S.R.K.R ENGINEERING COLLEGE (A)-BHIMAVARAM
ASSOCIATION OF MECHANICAL ENGIEERING STUDENTS
RECOGNISED BY AICTE,AFFILIATED TO JNTUK,NAAC'A GRADE
RECOGNISED AS SCIENTIFIC & INDUSTRIAL RESEARCH ORGANISATION

SANKETA
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P.Mounika,B.Krishna

STUDENT TECHNICAL MAGAZINE

INDEX

COLLEGE VISION & MISSION

VISION

Sagi Rama Krishnam Raju Engineering College will be offering Engineering and Technology Programs of choice, where parents want to send their children, where students want to learn, where employers seek Quality Engineers and Technologists, where Industry and Government find Technological Innovations.

MISSION

The Mission of the College is "Eminence in Technical Education through the quality of Programs teaching and research with social relevance".

MECHANICAL ENGINEERING DEPARTMENT VISION & MISSION

VISION

Mechanical Engineering Department strives to be recognized globally for quality education, training and research leading to well-qualified engineers, who are innovative, entrepreneurial and successful in solving problems of society.

MISSION

- Impart quality education to students to enhance their skills and make them globally competitive.
- Maintain a vital and state-of-the-art research to provide its students and faculty with opportunities to create, interpret, apply and disseminate knowledge.
- Prepare its graduates to pursue higher studies, serve the profession and meet intellectual, ethical and career challenges.

Program Educational Objectives (PEOs)

PEO1 : To Educate the graduate of the program to build a successful technical or professional career in Mechanical Engineering.

PEO2 : To envisage graduate engineer to achieve the goal in terms of pursuing higher education and Research and Development activities.

PEO3 : To help graduates become a moral & ethically responsible citizen in nation building.

Program Outcomes (POs)

Engineering Graduates will be able to:

PO1: Engineering knowledge:- Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:- Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions:- Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems:- Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage:- Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society:- Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability:- Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics:- Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work:- Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication:- Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance:- Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning:- Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

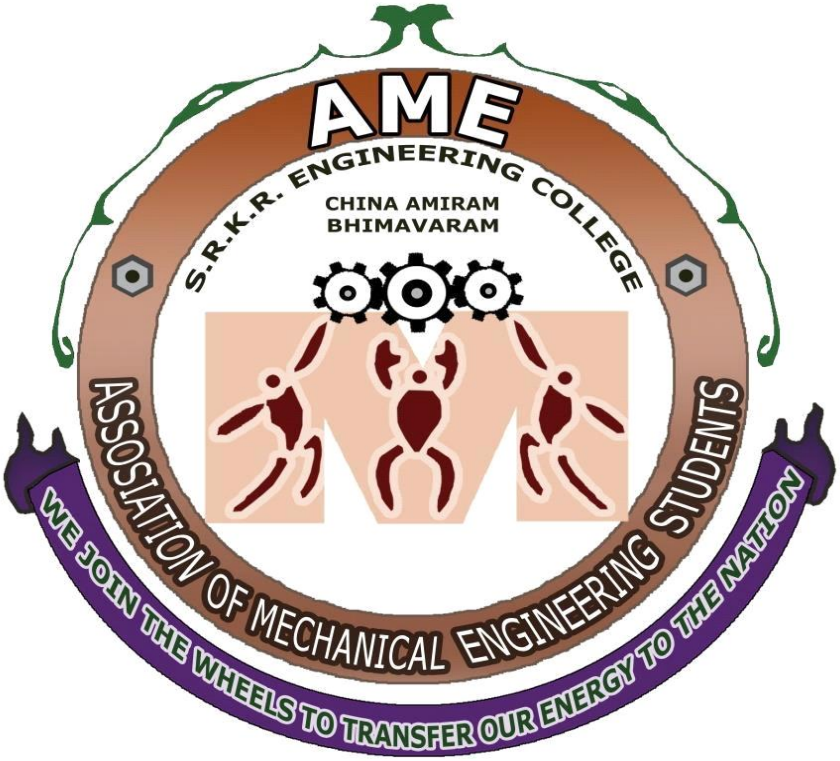
PSO1 : Apply mechanical engineering fundamentals to design mechanical engineering systems and thermal systems.

PSO2 : Identify and select appropriate manufacturing processes and apply quality control methods for production of various components.

SANKETA'20

A National Level Technical Symposium

19th- 20th February, 2020



DEPARTMENT OF MECHANICALENGINEERING

S. R. K. R. ENGINEERING COLLEGE (AUTONOMOUS)

Recognized as Scientific and Industrial Research Organisation Recognized by AICTE, Affiliated to Andhra University

NA

AC "A" Grade 81 All India Rank by NIRF, MHRD,Govt.

SANKETA'22

SRI. S. PRASADA RAJU,

Chief Patron, SANKETA'22,

President,
S.R.K.R.E.C. Management Association.

MESSAGE

I wish to congratulate the department of Mechanical Engineering for organizing a National Level Technical Symposium SANKETA'22 on 07th and 08th of May, 2022. I firmly believe that the symposium helps participants from various engineering colleges across the country to show their talents and to enhance their skills in several aspects. S.R.K.R. Engineering College always strives to improve the all-round improvement and growth of the upcoming engineers and strives for their careers to establish themselves in various parts of the world.

I send my warmest good wishes for its continued growth in future.

S.PRASADA RAJU.

SANKETA'22

SRI. S. V. RANGA RAJU,

Chief Patron, SANKETA'22,

Secretary cum Correspondent,
S. R. K. R. Engineering College.

MESSAGE

It is a great privilege to know that SANKETA'22 is being organized by the Department of Mechanical Engineering on 07th and 08th FebruarMay,2022. This event is enriched with knowledge and communication skills which help the students in several aspects of their technical career. S.R.K.R. Engineering College is always a step forward in its encouragement to students for their better future.

I wish all the good luck to the program.

SRI. S. V. RANGA RAJU.

SANKETA'22

S.R.K. NISHANTH VARMA,

Chief Patron, SANKETA'22,

Member of Governing Body,
S. R. K. R. E. C. Management Association**.**

MESSAGE

I am greatly delighted to know that Mechanical Department is conducting SANKETA'22, a National Level Technical Symposium. This is a great event which is extremely beneficial for students to build up their career. The aim of this symposium is to provide fruitful interaction and emerging technologies in Mechanical Engineering. I wish you a great success in your event.

Hope your innovative ideas and diligences surely help you to succeed.

S.R.K. NISHANTH VARMA.

SANKETA'22

Dr.M. JAGAPATHI RAJU

Patron, SANKETA'22,

Principal,
S.R.K.R. Engineering College.

MESSAGE

It gives me immense pleasure to know that the students of Mechanical Engineering Department are organizing SANKETA'22, a National Level Technical Symposium on 07th and 08th May, 2022 in our college.

I am sure that the budding technocrats will acquire a lot of knowledge during this technical symposium and reveal their dedication in nation building activity in our country.

I would like to thank all the sponsors of this event for their support and encouragement. I place on record my appreciation for excellent efforts to the staff members and students of Mechanical Engineering Department in organizing this event.

Wishing all success in their future endeavour

Dr. M. JAGAPATHI RAJU.

SANKETA'22

Dr. K. Brahma Raju,

President, SANKETA'22,

Professor & Head,
Department of Mechanical Engineering,
S.R.K.R. Engineering College.

MESSAGE

I feel honoured to be a part of this National Level Technical Symposium organized under the aegis of Mechanical Engineering Department. We have always strived to cherish the students with innovative thoughts. We provide a platform for the young techies to have an opportunity to present their ideology.

My best wishes to the faculty and students for being a part of this event and special thanks to all the sponsors of this event for their support and encouragement

Wishing all to have a great experience and acquire knowledge in this event.

Dr. K. Brahma Raju.

SANKETA'22

Dr. P.RAMA MURTY RAJU,

Convener, SANKETA'22,

Professor,
Department of Mechanical Engineering,
S.R.K.R. Engineering College

MESSAGE

I am glad to be a part of SANKETA'22, a National Level Technical Symposium which is going to be organized by Mechanical Engineering Department on 07th and 08th of May2022. The aim of this symposium is to inculcate awareness among the students to provide a fruitful interaction on the new emerging technologies in the field of Mechanical Engineering. This symposium helps for the better articulation of future researches.

I congratulate the students for organizing such a great event and special thanks to all the sponsors for their support and encouragement.

I wish all the participants a nice time in this Symposium.

Dr. P.RAMA MURTY RAJU.

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SANKETA-22

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P Mounika (Vice Chair Person)	K Nikhil (Student Consellor)

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SANKETA-22

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V Gayatri		

TECHNICAL AND ECO PAPERS

S.NO	NAME	TOPIC	COLEGE
1	K. GOWTHAM	JAVA OBJECT ORIENTED PROGRAMMING	DNRCET
2	K. MANIKANTA	FABRICATION OF SINGLE WHEEL CULTIVATOR	SASI ENGINEERING COLLEGE
3	O.V. SUBRAHMANYAM M. APPALA NAIDU	NATURAL COMPOSITE MATERIAL	SASI ENGINEERING COLLEGE
4	A. JYOTHI SRAVANI A.G.V.S. KUMAR	STEGANOGRAPH	VIT CO-ED ENGINEERING COLLEGE
5	VAMSI & GANESH	CRYOGENIC FUELS	VISIT CO-ED ENGINEERIGN COLLEGE
6	KRISHNA VAMSI & G. SATYA NARAYANA	ELECTRICITY BY USING SOLAR ENERGY	BIET
7	MADHAV RAO & PAWAN KALYAN	POWER DEVELOPED IN RAILWAY USING SOLAR ENERGY	GEC
8	G. SAI ASHOK & T. MAHARSHI	POWER PRODUCTION BY UTILIZING WIND ENERGY USING TYPHOON TURBINE AT RAILWAY TRACKS	GEC
9	SAI MANOHAR & VASU SAI KRISHNA	AEROGEL	VISIT
10	G.V. PHANI KUMAR & G.K. SOWMYA	OCEAN POLLUTION	SRKREC
11	A. NAVEEN SAGAR	ANCIENT TECHNOLOGY	SRKREC
12	M. SIREESH & N.LAKSHMI	ISTORIA OF MECHANICAL ENGINEERING	SRKREC
13	P. RAMA SAI	CONVERSION OF WASTE PLASTIC	SRKREC
14	V.J.S.S.HARSHA & SOUHI	A REVIEW ON ENERGY MANAGEMENT IN TEXTILE INDUSTRY	SRKREC

15	K.PRUDHVI & RAJ,Y.SURESH	VAVLVOTRONIC ENGINE TECHNOLOGY	PRAGATI ENGINEERING COLLEGE
15	B. SATYANARAYAN	REDUCE REUSE & RECYCLE	SRKREC
16	R. YESWANTH & R.V.S.S.N. SARATH	CELLPHONE SAFETY	SRKREC
17	M. LAASYA PRASANA & M. JANAKI ALEKHYA	EYE DIRECTIVE WHEEL CHAIR	SHRI VISHNU ENGINEERING COLLEGE FOR WOMENS
18	J.V.S. SAI CHARAN	WATER AND ENERGY RESOURCES IN AP	SRKREC
19	V. MAHENDRA REDDY & S. DILLEP KUMAR	DESIGN AND DEVELOPMENT OF BIONICOPTER USING DRONE TECHNOLOGY	SVCET (CHITTOR)
20	J.V.S.SAI CHARAN	INTERNAL COMBUSTION ENGINE	SRKREC
22	MD. SOUBY ABHAS	FLEXURAL CREEP STUDIES ON NATURAL COMPOSITES	SRKREC
23	D.SAISREE	ROBOTIC SOLAR PANEL SUN TRACKING TECHNOLOGY	C.R. REDDY ENGINEERING COLLEGE
24	KRISHNA SAHITYA,APARNA KUMAR	DRIVE BY WIRE	ADITYA ENGINEERING COLEEGE
25	K. S. L.SOUJANYA , G.THANMAI	UNDERWATER WELDING	SRKREC
26	K.SAI TEJA,M.SYAM	HONDA R18 IVTEC ENGINE	SRKREC
27	CH. MOUNIKA, CH. SUNANDA	FREEZE DRYING	SRKREC
28	SHANMUKHA SAI ADDAGARLA	LASER IGNITION SYSTEM	SASI ENGINEERING COLLEGE
29	D.SAISREE	ROBOTIC SOLAR PANEL SUN TRACKING TECHNOLOGY	C.R. REDDY ENGINEERING COLLEGE

WITH BEST COMPLIMENTS FROM

DEVELOPMENT OF STEER BY WIRE TECHNOLOGY

K. JYOTHI VINAY KUMAR
K. SRI SAI DILEEP
O. CHAITANYA ANIRUDDH
K. GOPI
K. BALAJI
K. ABHISHEK KUMAR

The automotive industry has already implemented many advanced computer systems in an attempt to increase safety and comfort of drivers. In parallel with these advancements we see a big shift from mechanical systems to electrical systems and steer by wire is another implementation that is very promising in terms of safety and functionality. Already, there are some commercial prototypes of such by wire systems and there is a lot of research, both academic and commercial, in the field. Working on a steer-by-wire system to gain more insight into control theory and I thought the double control system that provided the crucial feedback to the driver was an interesting engineering problem.

EVALUATION OF MECHNICAL PROPERTIES FORWOOD AND SILICA GEL COMPOSITE

A. PAVAN KUMAR
A. RUSHI KAMAL
B. SRI HARSHA
D. VEERA PAVAN
V.CHATURYA
D. SAI TEJA

Fracturing of wood and its composites is a process influenced by many parameters, on one hand coming from structure and properties of wood itself, and on the other from influences from outside, such as loading mode, velocity of deformation, moisture, temperature, etc,. Both types of parameters may be investigated experimentally at different levels of magnification, which allows a better understanding of the mechanism of fracturing. Fracture mechanical methods serve to quantify the fracture process wood and wood composites with different deformation and fracturing features. Since wood machining is mainly dominated by the fracture properties of wood, knowledge of different relevant mechanism is essential. Parameters that influence fracture process, such as wood density, orientation, loading mode etc,.

DESIGN AND FABRICATION OF TWO WHEEL DRIVE FORK LIFT FOR INDUSTRIAL WAREHOUSES

D.VIDHYA MANOHAR
CH. RICHARD JHON STEVE
BH. VENU GOPALVARMA
CH. PRIYA ANGEL
BH. UDAY KUMAR RAJU

Forklifts had become one in all the fundamental transportation tools we tend to use in our daily lives. With all the forklifts in existence, we discover that their square measure some enhancements that can be created to bring the self-propelled vehicle to a much better performance. Mechanical fork raise is associate improved and advance technology that helps caused revolution at intervals the mechanical industries these days all important engineering companies uses it. Wider spread use of the wheeled vehicle truck had revolutionized deposition practiced before the centre of the 20^{th} century. Self-propelled vehicle has revolutionized ware house work. They created to achievable for one person to manoeuvre thousands of pounds promptly. To enhance the technology any, this image module is created with remote technology, there by the operator can walk at the fact of the wheeled vehicle for higher visibility.

STUDY OF MACHINABILITY OF INCONEL-718 ALLOY ON ABBRASSIVE WATER JET MACHINING

A. SATYA PHANINDRA
D. KARUN KUMAR
CH. MOHAN
CH. RAJA VARDAN
A. SIVA NAGESWARA RAO
B. PRADDEEP SAI

Abrasive water jet machine(AWJM) is a nonconventional machining technique in which, material removal takes place from the work piece by impact erosion high pressure and high velocity water jet mixed with abrasive material to provide smooth surface finish. Experiments are conducted to study the influences of various process parameters of abrasive water jet machining on material removal rate(MRR) and surface roughness(Ra) of inconel1718. Experiments are carried out L9 orthogonal array by varying water pressure (WP), traverse speed (TR), abrasive flow rate (AFR) and stand of distance (SOD) for Inconel-718 material. In the present paper an attempt has been made to optimize the AWJM process parameters of Inconel -718 using Taguchi method.

WITH BEST COMPLIMENTS FROM

Balusumoodi, Bhimavarm-534 202

HEAT TRANSFER RATES FOR VARIOUS SHAPES OF FINS AT FREE AND FORCED CONVECTIVE CONDITIONS

CH. SRI SAI PAVAN
B. POORNA SREE
B. SATISH
D. SAI
B. HARSHA VARDHAN
CH. UTHENDRA

Convective heat transfer between as surface and the surrounding has been a major issue and a topic of study for a long time. In this project, the heat transfer rate of fin is analysed by ANSYS work bench for the design of the fin with various design configurations such as cylindrical configuration, square configuration, rectangular configuration and triangular configuration. The heat transfer performance of fin with same base temperature having various geometry is compared. In this thermal analysis, aluminium analysis, Aluminium was used as the base metal for the fin material and for the various configurations. Fin of various configuration are design with the help of CATIA V5R16 software analysis of fin performance done through the software ANSYS15.0. On comparison, triangular configuration provides the greatest heat transfer than that of other configuration having the same volume. The effectiveness of triangular fin is grater as compared to other configuration of fin.

DDESIGN AND MODIFICATION OF RADIATOR SYSTEM TO AMXIMIZE ITS EFFICIENCY

CH. LAVANYA
B.SRAVANI
A. JAYASURYA
A.A.S. SAINATH
D.P.V.V. KALYAN
B.H. SAI VARMA

Engine produces high amount of heat while running. This can raise the engine temperature to very high level and can damage seize the engine components. The efficiency of the radiator can be increased by changing the surface area or dimension of the tube or increasing the number of fins/tubes. The heat transfer rate for the existing radiator could be analysed. After analysing the existing radiator, the new radiator has been designed. Two flat plates are placing inside the tube which acts as the nozzle. Hence nozzle velocity increases and pressure decreases. Pressure is directly proportional to temperature. Thus the temperature of the coolant inside the radiator decreases. As a result efficiency of the proposed radiator is increased 5.37% when comparing with existing method.

FABRICATION AND DETERINATION OF MECHANICAL PROPERTIES OF AL6063 ON ADDITION OF Mg & Cu METAL MATRIX COMPOSITES

A. MANOJ B. PRIYANKA

D. MICHAEL CH. SAI TEJA

CH. REVANTH SATYA DEV

The main concern of the project is to improve the mechanical properties of aluminium for this we prepare an alloy by adding traces of copper and magnesium. In this project we take Aluminium 6063 and add copper and magnesium in different percentages like 1.5%, 3%, 4.5% with these percentage compositions the specimens are prepared and chemical is done various tests are conducted. In order to know the properties tensile testes on the UTM and compressive test and the hardness test are conducted. The main result obtained from the project is the strength of the alloy increases compared to Aluminium 6063.

EVALUTION OF MECHANICAL PROPERTIES OF ALUMINIUM ALLOY(AL-6061) REINFORCED WITH MOLYBDENUM DISULPHIDE(MOS2) METAL MATRIX COMPOSITE

V.V.S.N. TEJA VARMA P. MANIKANTA

P.SRI SAI TEJA SK. EMAMSA

A. KONDABABU G. SARATH BABU

The investigations on the characterization of AI 6061 base metal matrix composite (MMC) reinforced with molybdenum disulphide (MoS2) samples are reported in this project. Aluminium MMC prepared with MoS2 powder of particle size of less than 2microns, with weight ratios 2,4,6&8. The results are revealing that the yield strength is increased with increase in weight % of reinforcement particle in the matrix up to 2% and then decreased. The compressive strength is increased with increase in weight % of reinforcement particle in the matrix up to 8% and then decreased. The hardness of the metal matrix composite is increased with increase in the weight % of reinforcement particle in the matrix up to 6% and then decreased. The impact strength of the metal matrix composite is also increased with increase in weight % of reinforcement particle in the matrix up to 6 % and then decreased.

INFLUENCE OF WELDING PARAMETERS ON THE MECHANICAL PROPERTIES OF DISSIMILAR AA7075-AA6061 FRICTION STIR WELDS

A. SAI KIRAN
E. MAHESH ARAVIND
E. SANDEEP KUMAR
D. RANJITH KUMAR
A.S.S. MADHAVA VARMA
CH. TERESA

Friction Stir Welding(FSW) is a solid state joining process that uses a non-consumable tool to join two facing work pieces without melting the work piece material. CNC milling machine is used for the Friction Stir welding (FSW). In which the aluminium plates of series 6061 and 7075 is fitted rigidly in the machine. Tapered pin tool is used for the plates to be welded. And the required inputs like speed, feed and tool profile are given. The welded plates are next proceeded to the tests for evaluating the mechanical properties. The tests conducted are tensile test on universal testing machine.

FABRICATION OF FOURWHEEL STEERING SYSTEM USED FOR REDUCING TURNING RADIUS

B.N.T. SANDEEP
B.S. SAI KIRAN
CH.P. KAKSHUDU
B.G.S.SAI PRAKASH
CH.V. NAGA MURALI
B. SAI PAVAN

Production are designed to understeer and rarely do they oversteer. If a car could automatically compensate for an understeer/oversteer problem, the driver would enjoy nearly neutral steering under varying operating conditions. Four-wheel steering is a serious effort on the part of a automotive design engineers to provide near-neutral steering also in situation like low speed cornering, vehicle parking and driving in city conditions with heavy traffic in tight spaces, driving would be very difficult due to vehicle larger wheelbase and track width. Hence there is a requirement of a mechanism which result in less turning radius and it can be achieved by implementing four wheel steering mechanism instead of regular two wheel steering. In this project Maruti Suzuki 800 is considered as a benchmark vehicle. The main aim of this project is to turn the rear wheels a in counter direction from front wheels. In order to achieve this, we used rack and pinion mechanism and propeller shaft to transmit the power to steer rare wheels front wheels.

EXPERIMENTAL STUDY OF HEAT TRNSFER COEFFICIENT OF AN AUTOMOBILE RADIATOR USING SnO_2 & Al_2O_3 NANO FLUIDS AS A COOLANT

AMEER KHAN

B. BABU RAO

CH. SAI TEJA

B.VENKATESH

B. NIKHIL SAI

Radiators are compact heat exchangers, optimize and evaluated by considering different working conditions. The nano fluids have emerged as new generation of heat transfer fluids. In this study, Tin oxide(SnO_2) & Aluminum Oxide(Al_2O_3) nano particles to base fluids(water+ Ethylene Glycol) in car radiator as coolant. The SnO_2 & Al_2O_3 nano particles are tested in the automotive by various volume fractions of nano particles mix with base fluid (Distilled Water + Ethylene Glycol). The performance comparison will be made between pure water sand nano fluids tested in an radiator. The experiment is done at different flow rates.

PREDICTION AND OPTIMIZATION OF SURFACE ROUGHNESS AND MRR IN WIRE EDM PROCESS ON MARAGING STEEL 350

B. SATTI BABU

D. DHAN RAJ

CH. HEMANTH

D. PRASAD

CH. TRINADH

B. RAMA PRAVEEN

WEDM is complex in nature and is controlled by large number of parameters. It has been observed that process parameters such as voltage, current and pulse related parameters (pulse on time, pulse off time) are the most important parameters in EDM, WEDM. They along with interaction time (pulse with X frequency) dominate the output parameters i.e., MRR, surface, Roughness, etc,. The depth of crater, temperature generated and the resultant surfaces obtained (along with its constituents) are results of pulse energy applied. This paper reviews the effects of various WEDM process parameters such as pulse on time, pulse off time, servo voltage, peak current on different process response parameters such as MRR, Surface roughness(Ra). This paper also reviews various optimization methods applied by researches and finally outline the recommendations in future trends in WEDM research.

DESIGN AND DEVELOPMENT OF LOW COST 3D PRINTER

N.D.N.S.M. SRINIVAS
I. PRUDHVI
B. VINAY KUMAR
T. RAVITEJA
B. DIVYA SRI

The main purpose of our project is to develop a low cost 3d printer using easily available materials and conventional methods for fabrication which can be used to print objects confined to within 220x220x240 (in mm) printing area. Many industries uses traditional methods for developing prototypes for analysis rather than using technologies like 3D printing because it is expensive. After thorough market survey, the conclusion is 3D printers available in India market are priced around Rs. 50,000 to Rs. 60,000. Initially the entire 3D printer is designed in 3D modelling software named SOLIDWORKS and analysed each part and selected readily available materials appropriately so as to develop a cost effective printer. Main objective of project is to develop a printer which is cost effective and to encourage manufacturers to adopt the method of 3D printing.

STUDY ON MECHANICAL PROPERTIES OF SiC-GRAPHITE REINFORCED A6063 HYBRID COMPOSITE

K. DEEPIKA
G. VINAY KUMAR
I.N.K.S.S. VENKATESH
K. GOPALA RAJU
J. RAMA SURYA KIRAN
K.P.R. CHANDRA REDDY

In the present work, A6063 alloy is used as matrix and 2%,4%, and 6% SiC with graphite particles of 2% were taken as reinforcement. Particles of size 150nm were successfully fabricated by vortex method. The fabrication of these composites was carried out by stir casting techniques. The result showed that, tensile, compressive strength, density of composite decreases with increasing of reinforcement and micro graph, it is observed that there was good bonding between SiC with graphite particles. It was conclude that fabricated composites could be used to make composite for automobile applications and many more. An attempt has made successfully to fabricate the composites and hence, silicon carbite and graphite can be used as reinforcement for Metal Matrix Composites(MMC).

WITH BEST COMPLIMENTS FROM

J.P Road,Bhimavaram-534 204

DYNAMIC MECHANICAL ANALYSIS OF FUSED DEPOSITION MODELLING PROCESSED PETG MATERIAL

Y. BALA MURALI K. JYOTSHNA

M. MONU YOHAN SHETTY

Fused deposition modelling process have been successfully implemented in several industries to fabricate concept models and prototypes for rapid manufacturing. The study furnishes terse notes about material damping properties of FDM made Poly Ethylene Terephthalate glycol (PETG). DMA is carried out using dynamic mechanical analyser. 3 FDM process parameters namely layer thickness , feed rate, density were contemplated results were obtained for dynamic properties such as maximum storage modules, maximum tan delta. The discuss the effect of increasing the frequencies and temperature on FDM made PETG samples using different FDM parameters.

FABRICATION AND ANALYSIS OF TITANIUM DIOXIDE AND TIN OXIDE BASED THIN FILM SOLAR CELL

K. V.S.S.R. VAMSI KRISHNA V. SAI SRIRAM

B. KRISHNAIAH U.S.S. RAM KUMAR

Y. PAVAN KUMAR G. V. SATYA PRASAD

Energy independence is one of the most important factors in the development of any country. The utilization techniques of natural non-conventional energy resources are a intense research throughout the globe.

Carbon nano materials is highly stable and possess excellent electrical properties, additionally it accepts the photo generated electrons and acts as reservoir of electrons thus facilitating the separation of electrons and holes. This reduces the losses due to recombination, which is a major cause of efficiency loss in all solar cells.

On the other hand, anatase TiO_2 is a naturally stable n- type semiconductor which transports the photo generated electrons from the size of generation at faster rates. The charge transportation occurs very fast without any loss when confined in two dimensions. Hence the nano materials based thin film solar cells are the candidates to be commercialized in the coming short time.

POLLUTION CONTROL DEVICE BY USING NATURAL FIBRES

R. HARI KIRAN
SK. ARIF
M. VENKATA BRAHMAM
SK. NAZEER
V. KRANTHI CHAITANYA
S.S.S. SWAROOP RAJU

In this project we have studied the basic properties of exhaust gas or a flue gases such as CO, NO_x, HC emitted as a result of the combustion of fuels such as natural gas, gasoline, biodiesel blends, diesel fuel and coal. These are the major components of motor vehicle emissions. In this project we are replacing CATALYTIC CONVERTER of vehicle with a device made up of steel meshes and placing natural coconut fibre with activated carbon in between the meshes which reduce and absorb the polluting contents from the exhaust gases.

So that by using this device as a pollution controlling unit in a vehicle which reduces the pollutants in exhaust gases by adsorption process and release less contaminated gases to atmosphere. The components used in the device are easily available in environment without polluting it. Using of natural fibres in regulation of pollution in automobile which will avoid use of artificial synthetic material and reduce the cost of product.

THERMAL ANALYSIS OF FINS BY USING DIFFERENTIAL TRNSFORMATION METHOD

G. VAMSY KRISHNA
G. HARISH
G.V.V. TRIMURTHULU
G. VENKATA REDDY
G. JAGADISH
K. PRATHIBA BHARATHI

The project is a simple and highly accurate semi analytical method called differential transformation method is used for solving the non-linear temperature distribution equation in tree main cases. In the first case, heat generation is assumed variable by fin temperature. In second case both heat generation and thermal conductivity varies with temperature. In third case, three different profiles of the straight fin that has a temperature dependent thermal conductivity and no internal heat generation are investigated. DTM results indicate that series converge rapidly with high accuracy. The efficiency and tip temperature of the exponential profile are higher than the rectangular and convex profiles.

CHARACTERIZATION OF ALUMINUM Cu-Si ALLOY

G. TANUJ
I. MOHIUDDIN
G. ADITYA KUMAR
G.N.V.S. RAJU
I. BHASKAR RAO
K.B.S. MADHAVA

In recent years Aluminium alloys are widely used in automotive industries. This is particularly due to real need to weight saving for ore reduction of fuel consumption. Surfaces of aluminium alloys have brilliant lustres in dry environment due to formation of shielding layer of aluminium oxide. This project is aimed at studying the effect of varying the composition of copper and silicon on mechanical properties like tensile strength, hardness, compression strength, spectroscopy and micro structures on an aluminium-silicon-copper alloy. Sand casting technique being the simplest one was used for the purpose of project and testing was done on the samples for determining the mechanical properties.

FABRICATION OF AUTOMATIC TIRE INFLATION SYSTEM FOR AUTOMOBILE APPLICATIONS

H. DURGA PRASAD
G. AKHILESH KUMAR
K RAMYA
G. RANADEEP

K. G. C. RAJU E. SUNIL

The main aim of our project is to achieve accurate tire pressure. This is achieved by introducing an automated system for tire inflation. This system checks the tire pressure regularly an inflate automatically to correct tire pressure. Proper tire inflation pressure improves fuel economy, reduce barking distance, improve handling, an increase tire life. While under inflation creates over heating and can lead to accidents. We successfully implements the use of centralized compressor that will supply air to all four tiers via hoses and a rotary joints fixed between the wheel spindle and wheel hub at each wheel. The rotary joint effectively allows the air to be challenged to the tires without the tangling of hoses. With the recent oil price hikes and growing concern of environmental issues, the system addresses a potential improvement in gas millage and an increase in handling and tire performance in driving condition.

EFEECT ON NANO CUTTING FLUIDS ON SURFACE ROUGHNESS AND MATERIAL REMOAVL RATEDURING TURNING OF TITANIUM ALLOY

J. MANITEJA
G.M. KESAVA
G.V. KRISHNA
K.J. KIRAN
I. DEVASHISH RAO
K. SANDEEP KUMAR

Machining of tough metals require cutting fluid lubrication to reduce cutting forces, friction which results in good surface finish. Due to complex compound present in these cutting fluids they are in toxic in nature. Further the disposal of the cutting fluids adds to the cost due to the required chemical treatment. Further to make the fluid more harmless vegetable based compound fluids are being developed to replace the toxic ingredients. The present work is regarding the development of vegetable based lubricants and addition of nano particles like graphite molybdenum disulphide and mixture of both particles in vegetable oil matrix such as canola oil, which are used as lubricants during turning of titanium alloy with carbide tool. The result exhibits the drift of the surface roughness and material removal rate of work piece during turning for different weight percentage of nano particles in oil.

FABRICATION OF THREE AXIS PNEUMATIC TRAILER

J.S. NAGARJUNA
G. SANDEEP KUMAR
G. SOHAM
K. DIVYA VANI
G.L. GANESH
K.V. MANITEJA

This project work FABRICATION OF THREE AXIS PNEUMATIC TRAILER has been conceived having studied the difficult in unloading the materials. The trailer will unload the materials in only one single direction. Automobile engine drive is coupled to the compressor engine so that it stores the compressed air when the vehicle running. This compressed air is used to activate the pneumatic cylinder when the valve is activated. The ram of pneumatic cylinder lift the trailer cabin. This mechanism prevents blocking of roads, increase the productivity of trailer and shortened the time of unloading with small increment in cost. The efficiency of dumping trailer will increase. This is very useful in shipping industries.

DESIGN OF AIR HYBRIDSPLIT CYCLE ENGINE

J.D.V. SAKETH K. CHANDRIKA

K. SAI KIRAN K. ANIL RAM

K.D. RAJESH K. SHANKAR

Air hybrid split cycle engine is one such technology which reduces the fuel consumption to significant level and also reduces the environmental pollutant emission to a large extent. The thermal and mechanical efficiency of the engine are further improved using this technologies. This is briefing on how beneficial an air hybrid split engine can be when compared to conventional type of engine. In this project we have studied the split cycle engine keenly and designed such100 CC engine and further a protype fabrication is carried out successfully.

AGRICULTURE VEHICLE FOR CUTTING AND SPRAYING

G. SUDHEER K. PRAKASH

K. VICTOR PAEL L. KALYAN

G. PRADEEP G. GANESH

In India about 70 % of population depends upon farming and one third of the nation’s capital comes from farming. Issues concerning agriculture have been always hindering the development of the country and also country’s economy. Hence there is need to implement the modern science and technology in the agriculture sector for increasing the yield. Monitoring environment factors is not enough and complete solution to improve the yield of the crops. There are number of other factors that effect the productivity to great extent. These factors include attack of insects and pests which can be controlled by spraying the crop with proper insecticides and pesticides. The only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture. Hence the project aims at making agriculture smart using automation and IOT technologies. The highlighting feature of this project includes application controlled robot to perform tasks like weeding, spraying. Controlling of all these operations will be through blink application connected to internet and these operations will be performed by interfacing sensors, and motor drivers, relays with node cu.

DESIGN AND FABRICATION OF SAND SEIVING MACHINE

K.P. KUMAR
K.S.V. RAVITEAJ
K. SAI KIRAN
K. RAVIKANTH
K.L.V. ANURAG
G. CHAITANYA SREE

Our system puts forward a fully automated sand filtering and separator system or otherwise called rotary sand sieving machine that automatically filters and poured on it. Here we use motorized shaft that is mounted horizontally using mounts. The shaft is connected to a filter frame with mesh below and enclosing frames on the sides. We now have a rod connected from the shaft to the filter frame in a way such as to achieve the dust rotary motion. Also we have a frame to hold the filter frame in place while ensuring proper rotary motion at the same time. The aim of the sand sieving machine is to attain accuracy, reliability, performance and reduce the human effort.

DESIGN AND FABRICATION OF SEMI GANTRY CRANE

N. RAGHAVA REDDY
N.S.V.K SWAMY
K. MADHUSUDHANA RAO
N. UJWALA
M. MAHENDRA GUPTA
K. SAI KUMAR

In small industries the weights or goods maximum up to one ton should be move within the industries in the maintenance of plants enterprise will depends on material handling equipment also. This crane has mainly 4 parts, they are base, vertical column, horizontal structure, chain block. The vertical column and horizontal block are made up of hollow mild steel rods so mainly they are designed based on the bending movement. The load is first lifted by chain block. The present report has chapters each of which deals with one particular aspect of the problem. The numerous designs of material handling equipment are the result of a great velocity of the kinds and properties of loads being moved and the abundance of transporting operations without which the modern production is unimaginable.

DESIGN AND STRUCTURAL ANALYSIS OF DIFFERENTIAL GEAR BOX USING DIFFERENT MATERIAL

P. RAMARAO P.J.P.VARMA

P.B.V. VENKATA SAI N.V.R. SAI

P. MAHESH N. PREXON

The main objective of this project is to develop a parametric model of differential gear box by using CATIA V5 software and to analyse it with different materials using ANSYS14.5 and static loading conditions. Comparison of various stresses, deformation and shear stress results for differential gear box of glass filled polyamide, metallic material(Grey cast iron) and Ni-Cr-Mo are being performed when a movement of 200n-m is applied under static loading conditions and found to be lower for composite material.

ANALYSIS OF BLOOD PRESSURE AND PULSE RATES OF IDENTICAL GROUP USING THREAD MILL

A. APPORVA M.V.S. DEEPIKA

N.V. RAMA REDDY N. VISWAJITH

M.G.V.S. VARMA N.O.S. MANIKANTA

In the present work, Systolic pressure, Diastolic pressure and the heart rate recovery of twenty five female subjects of 18-22 years age was investigated to find the regression equations between normal Systolic pressure and Diastolic pressure, normal systolic pressure and normal pulse rate. Regression equations Normal systolic pressure and diastolic pressure after cessation of work and normal systolic pressure and pulse rate after cessation of work at every 3 minutes interval for a period of 12 minutes at different inclinations for calculator. We have observed that systolic pressure, diastolic pressure and pulse rates are varied under different conditions such as lines and angle of thread mill. After cessation of work, as the tie increases the systolic pressure and diastolic pressure and pulse rate reduces linearly.

WITH BEST COMPLIMENTS FROM

AUTOMATIC AND MANUAL AGRICULTURAL SPRAYING MACHINE

N. SOWMITH
M.D. NARENNDRA
K. SAI NIKHIL
P.R.K. REDDY
L.S.C. SUMANTH
L.SURESH

In India farming is done by traditional ways, besides that there has been large development of industrial and service sector as compared to that of agricultural sector. The spraying of pesticides and insecticides is traditionally done by farm worker carrying backpack type sprayer which requires more human effort. Giving to these important problems an attempt is made to develop an equipment which will be beneficial to the farmer for the spraying operations. This equipment is easy to use and operate. It makes use reciprocating pump that creates the required pressure for the spraying action. This multifunction device will come in handy that can be put to use in different spraying stages of farming as per process requirement.

FABRICATION AND EVALUTION OFMECHANICAL PROPERTIES OF B_4C-GRAPHITE REINFORCED A356 COMPOSITE

N. SAI BHARGAV
M. MANOJ BABU
M. SAI MANIAKNTA
MD. M. BABA
N. SATYA SRIKANTH
M. MOUNICA

Science and technology has developed to such an extent that now the demand for advanced engineering material has increased. This demand can be fulfilled by composite material, one such material is the material matrix composite(MMC). In the present investigation, A356 alloy is used as matrix and 2,4,6wt% B_4C with graphite particles of 2wt%. Particulates of 150µm were successfully synthesised by vertex method. The synthesis of this composites was carried out by stir casting technique. The density and mechanical properties of the composites including hardness and tensile strength were investigated and also the micro structure is observed. The results showed that the density of composite, hardness, tensile strength increases with the percentage increase of reinforcement and from the micro graphs it was observed that there was a good interfacial bonding between the B_4C particles and matrix phase. It was concluded that the produced composites could be used to make engineering components for automobile application. An attempt has been made successfully to fabricate.

DEVELOPMENT OF CHARECTEREIZATION OF NATURAL FIBER REINFORCED COMPOSITES FILLED WITH INDUSTRIAL WASTES

M. VINAY BABU
N.B. NAIDU
N. SAI BHASKAR
P.S. C. REDDY
N. S.S. PRATHYUSHA

The objective of the project work is to investigate the effects of the various parameters such as type of fibres (Banana, Jute & Sisal), ply angle(0º, 45º & 90º) and percentage of reinforcement (4%, 8%& 12%) on the flexural strength, tensile strength and impact strength to obtain the optimal sets of parameters. The natural fibre reinforced composites used in the present work are manufactured using hand lay-up technique. The working ranges and levels of the parameters are found using one factor at a time approach. The Taguchi technique has been used to investigate the effects of the parameters and subsequently to predict sets of optimal parameters for optimum quality characteristics. Moreover, Regression analysis was performed using MINITAB to develop a mathematical model in order to predict the flexural strength, tensile strength and impact strength in terms of input parameters.

PREDICTION OF MATERIAL REMOVAL RATE AND SURFACE ROUGHNESS IN WIRE ELECTRO DISCHARGE MACHINE PROCESS USING REGRESSION ANALYSIS

M.N.L.K. SAI TEJA
P.V. SAI CHANDRA
M. VIJAY KUMAR
M.JUNAID
M. SEKHAR
K.D. SRINIVAS

Machining of nickel based alloys is one of the challenging tasks in the recent past. Wire Electrical Discharge Machine(WEDM) is an advanced machine tool, extensively used to machine hard to cut materials like nickel, Titanium and other super alloys. Selection of WEDM process parameters to yield the desired level of performance measures like Material Removal Rate(MRR) and Surface Roughness(SR) is crucial from quality and economic view points. In the present work an attempt has been made to investigate the effect of WEDM process parameters such as pulse on time, pulse off time, peak current and servo voltage in machining of Nimonic-263 alloy. ANOVA analysis is performed on performance on process parameters in MINITAB software and values of MRR and SR are obtained from regression equations at optimal condition.

FABRICATION OF SOLAR POWERED MULTI TASKING LAWN MOVER

M. YASASWI K.B.V. ANIKANTA

K.D.S.S. REDDY M.SAI KIRAN

I. AJAY KUMAR

Solar powered grass cutter is a semi-automated grass cutting robotic vehicle powered by solar energy. The system uses 12V batteries to power the vehicle movement motors as well as the grass cutter motor. We also use the solar panel to charge the battery so that there is no need of charging it externally. The grass cutter and vehicle motors are interfaced to a soil sensor and water spraying equipment for the detection of the moisture content present in the soil and there by we can switch on the water spraying equipment as per the requirements. As this vehicle is controlled by a man through mobile with help of a blynk app through Wi-Fi connection, there is no problem of messing with large cables and the control of the vehicle becomes very easy and more effective compared with conventional lawn over.

FABRICATION AND EXPERIMENTAL ANALYSIS OF A VORTEX TUBE REFRIGERATION SYSTEM.

P. SAI RAJU M.PRAVEEN

M. ASHOK P. HEMANTH SAI

M.N.V.L. RAJA SEKHAR P.BUCHI ESWAR

The compressed air is injected tangentially into a chamber with high degree of swirl. On the other hand because of the valve only the outer periphery part is allowed to escape, where as the inner part is forced into the inner vertex with a small diameter with in the outer vertex. In this work we made vortex tube to study the performance of the refrigeration system, how different parameters are change with the inlet pressure is also investigated. The results are drawn for the vertex tube to represent performance. The material used for the construction of the vertex tube is UPVC.

FABRICATION OF VERTICAL WINDMIL FOR PUMPING WATER IN AGRICLUTURE PURPOSE

M. SAI KRISHNA
P. SAI KUMAR
M.B.R. KRISHNA
O. SRILEKHA
MD. AMEN ASHRAF

In this project, vertical axis multi-blade wind turbine a generator and a centrifugal pump are used. The windmill is attached to the generator through two bicycle disc. These disc are bolted and meshed with each other. The wind imposes to driving forces lift and drag on the blades of the turbine. When these forces act on the blade, it rotates and this rotating blade converts this obtained mechanical energy to electrical energy using a generator and this electricity is used to run the centrifugal pump. This is how the water is discharged. This is applicable in the pumping of water for irrigation purpose. The main objective of this project is to design a wind water pumping system for agricultural use, where the source of water is pond.

CREATING DATABASE AND WEB-BASE FOR RETROFITTING

M. SATHEESH
M.V. MUTYA SURYA
MD. SAHIL
M. PADMAVATHI
M. PADMAVATHI

India’s electrical vehicle industry is a newly born baby when compared with the other international markets such as US, China & Europe etc, which are way too matured. China, being the leader holds nearly 50% share of the global electrical vehicle market. In order to create awareness among people, in the proposed project work developed collaborative web based tool for cost estimation for retrofitting exiting cars. This work involves creating database, which includes all car models with their replacement parts and specification. The web page displays data related to cost estimation and speed variations for retrofitting of any vehicle. This work helps to common man to educate costs for retrofitting vehicle.

DESIGN, ANALYSIS AND FABRICATION OF BAMBOO BICYCLE FRAME

P. GOPPI REDDY
P.Y.N.V.BHAVANI
D. SRINIVAS
M. HEMASUNDHAR RAO
Y. SAI RAM
P.AJAY

Production of steel is a polluting process, replacing it with greener version has occupied the minds of the researchers all over the world. In this respect, bamboo seems to be a viable substitute to steel in making of bicycle frames. Bamboo frame bicycles are lighter than steel frame bicycle, have aesthetic looks, are more environmental friendly and can potentially be cheaper than steel frame bicycles. This paper reports our attempt to design and fabricate a bamboo bicycle. Special jointing technique was developed to attach the bamboo poles. Tests showed that the bicycle actually could withstand various rides in smooth and bumby roads. The reason for use of bamboo was to make a more eco friendly as well as economical version of the available steel frame bicycle.

CHARECTERIZATION OF ENGINE'S COMBUSTION, EMISSION, VIBRATION AND NOISE USING BIODIESEL AND ITS BLENDS

K.SIVA
T. SRIKANTH SAHU
G. SAIDA NAIK
P.RUKMANMADHAV RAO
CH.R.D.V. GANESH
D. JOSEPH RAJU

In this study, biodiesel is produced from ground nuts by converting the raw oil into ground nut oil methyl ester using trans-esterification method. Engine fueld with fuels like B10 (10% bio diesel, 90% diesel), B20 (20% bio diesel 80% diesel), B100 (100% biodiesel). In this project work, performance, vibration and noise characterization of variable compression ratio engine will be analysed at constant compression ratio of 17.5. The engine is fuelled with biodiesel and it blends when it runs at constant speed of 1500rpm.

DESIGN AND FABRICATION OF FREE ENERGY WATER WHEEL PUMP

V. RAMAKRISHNA
P. SAI RAM PRASAD
P. PRASANTH
B.N. RAGHURAM
G. HARIKRISHNA
V.VISWANADHAM

The free energy water wheel pump project is to help people in triable enhance food security with this technology. The spiral tube water wheel pump can help in gathering water in a nearby stream easily. At present world's most prime need is to save conventional sources of energy. Among them the one thing which is attracting concentration is the concern of degradation of fuel sources, diesel and gasoline oils fuel is required in daily life for many purpose like in vehicles, machines operations etc,. The pump also requires fuel for its operation. Hence it is necessary to study the design and working of pump for its further modifications. During this study it is found that the spiral tube water wheel pump is an effective method for pumping water or similar liquid without use of electric or fuel supply. Also it is totally eco friendly method. The design model is successfully giving the positive result. It is pumping water to give desire discharge and for various heads. So it can be used at different locations having geographical diversity.

MODELING AND ANALYSIS OF RADIAL ENGINE PARTS USING DIFFERENT MATERIALS

S. TEJA PHANI PAVAN
K.CHINNA BABU
D. ANAND SAI KUMAR
P.RAJ KUMAR
S. SUDHEER
P. GOPI

The main object of this project is to design the radial engine parts and assembly in defined parameters by using SOLID WORKS software and can simulate the stress, total deformation, thermal analysis by using ANSYS software. This engine assembly consists of major components, they are piston, articulated rod, master connecting rod. This process is done for each and every main component. These mechanism shows the working of engine. And importing the components which are developed in CAD tool into CAE tool ANSYS for analyse to find out the deformation and stress of components. These analysis process is done in every manufacturing industries before assembly to showing the comparison between two materials for piston. Master connecting rod and articulated rod for same boundary conditions


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