETINGS

It is a joy and a privilege to convene National Conference on Advancements in Design, Automation and Intelligent Systems (RADAIS-2k18).

I welcome you to this grand event organized by our department. This Interdisciplinary International conference will bring together academics, researchers, industry representatives, students and stakeholders from all over the globe to share and enhance knowledge on latest advancements challenges and opportunities, and implementations. I hope that this is a great platform for the participants to showcase their talent. It is also a platform to exchange technological know-how to improve further for the future collaborations and fascinating results. I believe we still have a long way to go as compared to the other developed countries but we can surely make it if we have faith in our capabilities and talent. All we need is a little push to make our mark, prove our mettle and can make us realize our goals.

I wish all the participants best of luck and hope will enjoy sojourn at Dr. N.G.P. Institute of Technology.

Do what you love and love what you do

Organizing Secretary's Message

Dr.K.Mylsamy

Organizing Secretary, RADAIS-2K18,
Professor, Department of Mechanical Engineering,
Dr. N.G.P. Institute of Technology.

It is my great privilege and honor to welcome you with open arms to the RADAIS-2K18, being hosted by the Department of Mechanical Engineering, Dr. N.G.P. Institute of Technology on 8th March 2018. Now-a-days scientists and technologists around the globe have been responding to the requirement of high performance through innovative research and engineering. The ever increasing demand on quality and reliability has resulted in some dazzling technological achievements in the area of advanced design, automation and manufacturing. The incredible growth in the development of design and demanding manufacturing processes that are quite challenging and difficult to adapt to the real world applications. It involves modern computer based approaches as well as traditional experimental techniques to achieve the international standards. In keeping all these things in mind, the organising team of Department of Mechanical Engineering of Dr. N.G.P. Institute of Technology has decided to conduct the international conference on Recent Advancements in Design Automation and Intelligent Systems.

We are very much pleased to note the overwhelming response from the author for our invitation to this conference. We have received an overall number of 80 papers in various engineering fields from all over the country. The RADAIS members and a core of additional reviewers worked with excellence in selecting high quality papers. Many individuals have contributed to success of RADAIS - 2K18 . I would like to thank the RADAIS board members, also I wish to acknowledge and express my hearty gratitude to all the sponsors, reviewers, organising committee members and the authors for their immense contribution.

I wish everyone have a pleasant and memorable stay in our campus

Inaugural Address

Dr. VIMAL KUMAR ESWARLAL
Chief Executive Officer & Director,
Mangla Smart Energy Solutions Private Limited
Tirupur - 641 604

Key note Address

Dr S Gollakota
Professor,
Department of Aeronautical Engineering
Bannari Amman Institute of Technology
Sathyamangalam - 638401

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PAPER NO	TITLE	AUTHOR
ME001	Optimization of Turning Process Parameters Using Global Algorithm	KM.Senthilkumar K.Seenivasan R.Thirumalai
ME002	Heart Rate Monitoring and Alert System by using Iot	Hariharan
ME003	Automatic Cradle Mechanism	Muralikrishna
ME004	Three Axis Pneumatic Modern Trailer	Selva
ME005	Finger Print Bike Starter	Mohan
ME006	Smart Medikit Care Taking System For Elderly and Patient Monitoring System	Cleven
ME007	Model of Row Crops Precision Sprayer	Mohan
ME008	Mechanical Characterization of Friction Stir Welding of Aluminium Alloy	K.Kalaiselvan R.Premkumar R.Selvaprakash
ME009	Alternate Utilization of used Foundry Sand	ManoharanLaksmanan Mylsamy
ME010	Design, Simulation and Wind Tunnel Testing of Co-Rotor Wind Turbine	R.Karthik K.Kiran
ME011	Performance Study of Biodiesel From Juliflora and Cassia Fistula Seed Extracts	A.K.Muthuviswa A.Murtuza E.Lavanprasath V.Sivaraman

ME012	Experimental and Investigation on Mechanical Properties of Natural Fiber	Vivek Kumar R Gowtham S Ajith Kumar Infant Raj Thirumalai R
ME013	An Investigation of Dry Wear Analysis of Aa7075/Zrb2	Ajay R Ajithkumar S Anish MelvinD Nallusamy M
ME014	Automated Walking Cane	Anirudh.T Jithin R
ME015	Development of Nano Structured Coating Review	V.Sivaraman, Fredwinporinchuku Ditto kuriappan Abdul fayad khan
ME016	A Novel Approach for Municipal Waste Disposal by Automatic Dustbot	Mr.N.Dennathayalan Ms.K Dhivya Mr.M.Gopikrishanan Mr. N. Solaimthu
ME017	Analysis of Corrosion and Impact Strength on Al-Zro2 Composite	Saran Kumar SS Vikram B Vigneshwhar S Gobinath S
ME018	Study on Hardness and Impact Strength of Aluminium Composite With Silicon Carbide (Sic) - Reinforcement using Powder Metallurgy Route	Karthick.L Kavi.B Logesh S
ME019	Analysis on Machining behaviour of AA6063/Bagasse and Titanium nitride hybrid composites	Prabhul.P. P Naveen.S Pradeep Kumar Dr. K. Ravikumar

ME020	Power Generation From A Moving Locomotive By Wind Turbine	Shan Varghese Abraham
ME021	Experimental Investigation of Clutch Plate using Natural Fibres	Madankumar S Mathan S Mohammed Jamali Athi Vijayakumar R
ME022	Experimental Investigation on Flexural,Water Absorbtion Property and Surface Morphology Property of Hybrid Fibre Epoxy Composites	Raghul R Vairalingam RP Vignesh R Dr Mylsamy K
ME023	Smart Medikit Care Taking System for Elderly and Patient Monitoring System	Clevingeorge
ME024	Improving the Efficiency of a Solar Air Heater by Nano Coating	S.Samiyappan S.Sasikumar V.Sathish A.Selva raj
ME025	Experimental Investigation on Effects of Ceramic Fillers on The Natural Fiber Reinforced Epoxy composites.	A. VijayAnandh Karthick.V Karthickraj.M MaruthiRaja.P
ME026	Fpga Implementation of New Data transfer Data matrix Methodology For Ip Protection Scheme	V.Gnanamerlin S.Kavin Kumar M.Mehala P.Mohan
ME027	An Investigation of Dry Wear Analysis of AA7075/ZrB2	Ajay R, Ajithkumar S, Anish Melvin D Nallusamy M

ME028	Torque Ripple Minimization in Brushless DC Motor using SEPIC Converter	V.Hari Haran D.R. Mohan Kumar P.Sanjay Kumar S.Prasanth
ME029	Experimental Investigation on Flexural Property and Surface Morphology Property of Hybrid Fiber Epoxy Composites	Samuvel Y Santhosh S SubramaniV V.S.Sreebalaji
ME030	High Gain Single Stage Boosting Inverter for Photovoltaic Applications	P.Nataraj N.Sathya S.Praveen M.Anand E.Kannapiran
ME031	Ultrasonic Based Road Safety System	G.DharsanPrakash S.Hareesh Nirmal Sebastian G.Sargunakannan
ME032	Cycle Time Reduction in Double Column	S.Harish K.Dinesh Karthick.N Guhan.P.S Kavin Kumar.M.S Sachidhanandham.K
ME033	Internet of Things based Cognitive Radio Driven Hospitals: A Case Study	BijiRose Mani Deepak Choudhry
ME034	Design and Fabrication of Bird Food and Water Dispenser using Timer	Dinesh.K AjithLinga Raja.V Anand.R Manoj Infant Nithin.P
ME035	Digital Signal Processing And Robotics for Industrial Automation	Dhavamani.S Bavatharini.D Sabitha.V

ME036	Energy Resources	Vignesh Raj mohan.M Hariharamuthukumar.N
ME037	Experimental Investigation on Effects of Ceramic Fillers on the Natural Fiber Reinforced Epoxycomposites.	M Suriyaprakash Naren Raj NisharAhamed N Prasanth K
ME038	Experimental and Investigation on Mechanical Properties of Natural Fiber Reinforced Epoxy Composite	Vivek Kumar R,Gowtham S Ajith Kumar Infant Raj Thirumalai R
ME039	Study on Wear Behaviour of Aluminium Silicon Carbide Composite	Sadhamussain.A Rayees.K.H Rahul Raj.S
ME040	Optimized Design of Composite Laminate Aircraft Propeller Blades	T.Vediyammal M.Sushmithathilshath A.Karthikeyan S.Balasundaram
ME041	Design and Analysis of Piston Using Hybrid Materials	Dhaneshwaran.S Christapher Xavier .B Logeshwaran.M Manoj Kumar
ME042	Structural and dielectric study of manganese substituted CuFe2O4 nanoparticles	AkashSivadas Menon Sri Nayan Jyoti Bania
ME043	Cricket Bowling Machine	S.Sabarinathan D.Ramesh R.Rajesh
ME044	Three Axis Pneumatic Modern Trailer	selvanathan
ME045	Characterization Study of Thermal Barrier Coating on A356 Aluminium Alloy	Sanjithkumar S Sunilyogesh T Tharunkumar R Shreeram B

ME046	Modelling the Input Process Parameters of Wirecut EDM on Super Alloy Material using Response Surface Methodology	A.Arunkumar1, S.Boopathiraj, P.Hari Hara Sudan
ME047	Optimized Design of Composite Laminate Aircraft Wing	M.Steffilini P.Vijayalakshmi A.Karthikeyan S.Balasundram
ME048	Ejection Cabin System In Business Aircraft	S.Arunkumar
ME049	Model of Row Crops Precision Sprayer	Mohan
ME050	Study on Mechanical Behaviour of Aa6063/Tin/Bagasse Hybrid Composites	N.J.Aniruth Saran R.B.Dinesh Kumar S.Gopi Krishna Dr.K.Ravi Kumar
ME051	Design and Analysis Of Span Wise Adaptive Wing	Ajithkumar M Inbasaharan A.S karthi k.s, S.R.Arun A.Karthikeyan S.Balasundaram
ME052	Power Quality Enhancement for a Grid Connected Wind Turbine Energy System	C.Amritha Bhupendersingh J.Indirajith T.Naveen kumar
ME053	Multi-Purpose Agriculture Machine for Paddy, Maize and Groundnuts	S. Kalaiselvan R. N. Karikalan P. Karthickeyan, N. Manikandan
ME054	Investigation Of Poly Carbonate Plastic With Composite Materials	MANICKAM C NAVEEN G

ME055	Fabrication, Characterisation and Testing of Granite Reinforced Polymer Matrix Composite in Automotive Application	Bharathkumar A Karthickraja S Karthikeyan N Gopikrishnan P
ME056	Design And Fabrication Of Vertical Axis Wind Turbine	M Praveen kumar, B Sridhar V Vetrivel
ME057	Design And Drag Reduction Devices In Aircraft Wing And Automobiles	Akilan R Delli Ganesh V Nagaraj M
ME058	Surface Coating on Mild Steel Using Chemical Vapour Deposition Method	Arvind sundar.U Basalingam.S Hariharan.S Karthikeyan.R
ME059	Effect of Dimple Surface In Aircraft Wing	S. Jebastin, S.Gokulnath, C.Gnanasekaran
ME060	Design and Analysis of bird's inspired aircraft wing	R.Sripriya M.Yamunadavi P.Sastha
ME061	Mechanical Properties of Al (5083) Surface Composites Developed by Friction Stir Processing Technique.	K. Kalaiselvan C. Bhuvaneswaran S. Gowthamraj R. Hari Prakash
ME062	Flow analysis over Q tip propeller using ansys software	S. Sampathvasan G. Raghul, M. Vinothkumar
ME063	Design and Fabrication of Quad Copter For Detecetion of Landmines and Diffusing	Abin Joy Abishake G Muthukumar M

ME064	Review Paper Based on Machine Learning in Smart Irrigation System using Self-Organizing Maps & Hidden Markov Model	Jeeva. N Siva Sanjeev M,Swathi T UdhayaGirishan S,Sruthi
ME065	Implementation of 5s in Manufacturing Technology Laboratory	Arunkumar.M Gobinath.K
ME066	Supply Chain Management in Garment Industry	D.VASANTH KUMAR G.Madhan Mohan K.M.Mohanasundaram
ME067	Switch to Solar Tubes	Kirubakaran.B Tharun.S Jisriga.M Keerthana J
ME068	Mini Harvesting and Threshing Machine	Karthikeyan S Kathiresan N Likithreddy J Nallusamy M
ME069	Automated Billing to Ease Queues at Shopping Malls Through the Implementation of Effectual Gyres	S. Pooja B. Vaithishusha M. Vidhubala M. Yogesh
ME070	Process Improvement Through Lean Manufacturing	R.Bhuvanesh, M.Dhanush, S.HariVignesh
ME071	Rediction of Metal Removal Rate and Surface Roughness of Inconel 625 on WEDM by Artificial Neural Network	Ameet Kumar Singh Deepan Raj G Gokul K Karthikeyan A G
ME072	Design and Analysis of Scramjet Engine and Its Optimization in Hypersonic Cruise	S.Mahalakshmi M.Gunasarami R.Kasthuri E.Archana

ME073	IoT Based Environmental Monitoring System using Arduino Uno and Thingspeak	Deepak
ME074	Fluid Structure Interaction of Aircraft Wing using ANSYS	V.Naveen T.Rajadurai C.Vigneshuthayabala.
ME075	Air Compressor Control System for Energy Saving in Locomotive Service Plant	Abdul Faiyaz.A Gowtham. S Mohammed Aslam UMohammed Rafid K
ME076	Alternative Energy Resources in India	Thinapakar.E Poovarasan.S Manikandan.P
ME077	Analysis of Piston Plated Rings to Improve the Wear Resistance Inside he Bore by using Black Oxide	A.Selvaraj A.Mario van bastin K.Monish S.Praveen kumar
ME078	Fatigue Analysis of Main Landing Gear Varying With Loads by Using Ansys18.1	M.Kavipriya R.Hilda rosalin jemima
ME079	Application of Automation in transmission System	Abiraj. C Athitiya K. A Naagarjuna. N Naveen kumar. V. M
ME080	Autonomous Inspection Robot for Power Transmission Lines Maintenance	E. Kannapiran S.Navaneethan E. Thinapakar M. Madhupriya
ME081	Fatigue Life Estimation of wing with Butt and Splice Joints of Typical Transport Aircraft	K.S.Vinutha Nisariya Salim

ME082	Cloud Tune-Up Forecast Algorithm Research and Optimization	M.K.Nageswaran
ME083	Analysis of Fixed Wing Mav Flow With A Winglet Design Inspired By Nature	G.Gopikrishnan M.Mathiyazhakan V.Naatudurairaja
ME084	Design and Development of Automatic Seed Sowing Machine	E. Kannapiran D. Bavatharini S. Dhavamani
ME085	Recent Trends in Renewable Energy Resources	V. Sathish Kumar M. Muthuselvam S. Sree Kuttan
ME086	Experimenal Investigation of Process Parameters in Turning of Aisi 4140 Steel	Sudharsan R Jaganathan A R.Thirumalai
ME087	Experiment on Investigation of Flyash by Products	Solomon Rojer.S Sethupathi.K Nandhagopal.B
ME088	Experimental Design and Analysis of Conical Flame Holder with v-Gutter Used In Ramjet Engine.	Rahul.A.B Ranjith.V.R Praveen.V
ME089	Implementation of Based on Plcindustrial Automation System	S. Sriharini T. Indhumathi
ME090	A Study on Tensile, Impact Properties and Surface Morphology of Jute/Agave Fibre Epoxy Composites	Dhatchanamoorthy S Infenda jasmine J

ME091	Experimental Study On Performance Of Steel Industry Waste and Fiber Composite	Abhijith R Nair Anandhu Anil Navaneethan R
ME092	Pneumatic Braking in Medical Pendants	Kishore R Kishore Krishnan Lambert Godwin B Vasanth Kumar D
ME093	Nano Sensors	E. Kannapiran S. Navaneethan Sattwik Datta
ME094	Effects of Al3+ Doping Concentration on Structural, Morphological and Electrical Properties of V2o5 Nanostructures for Diode Fabrication	S. Navaneethan E. Ranjith Kumar S. Jaganathan
ME095	Endurance Test of Thermal Barrier Coating on Piston Crown	S. Prasantha S.Mohanapravin G.Nirmal
ME096	Prevention Of Diesel Theft In Excavators	Praveen A
ME097	Mechanical Characterization of Friction Stir Welding of Aluminium Alloy (5083).	K.Kalaiselvan R.Prem kumar R.Selvaprakash
ME098	A Review on Mechanical Characteristics of Aluminium and Hybrid Composites	Sharavanasujai.M Vinothkumar.R Sowndharrajan.R Kiran K
ME099	Design of a Low Cost Multipurpose Agriculture Vehicle	VenuAravind.S Vikkram.S.K Alexander.F

ME100	Investigation of Mechanical and Thermal Analysis of Pulse Tig Welding on Aluminium 6061	S.Rajkumar Nandha Kumar K Navaneetha Kumar K Praveen R
ME101	Robotics for Industrial Automation	Pradeep Kumar.B Raj Kumar.A Gokulakrishnan.R Sathish kumar. J.V
ME102	Seed Sowing Robot	Madhupriya.M Geetha Sankari.M
ME103	Experimental Investigation on Coating of Spark Plug using Silicon Element	Naveen
ME104	Design and Analysis Of High Performance Forward Swept Wing with Various Angles	C.Ramanichandiran M.Ranjith G.Ramachandran K.Yuvaraj
ME105	Magnetically Impelled Arc Butt Welding	C. Pravin Tamil Selvan T. Albert C.M.Selvam Dr. K. Kalaiselvan
ME106	Design Fabrication and Testing of Propeller Blade by Using Various Aerofoils	V.Allison Pious Mary A.Kavitha M.Mishakamila
ME107	Mosquito Destroyer By The Application Drones	B.Ragul, S.Sivasankar P.Vignesh E.Annamalai
ME108	Thermal & Structural Analysis of Gas Turbine Blade Cooling system in steady state	M.Naveenkumar M.Pilavadiyan S.Sarath kumar M.Dinesh kumar

ME109	Experimental evaluation of the carbon fibre epoxy laminate and analysis using Ansys17	H.NizarAhamed S.Radhakrishnan J.Reshab kumar
ME110	A Performance Analysis Of Convergent & Divergent Nozzle Using Fluidic Thrust Vectoring	M.Solai raja S.SanthanakumarB.Poovarasan

OPTIMIZATION OF TURNING PROCESS PARAMETERS USING GLOBAL ALGORITHM

KM.Senthil kumar, K.Seenivasan, R.Thirumalai

Professor, Dept of MechEngg, Kumaragur college of Technology,Coimbatore. Professor, Dept of MechEngg, Sree Krishna college of Engg and Tech, Coimbatore Professor, Dept of MechEngg, Dr.NGP Institute of Technology, Coimbatore

ABSTRACT

In this research work, the experiments were designed and conducted based on L27 orthogonal array. The experiments were conducted as per details given in Table 1. The signal-to-noise ratio is a quality indicator by which the experiments can evaluate the effect of changing a particular design parameter on the performance of the process. In this study, '*smaller the better*' quality characteristic has been chosen. Signalto- noise ratio values for the experiment. Analysis by Taguchi method and GA Tool prediction for minimum surface roughness (Ra) is achievable at high cutting speed, low feed rate, low depth of cut, moderate nose radius and high rack angle during high speed turning process for IS C20 material using coated carbide as tool insert. A conformity test conducted with the above set of optimal process parameters resulted in surface roughness of 0.6794 μm.

HEART RATE MONITORING AND ALERT SYSTEM BY USING IOT

Hariharan

ABSTRACT

To the existence and influence, health related parameters and issues are of utmost importance to man. Various systems have been developed that are able to capture and monitor changes in health parameters. A real time remote monitoring of heart rate is presented in this paper. This system uses an alert and LCD display that are capable of monitoring the heart rate. A low cost, efficient and flexible heart rate detection and alert system using wireless module has been implemented in this paper. The sensors sense and measure the heart rate and detected signals are sent to control unit for further processing. The processor displays the heart rate on LCD which is then proceeded to alert system. If there is a large difference between the normal and measured heart rates, then an alert will be provided by the system. This system is continuous, real time, safe and accurate in monitoring the heart rates.

AUTOMATIC CRADLE MECHANISM

Muralikrishna

ABSTRACT

In the present scenario where both the parents are busy in their professional life, it has become very difficult for them to get sufficient time to take care of their babies. Sometimes it is not affordable for them to hire a nanny or admit their child to crèche during their job timing. It is found that in most of the times baby stops crying or sleeps when they are in cradle due to providing them gentle rhythmic motion. In today's life style, it is very difficult for parents and nanny to sit nearby their child and sooth them whenever they cry. Where working parents often feel it difficult to accomplish both the obligation of work & parenting, we have designed a system which would help the parents and even to house-wives during their household works to take care of their babies without paying physical attention.

THREE AXIS PNEUMATIC MODERN TRAILER

Selva

ABSTRACT

This project work titled ―Three axis pneumatic modern trailer‖ has been conceived having studied the difficulty in unloading the materials. Our survey in the regard in several automobile garages, revealed the facts that mostly some difficult methods were adopted in unloading the materials from the trailer. The trailer will unload the material in only one single directiontion. It is difficult to unload the materials in small compact streets and small roads. In our project these are rectified to unload the trailer in all three sides very easily.Now the project has mainly concentrated on this difficulty, and hence a suitable arrangement has been designed. Such that the vehicles can be unloaded from the trailer in three axes without application of any

By pressing the direction controlcontrol valve activated,the compressed air is goes to the pneumatic cylinder through valve.The ram of the pneumatic cylinderacts as a lifting the trailer cabin. The automobile engine drive is coupled to the compressor engine, so that it stores the com-pressed air when the vehicle running. This compressed air is used to activate the pneumatic cylinder, when the valve is activated.

FINGER PRINT BIKE STARTER

Mohan

ABSTRACT

Fingerprint for the bike starter is introduced for the two wheeler security. Now a days the bike theft is happening everywhere. So, this technology has been introduced were each person will be having the separate fingerprint authentication .By adding this technology easily reduce the theft cases.The main use of the fingerprint is to be free from keys for the bikes and can avoid the duplication of keys. If any intruder try to access the bike the respective owner ill be alarmed fixed to the biometric device. The fingerprint system provides more security then he usage of keys. It also can be controlled by using voice recognition to ON and OFF of the ignition system.

SMART MEDIKIT CARE TAKING SYSTEM FOR ELDERLY AND PATIENT MONITORING SYSTEM

Cleven

ABSTRACT

The smart medi-kit care taking system is designed specifically for users who take medications without close professional supervision. It relieves the user of the error-prone tasks of administering wrong medicine at wrong time. The major components of this medication dispenser are a microcontroller interfaced with an alphanumeric keypad, an LED display, a Motor Controller, an Alarm system, a multiple pill container and dispenser. The overall operation is to facilitate the user to set the timings to dispense multiple pills at required timings and also patient monitoring system like temperature sensor and heart beat monitoring system.

MODEL OF ROW CROPS PRECISION SPRAYER

Mohan

ABSTRACT

A smart sprayer comprises a detection system and a chemical spraying system. In this study, the development status and challenges of the detection systems of smart sprayers are discussed along with perspectives on these technologies. The smart sprayer, a local-vision-sensor-based precision chemical application system, was developed and tested. The long-term objectives of this project were to develop new technologies to estimate weed density and size in real-time, realize site-specific weed control, and effectively reduce the amount of herbicide applied to major crop fields.

MECHANICAL CHARACTERIZATION OF FRICTION STIR WELDING OF ALUMINIUM ALLOY (5083).

K.Kalaiselvan[1], R.Prem kumar[2], R.Selvaprakash[3].

ABSTRACT

Friction Stir Welding, a solid-state joining technique, is widely being used for joining similar metals for aerospace, marine and automotive applications. FSW can provide better mechanical properties in the weld zone compared to other conventional welding techniques. AA 5083 plates of 6mm thickness have been considered for welding of the joints. The main objective of this article is to find the optimum parameters for butt joint made of AA 5083. The major process parameters like rotation speed (1200rpm), welding speed (25mm/min) and tool tilt angle (0°) at one levels are considered for the present study. The work has been carried out to study the effect of process parameters on the mechanical properties.

ALTERNATE UTILIZATION OF USED FOUNDRY SAND

Manoharan T[1], Laksmanan D[2], Mylsamy K[3].

1. Department of Mechatronics, RVS Technical Campus, Coimbatore 641402, India 2. Faculty of Engineering, Karpagam Academy of Higher Education, Coimbatore 641021, India 3. Dept of Mechanical Engineering, Dr. N.G.P. Institute of Technology, Coimbatore 641 048, India

ABSTRACT

In recent days the continuous increasing quantities of solid waste byproduct coming out from the industries forces to implement the proper solid waste management procedure, it helps to promote the effective utilization of available natural resources, limit the environmental degradation,

The scarcity of land filling space and huge cost involved in waste disposal of UFS threatens to keep going on the metal casting industries

On the other side, natural river sand used for construction is drying up. So it is, essential to find out any replacing material having the capacity of satisfying the construction requirements to help the sustainability of construction industries, with the aim of resolving the both issues, an experimental investigation was carried out to know the feasibility of replacing natural sand by UFS in M50 grade concrete for paver block productions

This investigation analyses the physical and chemical properties of UFS and the influence of replacing natural sand by UFS at 0, 5, 10, 15 20 and 25% on compressive strength, tensile strength, abrasive resistance and water absorption.

The experimental results suggest that the UFS can feasibly replace river sand, the mixture containing UFS up to 20 wt % gives almost similar to the values of control mix. However, it is recommended that the replacement should not exceed 20 wt%.

DESIGN, SIMULATION AND WIND TUNNEL TESTING OF CO-ROTOR WIND TURBINE

R.Karthik, K.Kiran

ABSTRACT

Wind energy has become vital and eco-friendly. The development of wind turbine is an evolution and at present conventional rotor wind turbine is commonly used around the world. In conventional wind turbine major part of the kinetic energy of the air is wastedand this type of rotor is ineffective under low velocity region. This also needs pitch control mechanism to capture power at different velocities and directions. To overcome this problem, co-rotor design has been developed, which utilizes most of the power from the available wind and operates at normal speed. The objective holds good to the technological perspective that when both rotors run and the power wasproduced,it would be much higher than that developed through conventional rotor. The current research emphasisesco-rotor wind turbine design and performed numerical simulations in the form of computational fluid dynamicsevaluates the fundamental flow parameters (pressure, velocity, torque, blade's angle of attack over velocity).Also wind tunnel testing of co-rotor is done, so as to evaluate the performance of designed co-rotor wind turbine besides, this work is brought to experimental investigation to explore practical understanding.Numerical and experimental results shows that 20.40 % more power wasproduced than existing wind turbine at design point 5 m/s, and thereby production of electricity from co-rotor wind turbine haveconsistentlyincreased.

Indexwords: Horizontal axis wind turbine, Blade length, Spacing Area, Co-rotor wind turbine, Betz's limi

PERFORMANCE STUDY OF BIODIESEL FROM JULIFLORA AND CASSIA FISTULA SEED EXTRACTS

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ABSTRACT

In the present world there is a huge need for the alternative fuel as fossil fuel is limit and also they produce greenhouse gases like CO, CO_2, Sulphur oxides which causes environmental pollution and harmful to humans. Biodiesel is the alternative to conventional diesel fuel made from renewable resources, such as non-edible vegetable oils and animal fats. The biodiesel also produces less air pollution compared to the fossil fuel. The oil from seeds can be converted to a fuel commonly referred to as "Biodiesel". It can provide an additional market for vegetable oils, this decreases the other countries dependence on diesel which increases the economy of our country. In some seeds like Cassiafistula and Juliflora seed, oil is prepared and blended together by mixing it with the alcoholin transesterification process so as to produce the biodiesel. The performance and the emission of the biodiesel is checked. The study also includes examination of physical and chemical properties of the biodiesel such as pH value, viscosity, density, flash point, fire point and acid values on the produced biodiesel as well as on the conventional diesel for comparison. The study revealed that the properties of the bio-diesel are very close to the conventional diesel.

KEYWORDS – Alternative fuel, Cassiafistula, Juliflora, Renewable resources, Transesterification

EXPERIMENTAL AND INVESTIGATION ON MECHANICAL PROPERTIES OF NATURAL FIBER REINFORCED EPOXY COMPOSITE

Vivek Kumar R, Gowtham S, Ajith Kumar, Infant Raj, Thirumalai R

ABSTRACT

A composite is combination of two materials in which one of the materials, called the reinforcing phase, is in the form of fibers, sheets, or particles, and is embedded in the other materials called the matrix phase. The reinforcing material and the matrix material can be metal, ceramic, or polymer. Composites typically have a fiber or particle phase that is stiffer and stronger than the continuous matrix phase and serve as the principal load carrying members. Composites are multifunctional material systems that provide characteristics not obtainable from any discrete material. They are cohesive structures made by physically combining two or more compatible materials, different in composition and characteristics and sometimes in form. “The composites are compound materials which differ from alloys by the fact that the individual components retain their characteristics but are so incorporated into the composite as to take advantage only of their attributes and not of their short comings”, in order to obtain improved materials.

Natural fibers have recently attracted the attention of scientists and technologists because of the advantages that these fibers provide over conventional reinforcement materials, and the development of natural fiber composites has been a subject of interest for the past few years. A composite material is defined as a material which is composed of two or more materials at a microscopic scale and has chemically distinct phases.Thus, a composite material is heterogeneous at a microscopic scale but statistically homogeneous at macroscopic scale. The materials which form the composite are also called as constituents or constituent materials. There is an unabated quest for new materials which will satisfy the specific requirements for various applications like structural, medical, house-hold, industrial, construction, transportation, electrical; electronics, etc. Metals are the most commonly used materials in these applications. In the yore of time, there have been specific requirements on the properties of these materials. It is impossible of any material to fulfill all these properties. Hence, newer materials are developed. In the course, we are going to learn more about composite materials.The majority of composites use a polymer matrix material or resin. Reinforcement materials are often fibres but may be ground minerals. Typically, lay up results in a product containing 60% resin and 40% fibre, while vacuum infusion produces product with 40% resin and 60% fibre. Fiber-reinforced composite materials include short fiber-reinforced materials and continuous fiber-reinforced materials which are used in layered or laminated structures.

Increased environmental awareness and consciousness throughout the world has developed an increasing interest in natural fibres and its applications in various fields. Natural fibres are now considered as serious alternative to synthetic fibres for use in various fields . The use of natural fibres as reinforcing materials in both thermoplastic and thermoset matrix composites provides positive environmental benefits with respect to ultimate disposability and

best utilization of raw materials . Currently, studies on use of lignocelluloses bio fibres in place of synthetic fibres as reinforcing materials are being pursued vigorously . These bio fibres are being extensively used for the production of cost effective ecofriendlybiocomposites

AN INVESTIGATION OF DRY WEAR ANALYSIS OF AA7075/ZRB$_2$

Ajay R, Ajithkumar S, Anish Melvin D, Mr.Nallusamy M

ABSTRACT

The unique characteristics of the composite materials for the specific requirements make these materials more popular in a variety of applications such as aerospace, automotive and structural components, resulting in savings of material and energy. In this paper aluminium alloy Al7075 was reinforced with ZrB_2 particles by stir casting method. Metal matrix composites produced by stir casting method have more advantages compare with other methods. Experiments were conducted by varying weight fraction of ZrB_2 (0%, 3%, 6% and 9%), while keeping all other parameters constant. The wear produced in pin on disc apparatus and wear analysis as well as Scanning Electron Microscope(SEM) examination of the wear tracks. This study revealed that the addition of ZrB_2 improves the wear resistance of aluminium composites.

AUTOMATED WALKING CANE

Anirudh.T Jithin. R

ABSTRACT

This is a whole new innovative idea with nothing in comparison to. The device solves two primary problems faced by people using walking canes, the first problem is that when they drop the cane, they cant pick it up, the walking stick has servo motors , which folds half way so the cane comes to a considerable height , and the person can reach it without bending down. It has a lithium ion battery which powers the servo motors, it has motor drivers in the handle segment.

The second problem is the patient or the user misplacing it somewhere else , and not being able to retrieve it, the device folds itself using the above mentioned servo motors and then drags itself to the user, thus solving the second issue. The components present in the device are also simple, it just uses

A micro-controller , three servo motors, a motor driver, a lithium ion battery, and gyroscope to detect the cane position.

The second stage consists of an ankle sensor attached to the user's ankle. We have used a texas instruments msp430 microcontroller in this version.

DEVELOPMENT OF NANO STRUCTURED COATING REVIEW

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ABSTRACT

Surface engineering deals with the surface of a solid matter and it is the sub-discipline of materials science. The surface phase of a solid when interacts with the surrounding environment, degrades over time, and may result in loss of material from its surface. Environmental degradation of the surface phase over time can be caused by corrosion, wear, fatigue loads, creep, cutting forces, shear, tension, or when exposed to higher temperature. Major types of wear include friction, erosion, abrasion and corrosion. Wear can be minimized by modifying the surface properties of solids by surface finishing or by use of lubricants. The corrosion will affect not only the metals, but also the non-metals like plastics, rubber, ceramics, etc. Surface engineering can be used to develop wide range of functional properties including physical, electrical, electronic, chemical, magnetic, mechanical, wear resistant and corrosion resistant properties at required substrate surfaces.Nano coating or nano sealing is the result of an application where nano structures build a consistent network of molecules on a surface.Nanocoating is a growing line and some of its applications are already in use where as many more with great potential are being researched.

KEYWORDS: surface engineering, material science, environmental degradation, Nano coating, Nano Structures

A NOVEL APPROACH FOR MUNICIPAL WASTE DISPOSAL BY AUTOMATIC DUSTBOT

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ABSTRACT

The aim of this project is to develop an autonomous robot that can move itself without continuous human guidance. The autonomous cleaner robot consists of low power consuming electronic components and it can operate at very low power. Electronic parts are the controller board Atmega 2560,ultrasonic sensors, voltage regulator IC and motor driver circuit. Mechanical part is motor with gearbox arrangement. Ultrasonic sensors detect the obstacles according to the program implemented.A 12volt,4.5Ah lead acid battery is the power source of the proposed cleaning robot.

Vacuum cleaning system used in this robot is Cyclonic type filtration system which works under the principle of forced vortex flow same as in case of centrifugal pump.Centrifugal force will be created and all types of debris will be sucked in through pipe. The advantage of using this robot will save time, it will be very much useful for people with mobility issues to clean the house without any difficulties. It is a simple and low cost robot.

ANALYSIS OF CORROSION AND IMPACT STRENGTH ON Al-ZrO2 COMPOSITE

Saran Kumar SS, Vikram B, VigneshwharS, GobinathS

ABSTRACT

This work has been carried out to investigate the effect of adding Zirconium oxide and Al-6061 to form a metal matrix composite. The composite has been produced by stir casting process. The volume fractions of both the reinforcing constituents have been varied. Tests like Corrosion andImpact tests have been performed on the prepared samples. SEM(Scanning Electron Microscope) and OES (Optical Emission Spectrometer) has also been done to characterize zirconium oxide in the matrix of Aluminium-6061. The results shows the improvement in mechanical properties of the composite by adding less amount of zirconia.

STUDY ON HARDNESS AND IMPACT STRENGTH OF ALUMINIUM COMPOSITE WITH SILICON CARBIDE (SiC) – REINFORCEMENT USING POWDER METALLURGY ROUTE

KARTHICK L, KAVI B, LOGESH S

ABSTRACT

Metal Matrix Composites (MMCs) have evoked a keen interest in recent times for potential applications in aerospace and automotive industries owing to their superior strength to weight ratio and high impact strength..In this investigation the hardness performance of SiC particulate reinforced Al-based metal matrix composite synthesised by direct sintering process has to be studied. And also to predict hardnessrate and impact strength in terms of process parameters such as oscillation, load, percentage of SiC particulate composition.Experiments have been conducted by varying weight fraction of SiC (15%, 20%, and 25%), while keeping all other parameters constant. Hence we get Al/SiC of three different compositionssuch as(75%+25%),(80%+20%) ,(85%,15%).Each specimen is tested with different parameters and results are evaluated.

ANALYSIS ON MACHINING BEHAVIOUR OF AA6063/BAGASSE AND TITANIUM NITRIDE HYBRID COMPOSITES

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ABSTRACT

The present work describes the Abrasive jet machining characterization of Aluminium/TiN/Bagasse hybrid composites. This newly developed product has been characterized for its machining properties. The addition of reinforcements to the metal matrix increases its strength, stiffness and other properties compared to the other conventional techniques. Each reinforcement material has its own individual properties which when added increases the properties of the base alloy.Experiments were conducted by varying the input parameters namely speed, stand-off distance and percentage reinforcement to study the Material Removal Rate and surface roughness of the composites. The various parameters varied in this machining process were speed, standoff distance thereby calculating the material removal rate with respect to the time. Material removal rate increases with decrease in standoff distance while the surface roughness decreases for the same.

KEYWORDS: Composite materials, AA6063, TiN, Bagasse, Abrasive jet machining, Surface roughness.

POWER GENERATION FROM A MOVING LOCOMOTIVE BY WIND TURBINE

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ABSTRACT

Locomotive Mounted Wind Turbine (LMWT) is amounted horizontal axis wind turbine system for heavy electric vehicles. This paper presents design and implementation of LMWT to generate electricity from vehicle. LMWT has several new advantages including high rpm turbine, convenient weight, practical shape, direct storage and portability. And also, this paper evaluates the LMWT performance in terms of power generation. Here analyze that, with proper designing, LMWT can generate approximately 1.2kW of power at vehicle speed of 80km/hr which have a radius of 1m. A number of design considerations have taken into account specially for designing LMWT to ensure its proper functionality in practical heavy electrical locomotives.

EXPERIMENTAL INVESTIGATION OF CLUTCH PLATE USING NATURAL FIBRES

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ABSTRACT

In general Clutch plates in automobile undergo high wear rate, due to that high wastage of metals will occurs. It can be reduced by developing the new composite materials using natural fibres. For improving mechanical property of clutch plate the fibres taken were chicken feather and bamboo fibre. The composite is made by hand-lay-up technique using the resin vinyl ester by varying the fibre ratios as 1:1, 1:3, 3:1. The properties such as tensile strength, hardness and wear rate of the natural composite has been examined and their results are compared.

EXPERIMENTAL INVESTIGATION ON FLEXURAL,WATER ABSORBTION PROPERTY AND SURFACE MORPHOLOGY PROPERTY OF HYBRID FIBRE EPOXY COMPOSITES

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ABSTRACT

The polymer matrix composites have been widely used for many applications. These are light in weight and easy for manufacturing. The hybrid fiber reinforced composites have been prepared to enhance the mechanical, thermal, damping properties compared to single-fiber reinforced composites. The fiber reinforced hybrid composites consist of two or more fiber in a matrix system. The present research work addressed the results of experimental investigation on the mechanical properties and free vibration behaviours of Agave American / Jute fibre reinforced epoxy hybrid composites. Hybrid composites are fabricated with simple hand lay-up method followed by compression moulding process. Mechanical properties of composites are measured according to ASTM standards.The mechanical properties of flexural properties of Agave American / Jute fibre reinforced hybrid epoxycomposites were reported. Scanning electron microscopy is performed to study the interfacial mechanism. Natural frequency and modal damping values of hybrid composites are analysed by experimental modal analysis.

SMART MEDIKIT CARE TAKING SYSTEM FOR ELDERLY AND PATIENT MONITORING SYSTEM

Clevingeorge

ABSTRACT

The smart medi-kit care taking system is designed specifically for users who take medications without close professional supervision. It relieves the user of the error-prone tasks of administering wrong medicine at wrong time. The major components of this medication dispenser are a microcontroller interfaced with an alphanumeric keypad, an LED display, a Motor Controller, an Alarm system, a multiple pill container and dispenser. The overall operation is to facilitate the user to set the timings to dispense multiple pills at required timings and also patient monitoring system like temperature sensor and heart beat monitoring system.

IMPROVING THE EFFICIENCY OF A SOLAR AIR HEATER BY NANO COATING

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ABSTRACT

Solar air heaters are systems that collect solar energy and transfers the heat to passing air, which is either stored or used for space heating. The collectors are often black to absorb more of the sun's energy and a conductive material, often metal, acts as a heat exchanger.Solar collectors are the main components of a solar heating system. The collectors collect the sun’s energy, transform this radiation into heat, and then transfer this heat into a fluid, water or air, which has many household or industrial applications. This paper introduces a new technology to improve the performance of the solar thermal collectors. The solar reflector used here with the solar collector to increase the reflectivity of the collector. Thus, the reflector concentrates both direct and diffuse radiation of the sun toward the collector. To maximize the intensity of incident radiation, the reflector was allowed to change its angle with daytime.

Keywords: solar energy, flate plate collector, reflector, conductive material.

EXPERIMENTAL INVESTIGATION ON EFFECTS OF CERAMIC FILLERS ON THE NATURAL FIBER REINFORCED EPOXYCOMPOSITES.

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ABSTRACT

Increasing the problem of Global warming, green house effects, climate changing,etc. So we want to use manufacturing products do not affect earth or not spoil the environment. So we want to make eco friendly products. This type of eco friendly products are manufacturing by major constituents of Natural or natural composite materials. The composite materials are replacing the traditional materials, because of its superior properties such as high tensile strength, low thermal expansion, high strength to weight ratio. The developments of new materials are on the anvil and are growing day by day. Natural fiber composites such as snakegrass, ramie became more attractive due to their high specific

strength, lightweight and biodegradability. Making of hybrid natural fiber reinforced Polymers is finding increased applications. By using five reinforcement with epoxy resin used for produce 6 different combinations.

FPGA IMPLEMENTATION OF NEW DATATRANSFER DATAMATRIX METHODOLOGY FOR IP PROTECTION SCHEME

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ABSTRACT

Data matrix as a novel intellectual property (IP) protection technique can protect field programmable gate array (FGPA) IP's from the infringement. However, the data matrix technique will protect the sensitive information during the public verification. The third party vendors cannot crack the embedded watermark to resell the design. B y the zero-knowledge watermarking verification schemes, we can address the sensitive information leakage issues but are vulnerable to embedding attacks, which makes them ineffective in preventing the infringement denying of verifiers. This paper proposes a new data transfer data matrix methodology based on the chaos based zero-knowledge interaction whichresist embedding attacks. The proposed method with implementation result and analysis provided a high secured data transfer with better robustness.

AN INVESTIGATION OF DRY WEAR ANALYSIS OF AA7075/ZRB2

Ajay R, Ajithkumar S, Anish Melvin D, Mr.Nallusamy M

ABSTRACT

The unique characteristics of the composite materials for the specific requirements make these materials more popular in a variety of applications such as aerospace, automotive and structural components, resulting in savings of material and energy. In this paper aluminium alloy Al7075 was reinforced with ZrB2 particles by stir casting method. Metal matrix composites produced by stir casting method have more advantages compare with other methods. Experiments were conducted by varying weight fraction of ZrB2 (0%, 3%, 6% and 9%), while keeping all other parameters constant. The wear produced in pin on disc apparatus and wear analysis as well as Scanning Electron Microscope(SEM) examination of the wear tracks. This study revealed that the addition of ZrB2 improves the wear resistance of aluminium composites.

TORQUE RIPPLE MINIMIZATION IN BRUSHLESS DC MOTOR USING SEPIC CONVERTER

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ABSTRACT:-

BRUSHLESS DIRECT CURRENT MOTOR (BLDCM) drives are becoming more popular due to its high power efficiency, high torque to weight and inertia ratios, high power density, high dynamic response, high reliability, compact size and simple control. The BLDCMs with trapezoidal back-EMF are used extensively in medical, aviation, electric vehicles, industrial and defense motion-control applications electronically commutated BLDCMs are highly reliable and require less maintenance due to the elimination of high- wear parts such as standard mechanical commutator and brush assembly In this paper proposed a novel topology for Commutation torque ripple reduction in BLDCM using modified SEPIC Converter

EXPERIMENTAL INVESTIGATION ON FLEXURAL PROPERTY AND SURFACE MORPHOLOGY PROPERTY OF HYBRID FIBRE EPOXY COMPOSITES

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ABSTRACT

Now-a-days , the fibre reinforced materials are highly used for the superior quality, excellent performance and make them well suited for various applications .A hybrid composite is a combination of two or more different types of fibre in a matrix system . Mechanical properties of the composite materials are measured according to ASTM standards .The present research work addressed the results of experimental investigation on the mechanical properties of Abaca / snake grass fibre reinforced epoxy hybrid composites. Hybrid properties are followed by compression moulding process and undergo different kind of tests .

Keywords— abaca & snake grass fibre ,epoxy resin,polymer matrix composites,compression moulding,

ULTRASONIC BASED ROAD SAFETY SYSTEM: SMART CAR DOORS

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ABSTRACT

This project is designed with a social view for controlling the accidents which are occurred during the car door opening without noticing the vehicle is coming close. In recent times there are many accidents are occurring due to dooring. This project can be implemented not only in cars but also in any other vehicle. While opening the car door the passenger inside the car will not notice the vehicle coming so that the vehicle has chance to hit the car door and injuries may occur. Due to lack of concentration this problem will occur. So by this project we made the car door to close and lock automatically until the vehicle crosses. If the speed of the vehicle is in the particular limit (<10kmph) door of the car will not locks when it is beyond the speed limit (>10kmph) then the door locks automatically. Due to this lives are saved and injuries to the humans are avoided. By using the ultrasonic sensor the microcontroller calculates the speed of the vehicle. If the door of the car is already open and any high speed movement is detected then the car door closes automatically until it stuck by some object or humans. While opening the door if a vehicle comes then the door will locks, we cannot open the door further but it can be closed. DC gun and electro-magnetic locks are used for locking the car door. Accidents caused by car doors being opened into the path of oncoming vehicles or cyclists are common in cities. These problems can be avoided by adding smart locking system on the car door. Ultrasonic sensor gives the distance between two objects but by using coding in the

microcontroller, the microcontroller will takes sample and calculate the speed. The sample will be taken based on first distance to second distance on a specific time period.

CYCLE TIME REDUCTION IN DOUBLE COLUMN BAND SAW CUTTING MACHINE

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ABSTRACT

Our project is an industrial project,which is all about reducing cycle time in double column band saw cutting machine. This machine is used by BHEL for their pipe cutting process. The cutting process usually takes a long time as the workpiece needs to be loaded and unloaded one by one. To overcome this we have designed a loading and unloading stand which can hold above 10 pipes together and over 20 pipes can be unloaded at a same time. This reduces the overhead crane usage. A marking gauge and stopper is provided at the unloading side to reduce the time taken by manual feeding and setting. On the whole this project reduces cycle time of band saw cutting machine by 50%.

Keywords—design, cycle time, loading stand ,unloading stand, marking gauge

INTERNET OF THINGS BASED COGNITIVE RADIO DRIVEN HOSPITALS: A CASE STUDY

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ABSTRACT

The utilization of wireless technology in traditional medical services provides enhanced Mobilityand far access to medical devices. Remote health monitoring could be used to monitor non-critical patients at home rather than in hospital, reducing strain on hospital resources such as doctors and beds. The advancements and convergence of micro-electromechanical systems (MEMS) technology, wireless communications, and digital electronics have led to the development of miniature devices. The Internet of Things (IoT) has been widely identified as a potential solution to alleviate the pressures on healthcare systems, and has thus been the focus of much recent research. Standardization is a key issue limiting progress in this area, and thus this paper proposes a standard model for application in future IoT healthcare system.

Internet of Things (IoT) is a world- wide network of interconnected objects. IoT capable objects will be interconnected through wired and wireless communication technologies.

However, cost-effectiveness issues and accessibility to remote users make wireless communication as a feasible solution. A majority of possibilities have been proposed but many of these suffer from vulnerabilities to dynamic environmental conditions, ease of access, bandwidth allocation and utilization, and cost to purchase spectrum. Thus trends are shifting to the adaptability of Cognitive Radio Networks (CRNs) into IoT. Additionally, ubiquitous objects with cognitive capabilities will be able to make intelligent decisions to achieve interference-free and on-demand services. The main goal of this paper is to discuss how CR technology can be helpful for the IoT paradigm.

DESIGN AND FABRICATION OF BIRD FOOD AND WATER DISPENSER USING TIMER

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ABSTRACT

The purpose of this project is to provide food and water for pet birds using timer operated bird food and water dispenser. The major problem faced by the people having pet birds at their home is feed and water the birds regularly. This can be solved by this bird food and water dispenser. By using this timer operated bird food and water dispenser, food and water are provided to the birds in the cage at specified time that is programmed in the timer.

An automatic birdfeeder includes a storage container and valve to dispense stored feed. Dispensing of feed occurs at variable sequences controlled by timer. When the valve is activated stored feed flows through dispensing port onto receptacle platform for access by feeding birds. Receptacle platform supports frame by using spaced support posts. Frame supports container and battery. Valve is attached to container vital exposed components are fabricated of metal to resist damage by birds.

Keywords- Food and Water dispenser, Timer board, DC Gun, Water Solenoid Valve

DIGITAL SIGNAL PROCESSING AND ROBOTICS FOR INDUSTRIAL AUTOMATION

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ABSTRACT

Robotics is an interdisciplinary branch of engineering and science that includes electrical engineering, mechanical engineering, computer science engineering and others. With the rapid increase of labor cost in domestic service industry, it provides a powerful driving force for rapid

development of service Robot. The design assumes no specific algorithm and Robot configuration and it is easy to increase the drive joints. A system based on a single chip digital controller allows designers to implement multiple functions such as general motor drive algorithm, communication protocol and power factor correction scheme etc.

ENERGY RESOURCES

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ABSTRACT

Energy is the primary and most universal measure of all kinds of work all human beings and nature. Energy is a crucial input in the process of economic, industrial and social development.As conventional energy sources are depleting day by day, utilization of alternative energy sources is the only solution. The increased power demand, depleting fossil fuels resources and growing environmental pollution have let the world to think seriously for other alternative sources of energy.The bulk of demand of oil is from transport sector and in order to reduce the pressure from this sector. It is necessary to explore possibilities of developing substitute biomass, fuels etc.

EXPERIMENTAL INVESTIGATION ON EFFECTS OF CERAMIC FILLERS ON THE NATURAL FIBER REINFORCED EPOXYCOMPOSITES.

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ABSTRACT

Increasing the problem of Global warming, green house effects, climate changing, etc. So we want to use manufacturing products do not affect earth or not spoil the environment. So we want to make eco friendly products. This type of eco friendly products are manufacturing by major constituents of Natural or natural composite materials. The composite materials are replacing the traditional materials, because of its superior properties such as high tensile strength, low thermal expansion, high strength to weight ratio. The developments of new materials are on the anvil and are growing day by day. Natural fiber composites such as snakegrass, ramie became more attractive due to their high specific strength, lightweight and biodegradability. Making of hybrid natural fiber reinforced Polymers is finding increased applications. By using five reinforcement with epoxy resin used for produce 6 different combinations.

EXPERIMENTAL AND INVESTIGATION ON MECHANICAL PROPERTIES OF NATURAL FIBER REINFORCED EPOXY COMPOSITE

Vivek Kumar R, Gowtham S, Ajith Kumar, Infant Raj, Thirumalai R

ABSTRACT

A composite is combination of two materials in which one of the materials, called the reinforcing phase, is in the form of fibers, sheets, or particles, and is embedded in the other materials called the matrix phase. The reinforcing material and the matrix material can be metal, ceramic, or polymer. Composites typically have a fiber or particle phase that is stiffer and stronger than the continuous matrix phase and serve as the principal load carrying members. Composites are multifunctional material systems that provide characteristics not obtainable from any discrete material. They are cohesive structures made by physically combining two or more compatible materials, different in composition and characteristics and sometimes in form. “The composites are compound materials which differ from alloys by the fact that the individual components retain their characteristics but are so incorporated into the composite as to take advantage only of their attributes and not of their short comings”, in order to obtain improved materials.

Natural fibers have recently attracted the attention of scientists and technologists because of the advantages that these fibers provide over conventional reinforcement materials, and the development of natural fiber composites has been a subject of interest for the past few years. A composite material is defined as a material which is composed of two or more materials at a microscopic scale and has chemically distinct phases.Thus, a composite material is heterogeneous at a microscopic scale but statistically homogeneous at macroscopic scale. The materials which form the composite are also called as constituents or constituent materials. There is an unabated quest for new materials which will satisfy the specific requirements for various applications like structural, medical, house-hold, industrial, construction, transportation, electrical; electronics, etc. Metals are the most commonly used materials in these applications. In the yore of time, there have been specific requirements on the properties of these materials. It is impossible of any material to fulfill all these properties. Hence, newer materials are developed. In the course, we are going to learn more about composite materials.The majority of composites use a polymer matrix material or resin. Reinforcement materials are often fibres but may be ground minerals. Typically, lay up results in a product containing 60% resin and 40% fibre, while vacuum infusion produces product with 40% resin and 60% fibre. Fiber-reinforced composite materials include short fiber-reinforced materials and continuous fiber-reinforced materials which are used in layered or laminated structures.

Increased environmental awareness and consciousness throughout the world has developed an increasing interest in natural fibres and its applications in various fields. Natural fibres are now considered as serious alternative to synthetic fibres for use in various fields . The use of natural fibres as reinforcing materials in both thermoplastic and thermoset matrix composites provides positive environmental benefits with respect to ultimate disposability and best utilization of raw

materials . Currently, studies on use of lignocelluloses bio fibres in place of synthetic fibres as reinforcing materials are being pursued vigorously . These bio fibres are being extensively used for the production of cost effective ecofriendlybiocomposites

STUDY ON WEAR BEHAVIOUR OF ALUMINIUM/SILICON CARBIDE COMPOSITE

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ABSTRACT

In this paper the wear performance of Al-based metal matrix composite reinforced with silicon carbide (SiC) has been investigated. The silicon carbide particulate composition in Al/SiC composite was taken in three different proportions such as 5%, 10% and 15%. The wear tests were conducted using pin on disc apparatus. The parameters taken in to consideration were percentage of silicon carbide, disc speed of rotation, load and track diameter. Taguchi technique was employed to conduct the experiments. The significance of the parameter was determined using analysis of variance (ANOVA) technique. Al/SiC of three different compositions such as (85%+15%), (90%+10%), (95%, 5%).Each specimen is tested with different parameters and results are evaluated.

Keywords— Composite Materials, Aluminium, Silicon Carbide, Sintering

OPTIMIZED DESIGN OF COMPOSITE LAMINATE AIRCRAFT PROPELLER BLADES

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ABSTRACT

Traditional propeller are made of high-stiffness metal material.They deform only slightly and are usually designed to work at a constant speed, operating at reduced efficiency at other speeds. This research design composite propeller that operates over a wide range of speeds. The deformation of propeller is determined by orientating fibres to produced propellers that are more efficient that those made of metals. The structural and fluid dynamic calculations are performed to determine the deformation ,the fluid pressure and the performance of the propeller. An optimizing genetic algorithm is then used to determine the best stacking sequence of the propeller, However if the optimal stacking sequence does not outperform a metal propeller, a predeformed design is then used to solve this problem.The best stacking sequence of composite

propeller blades is obtained using a genetic algorithm, then the best results is obtained .

DESIGN AND ANALYSIS OF PISTON USING HYBRID MATERIALS

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ABSTRACT

From very beginning days piston has been made up ofcast iron or Aluminium for their high heat transfer rate. After some days cast iron expands much more on heating that it overcomes the clearance level that comes to seize the engine. This paper aims to design a piston using composite material thatwill differ from traditional engine piston which will be partially reinforced like Al-Si , Al-Mg, silumin and Al-Mg-Si as it produces a layer between reinforced and unreinforced layer.Designcalculations of piston is prepared from Al-Si-Mg properties and model is prepared by using Creo, finally analysed on ANSYS. The modified piston model has been successfully designed in this paper which posses the benefits of mass and cost reduction compared to the traditional piston.

STRUCTURAL AND DIELECTRIC STUDY OF MANGANESE SUBSTITUTED CUFE2O4 NANOPARTICLES

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ABSTRACT

Nano-sized Mn substituted CuFe2O4 ferrites have been synthesized by a simple evaporation method and auto combustion method. The synthesized CuFe2O4 ferrite powders were annealed at 600 and 900 C. The influence of annealing on phase and particle size of spinel ferrite nano-particles was determined by X-ray diffraction. The particle size is increased by increasing the annealing temperature. The spherical shaped nano-particles distribution was photographed by transmission electron microscopy (TEM). Variations in dielectric constant and dielectric loss of the as-prepared samples by the two methods are reported along with the effect of different annealing temperatures.

CRICKET BOWLING MACHINE

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ABSTRACT

An Automatic Bowling Machine (ABM) is a device that works as ante practice bowler, means delivering balls to the batsman. The term automatic machine is used because of machine does not require any person to constantly put balls into the bowling machine therefore the extra man to stand with machine. To make a ball projecting machine which pitches various kind of

balls either soft leather, tennis ball at desired line and length as required. These wheels are mounted on a base for axial rotation in a common plate. The rotational plane of the wheel about axis parallel to direction of delivery of ball and its perpendicular axis are required. These adjustments of relative rotational speeds and plane of rotation of the wheels afford wide variations in the bowling speeds,spin and direction.

Keywords: Sports ball, DC motor, Cricket, Bowling machine.

THREE AXIS PNEUMATIC MODERN TRAILERS

selvanathan

ABSTRACT

This project work titled ―Three axis pneumatic modern trailer‖ has been conceived having studied the difficulty in unloading the materials. Our survey in the regard in several automobile garages, revealed the facts that mostly some difficult methods were adopted in unloading the materials from the trailer. The trailer will unload the material in only one single direction ion. It is difficult to unload the materials in small compact streets and small roads. In our project these are rectified to unload the trailer in all three sides very easily. Now the project has mainly concentrated on this difficulty, and hence a suitable arrangement has been designed. Such that the vehicles can be unloaded from the trailer in three axes without application of any impact force. By pressing the direction control valve activated, the compressed air is goes to the pneumatic cylinder through valve. The ram of the pneumatic cylinder acts as a lifting the trailer cabin. The automobile engine drive is coupled to the compressor engine, so that it stores the com-pressed air when the vehicle running. This compressed air is used to activate the pneumatic cylinder, when the valve is activated.

CHARACTERIZATION STUDY OF THERMAL BARRIER COATING ON A356 ALUMINIUM ALLOY

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ABSTRACT

Thermal barrier coating on aluminum, is widely used in recent years as a protective coating due to its capability to withstand high temperature and cost effective process. This paper will discuss the overall frame work of experiment to justify the performance of thermal barrier coating using plasma arc method. In our project we had used Zirconium and Lanthanum oxide as a coating material for Aluminum. Coating is done at an temperature of 1200^{0} c to 1400^{0} c. After coating of aluminum alloy different tests made on coated material like Corrosion test, Tensile strength, Adhesion test, Thermal cycle test and Thermal conductivity.

Keyword: Aluminum alloy (A356), Thermal barrier coating, Plasma Arc method, zirconium and Lanthanum Oxide.

MODELLING THE INPUT PROCESS PARAMETERS OF WIRECUT EDM ON SUPER ALLOY MATERIAL USING RESPONSE SURFACE METHODOLOGY

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ABSTRACT

Wire electrical discharge machining (WEDM) allowed success in the production of newer materials, especially for the aerospace and medical industries. Using WEDM technology, complicated cuts can be made through difficult-to-machine electrically conductive components. The high degree of the obtainable accuracy and the fine surface quality make WEDM valuable. The right selection of the machining conditions is the most important aspect to take into consideration in processes related to the WEDM of monel k-500 material. Monel k-500 is composite has high wear and tear resistant.The present work highlights the development of mathematical models for correlating the inter-relationships of various WEDM machining parameters of monel k-500material. such as: Pulse on time, Pulse off time, WFR,GV and WT on the metal removal rate (MRR). This work has been established based on the response surface methodology (RSM).

Keywords: Monel k-500, WEDM, Ton, Toff, GV, MRR.

OPTIMIZED DESIGN OF COMPOSITE LAMINATE AIRCRAFT WING

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ABSTRACT

In this project deals with optimal stacking sequence design of laminate composite structure of aircraft wing. Stacking sequence optimization of laminate composite is formulated as a combinational problem and is solved using ANSYS. It aims at giving a general overview of the problems that a designer must face when he works with laminated composite structures and the specific solutions that have been derived. Based it on fibers orientations and ply thickness as design variables. it is daily used in an (European) industrial context for the design of composite aircraft box structures located in the wings, the center wing box, and the vertical and horizontal tail plane. This approach is based on sequential convex programming and consists in replacing the original optimization problem by a sequence of approximated sub-problems. A very general and self adaptive approximation scheme is used. It can consider the particular structure of the mechanical responses of composites, which can be of different nature when both fibres orientations and plies thickness are design variables. Several numerical applications illustrate the efficiency of the approach.

EJECTION CABIN SYSTEM IN BUSINESS AIRCRAFT

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ABSTRACT

If any emergency period that time fuselage cabin eject from fuselage. The Fighter aircraft same principles to applying here, fuselage upper area or top side moving opposite direction, If emergency time the business aircraft pilot give alert to fuselage cabin. So always or all member sit that particular seats and wearer seat belt. And give next process. All the seat is join together. And next top of the fuselage they will open opposite direction. The same time cabin bottom side ejection rockets is push gas there help of out of the aircraft cabin. the rocket used to lift the aircraft cabin straight out of aircraft to safe distance, then deploy a parachute to allow the cabin to safe landing. Is available which one want that particular situation (land/sea) they will use. Battery working up to 5hrs to 10 hrs and they automatically charged solar system. Communication system, GPS system, they help of intimate to our organization or aviation department.

MODEL OF ROW CROPS PRECISION SPRAYER

Mohan

ABSTRACT

A smart sprayer comprises a detection system and a chemical spraying system. In this study, the development status and challenges of the detection systems of smart sprayers are discussed along with perspectives on these technologies. The smart sprayer, a local-vision-sensor-based precision chemical application system, was developed and tested. The long-term objectives of this project were to develop new technologies to estimate weed density and size in real-time, realize site-specific weed control, and effectively reduce the amount of herbicide applied to major crop fields.

STUDY ON MECHANICAL BEHAVIOUR OF AA6063/TIN/BAGASSE HYBRID COMPOSITES

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ABSTRACT

In this decade the technology has grown at a higher level by making all the products at low cost, co-friendly with good and high quality that provides a longer life. An effort was made to produce aluminum hybrid composites. Aluminum alloy AA6063 is reinforced with titanium nitride and bagasse fly-ash. The bag asset fly-ash is prepared by firing the biogases and filtering the ash into fine particles. The fabrication method used is stir casting method, one of the liquid state method. The mechanical properties namely tensile, hardness, impact, flexural strength are studied. The micro structure is studied by using Scanning electron microscope(SEM) .The hardness value makes a gradual increase initially and decreased by the addition of reinforcement .The impact value remains stable till (AA6063-92%,TiN-6%) and increases at the further

addition of reinforcement (AA6063-94%,TiN-4%).The flexural strength increases and then decreases. The tensile strength decreases and increases at a slower manner.

DESIGN AND ANALYSIS OF SPAN WISE ADAPTIVE WING

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ABSTRACT

The adaptive wing and biophysics observed in the natural provide the foundation for the adaptive wing technology and flight control used in aircraft design. In this paper review completely about the technology involved in improving the performance of aircraft by span wise adaptive wing. The transonic wings of commercial aircraft with fixed geometry offer a large potential for improvement. Such geometry wings are optimized only one design point characterized by the parameters like altitude, Mach number and weight. Therefore the adaptive wing concept can also be applied in business class aircraft. Hence this will improve the performance of aircraft is only seldom optimal. The span wise adaptive wing concepts enhance aircraft performance through allowing the outboard portions of wing to adapt or fold, according to different flight conditions. Therefore the span wise adaptive wing or folding concept can be used to increase the lift.

POWER QUALITY ENHANCEMENT FOR A GRID CONNECTED WIND TURBINE ENERGY SYSTEM

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ABSTRACT

A comprehensive control of a wind turbine system connected to an industrial plant is discussed in this paper where an algorithm has been developed allowing a control structure that utilizes a four-leg inverter connected to the grid side, to inject the available energy, as well as to work as an active power filter, mitigating load current disturbances and enhancing power quality. A four-wire system is considered with three-phase and single-phase linear and nonlinear loads. During the connection of the wind turbine, the utility side controller is designed to compensate the disturbances caused in presence of reactive, non-linear and/or unbalanced single- and intra-phase loads, in addition to providing active and reactive power as required. When there is no wind power available, the controller is intended to improve the power quality using the DC-link capacitor with the power converter attached to the grid. The main difference of the proposed methodology with respect to others in the literature is that the proposed control structure is based on the Conservative Power Theory decompositions. This choice provides decoupled power and current references for the inverter control, offering very flexible, selective and powerful functionalities. Real time software benchmarking has been conducted in order to evaluate the performance of the proposed control algorithm for full real-time implementation. The control methodology is implemented and validated in hardware-in-the-loop (HIL) based on Opal-RT and a TI DSP. The results corroborated our power quality enhancement control, and allowed to

exclude passive filters, contributing to a more compact, flexible and reliable electronic implementation of a smart-grid based control.

MULTI-PURPOSE AGRICULTURE MACHINE FOR PADDY, MAIZE AND GROUNDNUTS

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ABSTRACT

As there is a tremendous development in the field of engineering the current scenario makes us to find solution for major problems faced by the agricultural field. Lot of equipments were invented to sophisticate the work of labors in the farms. The Multipurpose machine is used for ploughing the field, sowing the seeds and for spraying the fertilizers into the land for making lots of plant production in agricultural field. The cost of this machine is very low and easy to operate and simple in construction. The main objective of this project is to improve the current way of farming by introducing multiple equipments. It helps farmers by cutting grass and sowing the seeds and fertilizer spraying. We have fabricated a device called ―MULTI PURPOSE AGRICULTURAL MACHINE FOR PADDY, MAIZE AND GROUNDNUTS. To sow the seeds first land should be cleaned and after sowing the seeds the fertilizer is sprayed on the land. This equipment which we build will do the mentioned functions automatically. It will be very useful for agricultural purpose and very simple in construction and economical.

INVESTIGATION OF POLY CARBONATE PLASTIC WITH COMPOSITE MATERIALS

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ABSTRACT

Our project represents the investigation of polycarbonate plastic with composite material. The polycarbonate plastic has good nature of strength, it can be used for various propose in industries .A test was conducted to find the compressive strength, tensile strength, flexural strength, impact strength, moisture strength, shear strength by using experimentally and computational analysis with zero degree orientation. The polycarbonate plastic and glass fiber have been fabricated by hand layup method, the strength was tested in the computerized universal testing machine with different loading condition for six strength have been analyzed by the help of ANSYS 17 experimental and computational analysis value of the compressive strength, tensile strength, flexural strength, impact strength, moisture strength, shear strength of the bidirectional glass fiber and polycarbonate are compared and found that the polycarbonate plastic have high strength than glass fiber into which have tensile, impact and moisture strength so it can be in all the aircraft parts by replacing the glass fibers.

FABRICATION, CHARACTERISATION AND TESTING OF GRANITE REINFORCED POLYMER MATRIX COMPOSITE IN AUTOMOTIVE APPLICATIONS

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ABSTRACT

Polymers have long been used as a substitute to various conventional materials. The mechanical properties have also been reconstructed several times, for different purposes, using reinforcing agents. In the present study, the purpose was to investigate the effect of metallic fillers on the mechanical properties of a commercial epoxy resin. Granite was thus reinforced as filler particles, having size less than 100μm. Compressive strength and hardness were evaluated and compared. Fillers were varied in their weight percentage (i.e., 0%, 5%, and 10%).Both hardness and compressive strength was increased with an increase in filler content. Fracture behavior of composite was studied using SEM.

There are various types of vehicles in the automobile market. Among them the high speed performance vehicles are in need to meet the future development. For future development, the weight of the vehicle must be reduced; therefore the weight of the wheel rim is reduced. Thus, the power transmission from the engine to the wheels is optimized to meet the performance characteristics.

DESIGN AND FABRICATION OF VERTICAL AXIS WIND TURBINE

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ABSTRACT

A wind turbine is a device that converts kinetic energy from the wind into electrical power. Vertical Axis Wind Turbine (VAWT) is one type of wind turbine where the main rotor shaft is set vertically and it can capture wind from any direction. The aim of this work is to develop a theoretical model for the design and performance of Durries type vertical axis wind turbine for small scale energy applications. A small 8 bladed turbine (prototype) is constructed and investigated the performance for low wind velocity. The model is based on NACA 0018 airfoil&sheetmetal is used as blade material. The full scale Vertical Axis Wind Turbine is made for 36 inch height, 24 inch diameter, blade cord length is 3.937 inch & blade height is 24 inch. A 100 watt 24 volt brushless DC motor is used to measure output power. The whirling speed of blade & electric power output for the corresponding speed is measured through Tachometer & Wattmeter. The power curves show the relation between the rotational wind speed of the turbine and the power produced for a range of wind speeds. This approach indicates to develop vertical axis wind turbine with better performance to meet the increasing power demand.

DESIGN AND DRAG REDUCTION DEVICES IN AIRCRAFT WING AND AUTOMOBILES

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ABSTRACT

We are using vortex generators as a drag reduction device by using VG we can reduce the drag and also improve the max lift coefficient of the wing. It "re-energies the boundary layer" over the wing with the help of VG. It also increases static stability of an aircraft to improve the performance of the aircraft. We are modeling the vortex generators with the help of CATIA v5 R17 and also has made with varying pattern, pitch angle, different locations. By changing the angle of wing we are doing the analysis. For flow analyzing we are using Ansys 16.0. We calculating the cl and cd by giving different velocities, Mach no, turbulence etc.., finally we conclude that we will make result analysis by the comparison of all the analysis process.

SURFACE COATING ON MILD STEEL USING CHEMICAL VAPOUR DEPOSITION METHOD

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ABSTRACT

In general mild steel (AISI1020) used in automobile undergo high wear rate and corrosion when it comes in contact with aggressive environment which leads to decrease in mechanical strength. So the additional surface coating is required in order to increase their properties. AISI 1020 steel can be largely utilized in all industrial sectors to enhance weldability or machinability properties. AISI 1020 is a low harden ability and low tensile carbon. The wear and corrosion can be reduced by applying the surface coating on the mild steel with the help of chemical vapor deposition method. Chemical vapor deposition (CVD) is a chemical process used to produce high quality, high-performance, solid materials. For improving the mechanical properties of mild steel the chromium is used to increase the wear and corrosion resistances. The mechanical properties like wear and corrosion resistance, hardness have been examined and the results are compared. The wear and hardness strength of the mild steel (AISI 1020) with coatings have shown the advantage of coatings with an external layer of metal coatings.

EFFECT OF DIMPLE SURFACE IN AIRCRAFT WING

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ABSTRACT

An Air foil is a cross section of air plane wings. Wings of airplanes produce lift by creating pressure difference between upper and lower surface of wings. This so called lift enables the airplanes to fly helps them remain high in the sky. One of the major problems that an airplane experienced is flow separation. This causes the reduction of lift and increment of drag

Drag is the resisting force of air. A lot of researchers working hard since few decades to minimize this flow separation effect. As a result of their hard working concept of vortex generator have been developed. This delays the boundary layer separation though there are various types of vortex generators. In the present review a special type of vortex generator namely dimple is focused. Since last half of decades' investigations related to dimples grew the attention of many researchers. A lot of numerical and experimental investigations have been conducted by several researchers around the world related to dimples effect on airplanes wings cross section or air foils. The outcomes of those investigations are extremely tremendous. Those outcomes indicate that dimples of different size and shape can play a vital role in designing of airplanes wings. This present study or reviews try to sum up all of those researches in a nut shell.

DESIGN AND ANALYSIS OF BIRD'S INSPIRED AIRCRAFT WING

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ABSTRACT

This work of our project idea describes the aerodynamic characteristic for bird's inspired aircraft wing such that cranked and curve shaped wing like bird's wing. The Aerofoil used to construct the whole structure is NAC Aeries which gives the best performance and generate more lift for wing. The model of the bird's wing design using CATIA P3 V5R17 software. We have used to design, the wing cranked, like bird's wing by attached the separate size Aerofoil at each bend and curves of trailing edge of the wing. The experimental airflow analysis of the aerodynamic characteristic for various bird's wing is done and which one of the design generate more lift, high performance when compared the common normal types of wing by using ANSYS software.

MECHANICAL PROPERTIES OF AL (5083) SURFACE COMPOSITES DEVELOPED BY FRICTION STIR PROCESSING TECHNIQUE.

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ABSTRACT

The FSP process is primarily used for modification of micro-structure near surface layer of processed metallic components. The aim of this experiment was to improve mechanical properties of AL5083 by Friction Stir Processing. A solid state technique for micro structural modification using the heat from friction in stirring. The fabrication of AL5083 with the reinforced layer of Silicon carbide and Aluminum oxide through the FSP was carried out. By adding Aluminum oxide ceramic and silicon carbide the aluminum 5083 hardness have been increased 83Hv and 82Hv respectively.

FLOW ANALYSIS OVER Q TIP PROPELLER USING ANSYS SOFTWARE

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ABSTRACT

CFD is a branch of fluid mechanics that uses numerical methods and algorithms to solve and analyze problems that involve fluid flows. Computers are used to perform the calculations required to simulate the interaction of liquids and gases with surfaces defined by boundary conditions. In this thesis, CFD analysis of flow over q-tip propeller blades and by varying q-tip angles and the flow analysis has been performed. The analysis has been performed according to the shape of the propeller blades and keeping the same input conditions . Our objective is to investigate the best suited angle for the q-tip propeller which gives reduced vortices near the tips.

DESIGN AND FABRICATION OF QUAD COPTER FOR DETECETION OF LANDMINES AND DIFFUSING

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ABSTRACT

Mine detection using a surveillance drone is a modern conceptual prototype, which is been designed to detect landmines. Landmines were primarily used to create defensive and tactical barriers during the Second World War. A lot of these land mines still go undetected, increasing the death rate of and creating havoc on the surroundings. The prototype helps us to detect a landmine using flying drones. The prototype has a quad copter which has a mine detector mounted on it. It utilizes two different models in detection, which are an IR camera and a metal detector. These are extensively used in aiding this whole operation. The location of the mine can be traced back by the detector mounted on the quad copter. There is a lot of untapped potential and scope of improvement for this prototype in the future. The drone will work under on sight operation which will be easily to recognize the mine. At the same way the electrical bombs can be easily diffused within seconds without touching the bomb, a single press on the diffusion gadget will diffuse the bomb. We have successfully worked on a mine detector that performs function of vested interest towards the military and commercial organization.

DESIGN AND ANALYSIS OF SCRAMJET ENGINE AND ITS OPTIMIZATION IN HYPERSONIC CRUISE VEHICLE

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ABSTRACT

This project was aimed at modeling the supersonic combusting flow inside the Scramjet engine using the Computational Fluid Dynamics (CFD) program CFD-ACE. CFD models were initially verified with results from previous work and subsequently with results obtained in this project from experiments performed on the Scramjet. Turbulent and laminar flow, grid resolution, inlet conditions and a number of combustion models were all investigated. It was found that pressure trends along the floor of the Scramjet were well predicted for non-combusting flow, however for the associated combusting flows pressure was somewhat under-predicted.

IMPLEMENTATION OF 5S IN MANUFACTURING TECHNOLOGY LABORATORY

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ABSTRACT

Due to their insufficient production systems and their setups the small and medium scale organizations (SMES) are facing problems of product accuracy and quality in par with the customer satisfaction and competitor's impact also. Which leads poor market values in their product? In another way, Due to increased customer demands, high product variety, and a push production system, the organizations have been suffering from excessive wastes, poor work stations set up, and its environment. In such cases continuous improvement process using advanced manufacturing technologies are most useful as solution this paper aims to identify the performance factors and their characteristics in SMEs organizations, for which the case study is considered in public organization, where the 5s is applicable to the file searching process and the efficiency is achieved through the reduction of process time in simple manner and the same will effect on the supply line also to the customer end. In this way 5S techniques would strongly support the main objectives of SMEs organization to achieve continuous improvement and higher performance. 5S is a systematic technique used by organizations comes from five Japanese words; Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), and Shitsuke (sustain). This system helps to organize a workplace for efficiency and decrease wasting and optimize quality and productivity via monitoring an organized environment. It also provides useful visual evidences to obtain more firm results. There is a real need for empirical studies in field of new management systems and their impact on company's performance.

SUPPLY CHAIN MANAGEMENT IN GARMENT INDUSTRY

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ABSTRACT

Apparel production is a customary industry with worldwide rivalry. The most basic assembling process is sewing, as it by and large includes an incredible number of operations. This paper aims to address the use of lean assembling utilizing esteem stream mapping (VSM) ideas in a Garment industry. Utilizing esteem stream ideas, both present and future states maps of the association's sewing segment have been taken to recognize wellsprings of waste between the current state and the proposed condition of the chose association for enhancing its aggressiveness. After examination of the present and future conditions of the selected garment industry, it has been discovered that there was 40 percent lessening in process duration, 24 percent diminishment in work in-process inventory and 32.6 percent decrease underway lead times for the selected product. The implementation study has been conducted in only one organization. But the organization has implemented world-class strategies such as ISO quality management system. Hence, the experiences gained by the conduct of this implementation study are feasible and deployable in similar organizations

Keywords*:* Garment, lean manufacturing, work in progress, value stream mapping.

SWITCH TO SOLAR TUBES

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ABSTRACT

Solar Tubes otherwise known as light tubes bring a good way of natural light to our home and it is considered to be the most convenient way of utilizing the natural energy resources in our daily economic life. The popularity and the main motive of switching towards solar tubes are discussed. Its general setup and installation process is briefly explained. The important applications and innovations based on solar tubes are also mentioned.

MINI HARVESTING AND THRESHING MACHINE

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ABSTRACT

In today's competitive world there is a need for faster rate of production of agriculture products. Agriculture is the back bone of India. In India the major problem faced by the farmers is the labor shortage. This is mainly due to the increased nonfarm job opportunity having higher wages and low status of the agriculture labor in the society. In order to overcome this we have developed the harvesting cum threshing machine for harvesting and threshing paddy.

The project focuses on developing simple, compact, efficient harvester for harvesting paddy. We developed it by considering different factors such as cost of equipment, ease of operation, time of operation and climatic conditions. The paddy is cut by the cutting blades powered by DC motor the reaped paddy is carried by the conveyor belt to the threshing drum where the rice grain is separated from the husk.

AUTOMATED BILLING TO EASE QUEUES AT SHOPPING MALLS THROUGH THE IMPLEMENTATION OF EFFECTUAL GYRES

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ABSTRACT

In modern world the super markets are trying to impress the customers using attractive ideas to ease the customer‘s shopping. The 3s-system is a recent advancement where the process of integrating the RFID technology takes place. In our project we propose an idea where smart shopping system can be implemented by using IOT and Raspberry pi 3b. The RFID tag which is already used in the recent technology is replaced by the barcodes that are assigned to each product. The smart cart consists of a barcode scanner that is interfaced with the Raspberry pi 3b which scans the barcode of the products that are put in the cart and displays the details regarding the product to the customer by using a mobile application. In addition the cart also contains a load cell which indicates the weight of each product put in the cart. An unscanned product is recognized by an alarm using a buzzer. The main server consists of all the details regarding the products in the mall and once the shopping is done by the customer, the bill gets updated in the centralized database using IOT. This will reduce the time taken while standing in queues for billing in the checkout.

Keywords: Raspberry pi 3b, IOT, Barcode Scanner, Load cell.

PROCESS IMPROVEMENT THROUGH LEAN MANUFACTURING

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ABSTRACT

Traditionally operated manufacturing industries are facing problems which include longer production lead time. Improving productivity through lean manufacturing tools such as Value stream mapping and Bottleneck process are used to identify the problems and to address the solutions. Using time study, the standard allowable minute (SAM) of a product has been calculated. Analyzing the bottleneck process, the production lead time has been reduced, so that the profit will be increased. Also the raw material wastage has been identified and the product count has been increased, thus the profit has been increased considerably.

Keywords: Bottleneck analysis, Line Balancing, Standard allowable minute.

REDICTION OF METAL REMOVAL RATE AND SURFACE ROUGHNESS OF INCONEL 625 ON WEDM BY ARTIFICIAL NEURAL NETWORK

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ABSTRACT

This experimental investigation is about the Predicting the Material Removal Rate and Surface Roughness of cutting parameters of the WEDM (Wire cut Electro-Discharge Machining) during the machining of INCONEL625 super alloy material. The low rigidity and high material

removal rate of INCONEL Alloys offers a challenging task in obtaining a better surface finish. The material removal rate (MRR) and the surface roughness (SR) of INCONEL625 is carried out and an excellent machined surface can be obtained by the setting the machining parameters at optimum level. Experimentation has been done by using Orthogonal Array (OA) technique and the experimental results has been trained and predicted by Artificial Neural Network (ANN). The input process parameters had been trained to fit the experimental ranges to the output responses respectively. The output responses such as MRR and SR has been altered and also found desired maximum MRR and minimum SR by ANN toolbox.
Key words: WEDM, MRR, SR, ANN, OA.

DESIGN AND ANALYSIS OF SCRAMJET ENGINE AND ITS OPTIMIZATION IN HYPERSONIC CRUISE VEHICLE

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ABSTRACT

This project was aimed at modeling the supersonic combusting flow inside the Scramjet engine using the Computational Fluid Dynamics (CFD) program CFD-ACE. CFD models were initially verified with results from previous work and subsequently with results obtained in this project from experiments performed on the Scramjet. Turbulent and laminar flow, grid resolution, inlet conditions and a number of combustion models were all investigated. It was found that pressure trends along the floor of the Scramjet were well predicted for non-combusting flow, however for the associated combusting flows pressure was somewhat under-predicted.

IoT BASED ENVIRONMENTAL MONITORING SYSTEM USING ARDUINO UNO AND THINGSPEAK

Deepak

ABSTRACT

The recent changes in climate have increased the importance of environmental monitoring. The main aim of the project is to continuously keep track on the environmental parameters in order to determine quality of the environment. The monitoring is done using IoT. Internet of Things is nowadays finding profound use in each and every sector and plays a key role in the proposed geographical monitoring system too. Internet of Things converging with cloud computing offers a novel technique for better management of data coming from the different sensors, collected and transmitted by low power, low cost microcontroller ―Adriano UNO‖. An open source website, Thing speak is used, where the measurement of the parameters are updated for every two minutes. The measurements thus received can be viewed in these scripts such as JSON, XML and CSV. An Android app is to be created for the direct access of the measured parameters.

FLUID STRUCTURE INTERACTION OF AIRCRAFT WING USING ANSYS

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ABSTRACT

Fluid–structure interaction problems in general are often too complex to solve analytically and so they have to be analyzed by means of experiments or numerical simulation. Studying these phenomena requires modeling of both fluid and structure. Many approaches in computational aero elasticity seek to synthesize independent computational approaches for the aerodynamic and the structural dynamic subsystems. This strategy is known to be fraught with complications associated with the interaction . The over the wing will be simulated and the results will be validated by comparing the computational results with the previously published results. The stresses induced corresponding to the flow will be computed by analysis method. In this context, a deterministic model has been proposed in our study, then stochastic analysis has been developed to deal with the statistical nature of fluid–structure interaction parameters. Moreover, probabilistic- based reliability analysis intends to find safe and cost-effective projects. It can be concluded that the presented methodology is able to handle implicit limit state functions based on numerical models of aircraft's wing problems.

AIR COMPRESSOR CONTROL SYSTEM FOR ENERGY SAVING IN LOCOMOTIVE SERVICE PLANT

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ABSTRACT

The actuality and disadvantages of traditional high power a synchronism motor drive air compressor in locomotive service plant are discussed. In order to reduce the energy consumption and obtain safe running, a variable frequency control method to the motor is supplied. A PLC with touch screen is used for monitoring the status of the compressor and its control system. It also presents energy consumption analysis caused by the variable frequency control method in a locomotive service plant.

ALTERNATIVE ENERGY RESOURCES IN INDIA

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ABSTRACT

There is an urgent need for transition from existing fossil fuel based energy systems to one based on renewable resources to decrease reliance on depleting reservesof fossil fuels with the objective to access whether India can sustain its growth and its society with renewable resources.Renewable energy is generated from sunlight, wind,geothermal,tidal,etc. to overcome energy shortage in India. India will require an assured supply of 3-4 times more energy than the total energy consumed today.In India from the last two half decades there has been a vigorous pursuit of activities relating to research, production and applicationof a variety of renewable energy

technologies for use different sector.This paper gives an overview of the renewable energies in India and future aspects of renewable energy in india.

ANALYSIS OF PISTON PLATED RINGS TO IMPROVE THE WEAR RESISTANCE INSIDE THE BORE BY USING BLACK OXIDE

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ABSTRACT

The Piston rings are mostly single-piece, slotted, and self-tightening. Their basic shape is a thin walled, axially short circular cylinder. To generate the necessary contact pressure against the cylinder wall, the piston rings are in the shape of an open circular spring. The spring force acting radially in the installed state is greatly amplified by the gas pressure behind the piston ring. The agreement was found to be good. The model ultimately may be useful also in the design optimization of engine components. Hence we are used to analyze the black oxide plated piston rings to replace the cast iron piston rings.

FATIGUE ANALYSIS OF MAIN LANDING GEAR VARYING WITH LOADS BY USING ANSYS18.1

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ABSTRACT

Matrial fatigue is an important issue in structural design. In our project we are doing the fatigue life estimation of main landing gear with the variation of different loads. Landing gear is one of the primary structural components of the airframe. Here the first step is the selection of materials as it plays a vital role in the life estimation .The material is chosen as aluminum alloy as it is light weight and most commonly used material. This study uses finite element analysis software to conduct simulations, and study the fatigue behavior of aluminum alloy used in light sport aircraft landing gear. First of all the landing gear structure is identified and the designing of landing gear is carried out. The designing is done by using CATIA V5 software and the analysis is carried by using ANSYS 18.1 software. By carrying this analysis the fatigue life of landing gear is found by varying with different loads.

APPLICATION OF AUTOMATIONINTRANSMISSION SYSTEM

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ABSTRACT

Energy is the most important basis for development of any country.Generation, transmission, distribution, and usage of energy are to be optimized for the proper conservation of energy. Electrical energy is generated from different founts like hydraulic power plants, thermal power plants, nuclear power plants etc. India has ample water sources to produce electrical energy. Presently the long time outage and fault detection during distribution will be a very serious problem. Also accidents are not uncommon in electrical transmission systems. It is too late to implement advanced systems for power distribution systems if not implemented now. The main focus of the present work is to modernize the present systems with powerful tools like PLC and SCADA for automatic control of distribution systems. The automatic tap changer maintains the voltage of whole system normally. Thus much manpower could be reduced and avoid major outages with maximum safety to the system.

AUTONOMOUS INSPECTION ROBOT FOR POWER TRANSMISSION LINES MAINTENANCE

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ABSTRACT

This paper describes the development of a mobile robot capable of clearing such obstacles as counterweights, anchor clamps, and torsion tower. The mobile robot walks on overhead ground wires in 500KV power tower. Its ultimate purpose is to automate to inspect the defect of power transmission line. The robot with 13 motors is composed of two arms, two wheels, two claws, two wrists, etc. Each arm has 4 degree of freedom. Claws are also mounted on the arms. An embedded computer based on PC/104 is chosen as the core of control system. Visible light and thermal infrared cameras are installed to obtain the video and temperature information, and the communication system is based on wireless LAN TCP/IP protocol. A prototype robot was developed with careful considerations of mobility. The new sensor configuration is used for the claw to grasp the overhead ground wires. The bridge is installed in the torsion tower for the robot easy to cross obstacles. The new posture plan is proposed for obstacles cleaning in the torsion tower. Results of experiments demonstrate that the robot can be applied to execute the navigation and inspection tasks.

Keywords : robot,power transmission lines ,navigation, inspection.

FATIGUE LIFE ESTIMATION OF WING WITH BUTT AND SPLICE JOINTS OF TYPICAL TRANSPORT AIRCRAFT

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ABSTRACT

In our project we are doing the fatigue life estimation of wing with different joints i.e.., But and splice joints. Here the first step is the selection of materials as it plays a vital role in life estimation. The material is choosen as Aluminium as it is light weight and most commonly used material. Aluminium reduces the entire weight of the aircraft wing and so it is used for the construction of wing. Not only wing it is used in the manufacture of entire aircraft structures. First of all the presence of butt and splice joints are identified in the wing structure and the designing of the wing structure is carried out. The designing is done by using Catia v5 software and the analysis is carried by using ansys12.0 software. Here the fatigue life of wing at the joints can be found by varying different loads at the surface of the wing. By carrying this analysis the fatigue life of wing at butt and splice joints can be found.

CLOUD TUNE-UP FORECAST ALGORITHM RESEARCH AND OPTIMIZATION

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ABSTRACT

Cloud service is a service that users obtain through the interconnection of people and things, which features instant which is reaction to something and scalability. Now a day, there are mainly three service modules for cloud computing: IaaS, SaaS, and PaaS. Appearance as a Service (IaaS) enables customers to acquire services from updated and powerful computer infrastructures via the internet. Software as a Service (SaaS) is a software model so given through internet .Users can lease a web-based application to meet their business-level requirements without permanently buying the whole software package. support as a Service (PaaS) provides a platform allowing customers and delivering to develop, run, and manage applications without the complexity of building and balance the infrastructure typically as combining with developing and launching an application for process. And to efficiently complete various tasks submitted by clients, a task scheduling method is absolutely needed. Some works have been done in this area like adaptive moulding scheduling strategies, and the cloud task scheduling method introduced in this paper is an application of PaaS. Owing to the features like on-demand resource all location for a particular place or something and varieties of pliable and high-quality services, cloud computing is widely used for processing large-scale tasks

ANALYSIS OF FIXED WING MAV FLOW WITH A WINGLET DESIGN INSPIRED BYNATURE

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Abstract

A numerical study was undertaken to study the effect of effect of feather like winglet configuration on the performance of fixed wing MAV at a velocity of 15m/s and angle of attack of 15 and 20°. A baseline configuration along with four different feather configurations were studied where the size of the feather and the distance between the feather were varied. A literature survey was conducted to understand the MAV flow field and the control techniques reported in the literature. Based on the literature, a MAV configuration was chosen as a baseline case and different configurations of wingtip was applied to the baseline case. The chord wise pressure distribution was seen to change with the span wise location from the center and this distribution is affected by the wing tip vortex. The wingtip was observed to change the pressure distribution near the tip. The velocity field, stream lines and the vortices were seen to be affected by the presence of the wing tip. The wing tip configuration resulted in a loss of lift which may be due to the reduction in wing surface area due to the addition of the wing tip to the baseline wing. However, the drag of the wing is seen to decrease which is appreciated that results in performance enhancement. On the other hand, the corresponding lift to drag ratio and moment were seen to be affected and this needs further investigation.

DESIGN AND DEVELOPMENT OF AUTOMATIC SEED SOWING MACHINE

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ABSTRACT

Agriculture plays an important role in the life of economy. It is the backbone of our economy system. In this project work focused on seed sowing processes and tried to solve the problem. In seed sowing machine system, they are used battery powered wheels and dc motor inbuilt in these wheels. When the seeds are empty it detects the level of storage seed and indicates the alarm. When any obstacle comes in the in-front of machine or divert path the seed sowing machine can detect this obstacle very easily. In each complete rotation of rotating wheel there is seeds falls from this seed drum and the seed plantation process can take place smoothly as well as without wastage of seeds. The end of system machine reached and it create alarm.This system provides all the facility which can work efficiently.

Keywords: Atmega328, ultrasonic sensor, battery operated wheels, Relay, Buzzer, LCD

RECENT TRENDS IN RENEWABLE ENERGY RESOURCES

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ABSTRACT

The global demand for renewable energy in recent decades has continued to increase, despite adverse economic conditions such as world economic recessions, trade disputes, and falls in gas and oil prices. During this period, the United states and Europe have led the development of renewable energy technologies, but now emerging countries such as china, Brazil, India, and the Republic of Korea are also being actively participating developing and deploying renewable energy. For example, since 1989, the Korea Electric Power Corporation has built a well-known test site for the application of renewable energy resources, including 500 kW photovoltaic systems with smooth integration into power grids in the Gochang area. The main objects of this study are,To review the recent trends in renewable energy systems including solar, wind, bio energy, hydroelectric and tidal power, for electric power generation development. To introduce the test sites in India. For this purpose, this study examines the current activities of industry and government in India and compares them with global trends.

EXPERIMENAL INVESTIGATION OF PROCESS PARAMETERS IN TURNING OF AISI 4140 STEEL

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ABSTRACT

Optimization algorithms are becoming increasingly popular in engineering activities, primarily because of the availability and affordability of high-speed computers. They are extensively used in those engineering problems where the emphasis is on maximizing or minimizing of a certain objective. This paper presents the statistical analysis of process parameters for burr height in drilling of AISI 4140 steel. In the present investigation work, the influence of process parameters like speed, feed and depth of cut, are studied as the output response variable. The experimental work was completed on CNC Machine under varying speed, feed and depth of cut. Taguchi orthogonal array method was used for design of experiment. Using L9 orthogonal array nine readings were taken for measurement of exit burr. The experimental results were analyzed statistically to study the influence of process parameters.

Keywords: Turning, orthogonal array, SN ratio.

EXPERIMENT ON INVESTIGATION OF FLYASH BY PRODUCTS PROJECT MEMBERS

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ABSTRACT

Pulverised fuel flyash has less than 7% lime (CaO). A total amount of mixture and design are 27 and 3 respectively. To make a product design of cubes (15*15*15) , bricks (4*3*12) and shell (2.5*30*30). The pulverised flyash is added in percentage of (5% to 30%) in the volume of cement. Then the each products are prepared on ratio of M15,M20, M25 & M30. The product mixture are Pulverised fuel ash, cement, sand, cravel. The curing process time of products 14 days. The efficiency and the maximum content of pulverised flyash that gives tha maximum compressive strength were obtained by using Bolomey and Feret strength equation. Hence the maximum amount of usable pulverised flyash . This study showed that strength increases with amount of pulverised flyash up to an optimum value, beyond which strength starts to decrease with further addition of pulverised flyash . The products are involve compressive & water obsrevation test.

EXPERIMENTAL DESIGN AND ANALYSIS OF CONICAL FLAME HOLDER WITH V-GUTTER USED IN RAMJET ENGINE.

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ABSTRACT

Our project is about the design and analysis of flame holder used in the ramjet engine. A flame holder is a component of ramjet, scramjet engine where combustion takes place. It is also known as a burner, combustion chamber or flame holder. Continuous-combustion like ramjet engine and scramjet engine required a flame holder. A flame holder creates a low-speed eddy in the engine to prevent the flame from being blown out. Here an existing flame holder of ramjet engine was upgraded by the combination of the conical flame holder and V-gutter. Here a new flame holder was designed, developed and tested for the ramjet engine. By using this combination of flame holder we can able to hold the flame inside the flame holder without being blown out. Using this type of flame holder will improve the performance of the ramjet engine. These improvements will extend the present characteristics of the ramjet engine by means of reduce the chance of blown out and helps to hold the flame for the continuous combustion process.

IMPLEMENTATION OF BASED ON PLCINDUSTRIAL AUTOMATION SYSTEM

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ABSTRACT

Industrial automation is largely based on PLC-based control systems. PLCs are today mostly programmed in the languages of the IEC 61131 standard which are not ready to meet the new challenges of widely distributed automation systems. Currently, an extension of IEC 61131

which includes object oriented programming as well as the new standard IEC 61499 are available. Moreover, service-oriented paradigms where autonomous and interoperable resources provide their functionalities in the form of services that can be accessed externally by clients without knowing the underlining implementation have been presented in the literature. In the supervisory control theory, methodologies based on formal models have been developed to improve the coordination of concurrent and distributed systems. In this paper, an event-driven approach is proposed to improve the design of industrial control systems using commercial PLCs. At a lower level, basic sequences are coded in elementary software objects, called function blocks, providing their functionalities as services. At an upper level, a Petri Net (PN) controller forces the execution of such services according to desired sequences, while by a PN supervisor constraints on the sequences are satisfied.

A STUDY ON TENSILE, IMPACT PROPERTIES AND SURFACE MORPHOLOGY OF JUTE/AGAVE FIBRE EPOXY COMPOSITES

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ABSTRACT

Composite materials are extensively used in the structural applications due to its enhanced load-bearing capabilities. Mostly, the mechanical properties of the natural fibre-reinforced hybrid composites are better than the single fibre-reinforced composites and almost equal to the synthetic fibre composites. This paper presents the extraction and preparation methodology of the epoxy composites using the naturally available fibres like Agave Americana and jute fibres. Hybrid composites are fabricated with simple hand lay-up method followed by compression moulding process. The tensile and impact properties of the Agave/jute fibre-reinforced composites are compared with the Agave/jute fibre-reinforced hybrid composites. The stress–strain curves of the Agave/jute fibre composites and the fibre pull-outs in the fractured specimen are analysed for the higher and lower mechanical properties. The result shows that the Agave/Jute fibre composites have the maximum tensile and flexural properties when compared with the snake grass fibre composites.The hybrid composites are used for many application and replacing wood, wood fibre composites and conventional materials.

Keywords: jute-agave Americana-epoxy resin-tensile –impact and surface morphology

EXPERIMENTAL STUDY ON PERFORMANCE OF STEEL INDUSTRYWASTE AND FIBER COMPOSITE

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ABSTRACT

Our project is about the reusing of the industrial steel waste produced during the making of steel. We know that there are so many steel plants in our country and the waste materials produced by them are very high. A massive amount of steel waste is being produced in these industries from day to day. Our project will give a constant solution for this problem by

converting this waste into a composite material. We are combining this product with other fibers to know its strength thus it will be able to make a new product. As this material is a waste product so that we can be able to sell the product in low cost and can be able to replace fibre doors and other utensils. The main problem produced by this waste is that this material will not be able to put in fields or grounds this will not allow any crops or plants to grow in that area. There are so many pollution caused by these waste like water pollution, air pollution, earth pollution. The main hazardous caused by these wastes are that it causes breathing problems especially to animals and humans so that our project will help to reduce all this problems. So our project will be much focused to reduce the pollutions and other issues caused by these waste materials.

PNEUMATIC BRAKING IN MEDICAL PENDANTS

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ABSTRACT

Medical pendant systems are medical equipment used in modern hospital operating rooms and intensive care units. A pendant arm system is a major component of a medical pendant. The pendants arm is generally controlled using the mechanical braking system; they are non – compact overall structure, relatively more parts, and relatively difficult installation of mechanical brakes. They require frequent lubrication due to more moving parts and maintenance. On the purpose to overcome the above mentioned dis-advantages of the existing medical pendant arm systems by a pneumatic braking system can be installed in the medical pendant arm. Pneumatic brakes prevent inadvertent movement and are accurate. They have relatively less parts therefore requires less assembly time and maintenance**.**

Keywords: Medical pendant, pneumatic brake, inadvertent movement, pendant arm.

NANO SENSORS

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ABSTRACT

Nanosensors are chemical and mechanical sensors that can be used to detect the presence of chemical species and nanoparticles. These are any biological or surgery sensory points used to convey information about nanoparticles to the macroscopic world. A sensor is an instrument that responds to a physical stimulus. It collects and measures data regarding some property of a phenomenon, object, or material. Particles that are smaller than the characteristic lengths associated with the specific phenomena often display new chemistry and new physics that lead to new properties that depend on size. Nanosensors can be chemical sensors or mechanical sensors. Amongst other applications they can be used: To detect various chemicals in gases for pollution

monitoring, for medical diagnostic purposes either as blood borne sensors or in lab-on-a-chip type devices, to monitor physical parameters such as temperature, displacement and flow. Typically, nano- sensors work by monitoring electrical changes in the sensor materials.

EFFECTS OF AL3+ DOPING CONCENTRATION ON STRUCTURAL, MORPHOLOGICAL AND ELECTRICAL PROPERTIES OF V2O5 NANOSTRUCTURESFOR DIODE FABRICATION

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ABSTRACT

In the present work, the Al*x*V2O5 (where *x*=0, 5, 10 and 15%) nanoparticles were synthesized by wet chemical-calcination process. X-ray diffraction study revealed the orthorhombic phase of 600oC heat-treated pure and Al3+ substituted samples. The shifting of the XRD lines with the substitution of V2O5 suggests that Al3+ were successfully entered into the V2O5 host lattice. The SEM and TEM images show that the pure and Al3+ doped V2O5 hierarchical architectures are established by the one-dimensional nanorods. The inherent current (*I*)–voltage (*V*) characteristics of pure and Al*x*V2O5 junction diodes showed a nonlinear diode behavior like. The transient photocurrent under illumination is higher than the dark current indicating that the fabricated diodes behave as a photodiode.

ENDURANCE TEST OF THERMAL BARRIER COATING ON PISTON CROWN

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ABSTRACT

It is aimed to investigate the study of thermal barrier coating on piston crown in a single cylinder four stroke diesel engine. This is intending on the performance and emission test for both the coated and uncoated piston on single cylinder diesel engine. We take a different load condition as input parameter for both the specimens which is coated using different impurities about 600oC.Composition ball milled (ZrO2, La2O3, 3Al2O3) for thermal barrier coating through plasma vapor deposition. Endurance test is done and results are observed as decrease in exhaust temperature and emission rate in coated piston when compared with the uncoated. After test the subtracts are tested for microstructure. Thus results are optimized both theoretically and analytically.

Keywords: Barrier coatings, Plasma spraying, Endurance Test

PREVENTION OF DIESEL THEFT IN EXCAVATORS

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ABSTRACT
Excavators are now majorly used in the mines, quarries and road works to compete the heavy works. As this machines left over the places after they have been used there are the wide range of diesel theft occurs in this machine. The major purpose of this project is to reduce the diesel theft. Hence the theft process could be controlled over a short range.In existing model mechanical valve is used to drain the water and other impurities from the diesel tank this create the problem in theft of the diesel. The existing design has to be modified to prevent the diesel theft. Sensors are going to be implemented in the diesel tank which prevents the diesel theft. Motion based alarm will be implemented in the excavators to prevent diesel theft.
Keywords: Diesel theft prevention-to be installed in diesel tank- using float sensor

MECHANICAL CHARACTERIZATION OF FRICTION STIR WELDING OF ALUMINIUM ALLOY (5083).

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ABSTRACT

Friction Stir Welding, a solid-state joining technique, is widely being used for joining similar metals for aerospace, marine and automotive applications. FSW can provide better mechanical properties in the weld zone compared to other conventional welding techniques. AA 5083 plates of 6mm thickness have been considered for welding of the joints. The main objective of this article is to find the optimum parameters for butt joint made of AA 5083. The major process parameters like rotation speed (1200rpm), welding speed (25mm/min) and tool tilt angle (0°) at one levels are considered for the present study. The work has been carried out to study the effect of process parameters on the mechanical properties.

A REVIEW ON MECHANICAL CHARACTERISTICS OF ALUMINIUM AND HYBRID COMPOSITES

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ABSTRACT

Nowadays, Aluminium Matrix Composites (AMCs) find application in various fields like Automobiles, Aeronautical etc., due to its light weight and high strength. Also, reinforced particles are used as reinforcement in AMCs due to the fact that it can serve as a very good reinforcing agent and adds more stiffness. Aluminium Alloy (AA) is mixed with boron carbide and graphite as reinforcement to prepare AMCs. Reinforcement of graphite with the matrix metal leads to enhancement in mechanical properties without any considerable increase in

weight of the material. In this study, samples of AA5052 reinforced varying wt % of boron carbide and graphite (0%, 2%, 4%,6% and 8%) were fabricated by Stir Casting technique. The specimens were undergone through various tests like tensile, flexural, hardness, impact and wear and Microstructure analysis. The optical and SEM images shows that uniformly distributed in AMCs.The overall test results are revealed that the addition of graphite helped to improve the mechanical properties significantly when compared to reinforced Aluminium with B4C.

Keywords:aluminium 5052,boron carbide,stir casting,metal matrix composites.

DESIGN OF A LOW COST MULTIPURPOSE AGRICULTURE VEHICLE

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ABSTRACT

Agro-Technology is the application of the innovative technologyand applying it in to the field of agriculture sector which improves the efficiency of the crop produced and also mechanical machine is needed to help the farmer in the agriculture field which reduces the cost and working time spent on one crop. Hence in this paper designing a better mechanical machine which is available to the farmers at a cheaper rate and also which can sow and seed the crop at the same time. And also the machine design focused specifically for rice, wheat crops etc. Developed agriculture needs to find new ways to improve efficiency. One approach is to utilize available information technologies in the form of more intelligent machines to reduce and target energy inputs in more effective ways than the past. Precision farming has shown benefits of this approach but we can now move towards a new generation of equipment. The advent of autonomous system architectures gives us the opportunity to develop a complete new range of agricultural equipment based on small smart machines that can do the right thing, in the right place, at the right time in the right way.

Keywords: mechanical machine, agriculture, crop, cheaper rate, efficiency

INVESTIGATION OF MECHANICAL AND THERMAL ANALYSIS OF PULSE TIG WELDING ON ALUMINIUM 6061

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ABSTRACT

TIG process is generally preferred because it produces a very high quality weld. Distortion is the major problem in welding of thin sections. The metallurgical advantages of pulsed TIG welding are grain refinement in fusion zone, reduced width of HAZ, less distortion, control of segregation, reduced hot sensitivity and residual stresses. It was observed that pulsed TIG welding produces finer grain structure of weld metal than conventional TIG welding (without arc pulsation). The mechanical properties (Hardness) and microstructure characteristic of weld metal depends upon the microstructure of the weld. The microstructure of the weld depends upon pulsed parameters peck current, base current, pulse frequency, pulse duration. The objective of present project is to achieve better mechanical properties. So, controlling of pulsed parameter is needed in this investigation. An increase in the pulse frequency has been found to refine the grain structure of weld metal especially when welding is done using short pulse duration. Long pulse duration lowers the pulse frequency up to which refinement of constituents in weld metal takes place. Effect of the pulse frequency on the grain structure was found to be determined by pulse duration.

Keywords*:* Heat affected zone; Pulsed current; Based current; Pulsed frequencies.

DIGITAL SIGNAL PROCESSING AND ROBOTICS FOR INDUSTRIAL AUTOMATION

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ABSTRACT

Robotics is an interdisciplinary branch of engineering and science that includes electrical engineering, mechanical engineering, computer science engineering and others. With the rapid increase of labor cost in domestic service industry, it provides a powerful driving force for rapid development of service Robot. The design assumes no specific algorithm and Robot configuration and it is easy to increase the drive joints. A system based on a single chip digital controller allows designers to implement multiple functions such as general motor drive algorithm, communication protocol and power factor correction scheme etc.

SEED SOWING ROBOT

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ABSTRACT

Agriculture is the backbone of Indian economy. About half of the total population of our country has chosen agriculture as their chief occupation. The states like Maharashtra, Punjab, and Kerala, Assam are highly involved in agriculture. It all started due to the impact of, ―Green Revolution‖ by means of which farmers came to know about the various techniques involved in farming and the advantages in it. As centuries passed, certain modern techniques were invented in agriculture due to the progress in science. These modern techniques included the use of tractors for ploughing the field, production of pesticides, invention of tube-wells etc. Since water is the main necessity in this scenario, techniques were discovered which would help in watering the field easily, consume less water and reduce human efforts. These discoveries improved the standard of living of farmers. Agro-Technology is the process of applying the technology innovation occurring in daily life and applying that to the agriculture sector which improves the efficiency of the crop produced and also to develop a better Mechanical machine to help the agriculture field which reduces the amount and time of work spent on one crop. Hence in this work of project we decided to design a better mechanical machine which is available to the farmers at a cheaper rate and also which can sow and seed the crop at the same time. This project consists of the better design of the machine which can be used specifically for sowing of soybean, maize, pigeon pea, Bengal gram, groundnut etc. For various agricultural implements and non-availability of sufficient farm labor, various models of seed sowing implements becoming popular in dry land regions of India. The success of crop production depends on timely seeding of these crops with reduced dull work of farm labor. The ultimate objective of seed planting using improve sowing equipment is to achieve precise seed distribution within the row.

EXPERIMENTAL INVESTIGATION ON COATING OF SPARK PLUG USING SILICON ELEMENT

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ABSTRACT

These demands. While improve performance (high ignitability and low required voltage), the discharge part of the spark plu the development of a high performance, long life spark plug has become essential in response to g needs to be reduced in size. It has been difficult to achieve both smaller discharge parts and longer life. The resultant is our development of a silicon coatings.

DESIGN AND ANALYSIS OF HIGH PERFORMANCE FORWARD SWEPT WING WITHVARIOUS ANGLES

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ABSTRACT

This project is about to check the performance like lift, drag and thrust of forward swept wing .The lift is increased with drag decreases. A series of forward swept wing configurations will be modeled in the CATIA supersonic flow simulations will be run in the ansys software.The swept wing model is to design and analyze numerically. The investigation will be done with various angles like 30, 35 and 40. Lift loss is delayed to higher angles of attack than in conventional aircraft. This invention relates to an improved design for air planes wherein the wings are adjustable to provide for varying angles of sweep while in flight, in order to obtain the best possible compromise between the conflicting requirements of take-off and climb performance on the varying degrees of supersonic speed performance and characteristics.high degree of sweep is desirable in the transonic speed range. It was clear from the present investigation that the lift and drag characteristics for the forward swept wing are less in values compared with the swept back wing, therefore a forward swept wing can fly at higher speed corresponding to a pressure distribution associated for lower speed.

MAGNETICALLY IMPELLED ARC BUTT WELDING

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ABSTRACT

Metallic tubes provide light weight, excellent rigidity and low cost for a structure. They are widely used in numerous industries which are not limited to automotive, aerospace, oil, chemical, nuclear and process industries. It is necessary to join metallic tubes for applications in those industries. Established welding processes such as gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), electron beam welding (EBW) and laser beam welding (LBW) can be applied to join metallic tubes. However, special arrangements such as rotating fixtures and complex shielding are required to join tubes. Practical fusion welding of tubes is challenging because of the circular cross section that may produce undesirable weld beads. The operator skill plays a crucial role to obtain successful tubular joints. The popular solid state welding technique, friction welding can be used for joining metallic tubes. The process requires a robust machine and arrangement for rotating the tubes and application of huge axial force for consolidating the weld.

Keywords : MIAB, Welding current, Upset voltage, TMAZ.

DESIGN AND FABRICATION AND TESTING OF PROPELLER BLADE BY USING VARIOUS AEROFOILS

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ABSTRACT

Propeller is the component which produces the thrust for an aircraft. The speed blade angle and aero foil of the propeller decides the amount of the trust produced. In this project we will design various type by using propeller test rig. We will optimize the best propeller design. This project will enhance our skill and knowledge on propeller designing, fabrication techniques and testing ability.

MOSQUITO DESTROYER BY THE APPLICATION DRONES

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ABSTRACT

The drones are already used for various activities small drones used in monitoring, transport, safety and disaster management and other domains. Nowadays, computer vision-based systems used due to their flexibility and ease of use. Employing drones for such operations provide a cost-effective and accuracy in its working. Using drones in medicine is a novel concept and one especially for EMS and SAR providers. These explore the potential use of drones in searching and locating the place where mosquitoes are originating and destroying it by spraying the mosquito killer. It is using on in aeronautical fields as well as other applications. In order to control disease in today a new technique that also an easy method used. Our project explaining all the above furnished details and useful for social development.

THERMAL & STRUCTURAL ANALYSIS OF GAS TURBINE BLADE COOLINGSYSTEM IN STEADY STATE

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ABSTRACT

Cooling of gas turbine blades is a major consideration because they are subjected to high temperature working conditions. Several methods have been suggested for the cooling of blades and one such technique is to have radial holes to pass high velocity cooling air along the blade

span. The forced convection heat transfer from the blade to the cooling air will reduce the temperature of the blade to allowable limits. Finite element analysis is used in the present work to examine steady state thermal & structural performance for N155 & Inconel 718 nickel-chromium alloys. Four different models consisting of solid blade and blades with varying number of holes were analyzed in this paper to find out the optimum number of cooling holes .The analysis is carried out using ANSYS software package. While comparing these materials, it is found that Inconel 718 is better suited for high temperature applications. On evaluating the graphs drawn for temperature distribution, von-mises stresses and deflection, the blade with 13 holes is considered as optimum. This conclusion was drawn based on the fact that the induced stresses are minimum and the temperature of the blade is close to the required value of 800 C. Any further increase in the number of holes will bring down the temperature below the required value of 800 C.

EXPERIMENTAL EVALUATION OF THE CARBON FIBRE EPOXY LAMINATE AND ANALYSIS USING ANSYS17.

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ABSTRACT

Our project represents the experimental evaluation of the carbon fibre reinforced epoxy laminate. Recent researches are processing on the manufacturing of the aircraft using carbon fibre composite to reduce the weight and increase its strength .The carbon fibre's tensile strength, compressive strength and flexural strength have been estimated and computational analysis for different loads at zero orientation. The carbon fibre reinforced epoxy composite laminate have been fabricated and tested. The various strength have been tested in the computerized universal testing machine with different loading conditions to calculate the strengths. Also they have been analysed using Ansys 17.1. The two values of the strength i.e., experimental and computational analysis values of different strength of the bidirectional carbon fibre and they are compared also the percentage of the error is found for the strength. And the application of the laminate for the suitable aircraft component is found comparing the results of the strength using experimental and the computational analysis.

A PERFORMANCE ANALYSIS OF CONVERGENT &AMP DIVERGENT NOZZLE USING FLUIDIC THRUST VECTORING

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ABSTRACT

Thrust vectoring is a technique whereby the orientation of the primary exhaust jet from a propulsive unit is varied in order to provide useful control movements. It can be achieved either by mechanical means or fluidic means. Compared to mechanical means of thrust vectoring, fluidic means promotes higher efficiency and also helps overcome failures due to wear and tear of mechanical parts. In this project, secondary injection in the divergent section of nozzle is used to provide shock vector control for vectoring the aircraft. The Convergent-Divergent nozzle is modelled in CATIAand imported to ANSYS FLUENT . A secondary jet was placed at 30% and 70% of the divergent section of the C-D nozzle. Simulations were done and it is found that the efficient position for fluidic thrust vectoring is achieved by placing the secondary jet at 70% of divergent section. Also, simulations were done for different angles such as 45□, 135□ of secondary injection at 70% of divergent section which is found efficient. The secondary injection location and angle for optimum performance was obtained through this analysis.

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