Design, Modelling and Fabrication of Advanced Robot
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Robust Design of Aero Engine Structures: Using the Weighted Product Method

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Abstract: *Total loss of quality in products or processes Reduction is the objective of robust design. Strong Design is to reduce product cost and quality to improve, the development time at the same time it is also a very powerful method of reduction. Strength is defined as a skill Raw material, operating conditions, process equipment, environmental conditions, and human Expected variation in factors Tolerant manufacturing process. Research significance: Robust design is the design of products, devices, and manufacturing equipment so that their performance and functionality are insensitive to multiple variations, such as manufacturing and assembly tolerances, ambient use conditions, or degradation over time. Therefore, there is not strong design sensitivity – meaning that variation in the product will have minimal influence. In essence, robust design means minimizing the impact of variation on a product. One or more due to unforeseen circumstances Input variables or assumptions are rigorous although modified, their output and predictions are accurate A model is considered robust if Methology: Alternative: "The aerodynamic characteristic (C1), the maximum takeoff weight (C2), Armament (C3), Avionics (C4)." Evaluation Option: Ao, F-16, Su-35, Mig-35. Result: "from the result it is seen that Ao and is got the first rank whereas is the Mig-35 got is having the lowest rank". Conclusion: The value of the dataset for Robust Design of Aero Engine in Weighted product method shows that it results in Ao and top ranking*

Keywords: *robust design, Aero Engine, The aerodynamic characteristic, Armament, Ao.*

1. INTRODUCTION

ACE some of the solid design of conventional design Uncertainty of mechanical performance of component performance Reference to a robust design that exists can be used. Cycle effect on component performance A probabilistic method for comparing the effect of parameters was used [1] during each flight cycle, the TRS generates considerable heat subjected to loads, because from the combustor Hot exhaust flows through the rear of the engine going Aero surfaces have a temperature of 600° C. This Heating leads to material expansion, which result is considerable thermal stress. the structure. [2] Robust designs are often design compromises, With built-in design flexibility Provide a practical "package" of functional features; A specific efficiency per gallon or speed They are rarely optimized by specification miles will be Very sophisticated or "high-tech" That design is not always the most appropriate Hovercraft tells the story; [3] It Cognition in performance design of ACE system Uncertainties and imprecise uncertainties Considers both. This time the other global Robust design with design principles Integrates theory. Many new technologies The same is true for the design of other electrical systems along with characteristics that can be used. The following two categories are performance Implicit uncertainty also includes cognitive uncertainties in the design They also analyze the characteristics of the ACE system, respectively. [4] Also, Robust based on the format of PDFs of programs The article offers a new definition of character. To describe the effects of uncertainty in the system Strength and quality go hand in hand. Also, two Concepts are held together by a simple rule of thumb attached, the existence of which is the proposed method as a useful approach to robust design changes. [5] Using robust optimization and especially robust design methods, A significant reduction in development time and cost, and Increased product quality and reliability. however, only deterministic optimization methods are the norm The design is unobtrusive and robust Application of design methods to product reliability should increase. [6] To reflect production variability that increases with scale, To broaden the scope of our results, at face value We also create uncertainty in multiples. Since the design problem is tightly constrained, of modified robust design constraints Consider only small variations to make the bottom problem possible can take [7] Case study findings, innovation promotion and Restrictions, some high-level reproduction guidelines Design features affecting development, reproducibility Identifying, design issues at the component level and to develop more robust DFR guidelines, [8] Approach this problem from a statistical perspective; High cost of aerodynamic simulations

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A Systematic Investigation on the Influence of the Chemical Treatment of Natural Fibers Using the Fuzzy TOPSIS Method

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Abstract: *Chemical treatment (hazardous waste) is the conversion of hazardous waste into non-toxic gases, to change or change the chemical characteristics of waste Treatment methods are used, for example in water By decreasing solubility. Or acidity Neutralization or pH adjustment (neutralization or precipitation), oxidation and reduction, hydrolysis and Photosynthesis, chemical oxidation (ozonation, (electrolytic oxidation, hydrogen peroxide) and chemical removal (alkali metaldichlorine, alkali)chemical treatment processes Various (commonly used) including metallization/ so Commonly Activated Chemical Treatment Processes: Chemical Precipitation, neutralization absorption, disinfection (chlorine, ozone, UV light) and ion exchange. from plant kingdom Common natural fibres obtained are Cotton, Flax, Jute, Bamboo, Sisal and Jute, Natural fibres. The main component Natural fibres. The main component Popular as angora and mohair We get fibres, plant fibres include seed hairs such as cotton; Flax and stem (or bast) fibres like jute, leaf fibres like sisal; and coconut-like husks fibres. Animal fibres also include secretions such as wool, hair, and silk. Research significance: In this paper, various chemical properties of in natural fibre-reinforced composites Use natural fibres Changes have been reviewed. Alkali, Silane, Acetylation, Benzoylation, Acrylation, malate coupling agents, isocyanates, Permanganate and other chemical treatments are discussed. to the fibre surface Chemical treatment of fibre between polymer matrix Aimed at improving adhesion. Water absorption of composites decreases and their mechanical Properties are improved. Method: Fuzzy TOPSIS (Order by Similarities for Ideal Solution technique for prioritization) similar options. Further It also automates the process and selection Ambiguity, uncertainty in the process Can also be used to relieve Technology in general Used to solve decision problems. This is for all alternatives in the technique problem Based on inter-comparison. Alternative: Cotton, Jute, Flax, Hemp, Ramie and Sisal. Evaluation parameters: Density, Elongation, Tensile strength and Young's modulus. Result: Chemical Treatments of Natural Fibre in Sisal is got the first rank whereas is the Hemp is having the Lowest rank.Conclusion: Chemical Treatments of Natural Fibre in Sisal is got the first rank whereas is the Hemp is having the Lowest rank.*

Keywords: *MCDM, Cotton, Jute, Flax, Hemp, Ramie and Sisal.*

1. INTRODUCTION

Chemicals in the medical literature Treatments are pronounced, and it is difficult to examine the effects received because of the inherent variations of herbal systems from specific geographical areas and unique harvesting, production and processing conditions. Therefore, the intention of this paintings isn't always to check the huge literature on fibre chemical remedies, but to examine the consequences of different treatments on nicely-described flax derived fibres [6]. Natural fibre reinforced composites. of plant fibres Carbon dioxide is often neutral Carbon dioxide is often neutral Factors derived from burning, in the environment A large amount of carbon dioxide is released. causing Greenhouse effect and Global Climate Change Extension [3]. Chemical treatments previous to apply. Strongly polarized cellulose, in fact, Hydrophobic non-polar polymers are matrices and poor absorption of moisture Inherently incompatible with resistance. Compounds used in outdoor projects Draws on natural fibres to make Herbal fibres Draws on natural fibres to make. Herbal fibres Commonly used solution Functions of solution type and concentration In this article, two There are different types of chemical solutions one of a kind and to fix the surface of herbaceous fibres The interface between the matrix resin Concentrations are also followed to improve communication [7]. Chemical remedies of fibres with untreated fiber composites Compared to Fiber Composites Saving treatment was given by Modulus of untreated fibre composite turned out to be more thanA better storage modulus become observed within the Silane treated fibre in comparison with NaOH The composite was treated with fibre composite, It is a fine fibre-matrix Confirmed adhesion. Chemical treatments of herbal cellulosic fibres improve compatibility with matrix stages as they lessen the hydrophilicity of the fibres. They concluded that chemical remedies growth of fibrin to the matrix Bonding Residences [2]. Alkali, Silane, Acetylation, Benzoylation, Carination, Maleate Coupling Vendors, Isocyanates, permanganate and other chemicals Treatment is for fibre mat and polymer matrixno longer

RESILIENCE IN MANAGING COVID CARE CENTRE THROUGH COORDINATION AND COUNSELLING: A CASE STUDY OF MIT AURANGABAD COVID CARE CENTRE

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Dr Goutam Saha, Director, Knowledge Gateway, International Foundation

Abstract:
In December 2019, WHO had announced and warned against the serious outbreak of COVID-19, first in Wuhan, China, followed by symptoms in many other countries. By March 2020, India was badly affected by the spread of Covid. Today in 2023, when once again we find rising cases of Covid with varies symptoms, causing fear and distress, the authors think this is a good time to hit the pause button and remind ourselves how resilience through counselling, coordination and leadership can be contagious and help face a crisis. The general perception behind the inadequate provision and availability of healthcare services is attributed to India's developing nation status. One of the obvious reasons why public health care has not been a priority lies in the fact that India's middle class did not need it. A debate on the lack of investments in public health is bound to take place once the dust has settled. But it does not mean that the private sector or the civil society has no role to play in the health care sector. Many private foundations using the CSR funds have played a bigger role in strengthening the healthcare sector. The most effective intervention seems to take place when there is high degree of coordination amongst all stakeholders. The case discussed here speaks about coordination, compassion and counselling, during a pandemic like Covid- 19.
This discussion studies the experience of a medical facility set-up in MIT Aurangabad, Maharashtra, India as Covid Care Centre. This particular topic is chosen for discussion as most B- Schools in the country were requested to render help and assistance in infra- structure facility during the Covid- 19 pandemic. MIT Aurangabad, is one such B- Schools that turned around a hostel facility, first into a fever clinic and subsequently into a covid care centre. In-depth interviews were conducted with Dr Nandini Tiwari and the hospital staff (n=10) who, served as health care providers at the CCC (Covid Care Centre). Resilience among the patients emerged as a result of encouragement from the 10-member team, managing 7180 patients in a time period of 10 months. This paper studies the indomitable spirit of the doctor and her team in the face of highly contagious disease. It's imperative that mental health support and counselling is provided during any challenging situation. The authors studied the resilience in handling, counselling and coordinating during the emergency to build a health care system.

Key words- Resilience, Covid- care- Centre, Counselling, Coordination, Intervention

Introduction:.
In December 2019, WHO had announced and warned against the serious outbreak of COVID-19, first in Wuhan, China, followed by symptoms in many other countries. By March 2020, India was badly affected by the spread of Covid. The shortage of Covid Care Centres, Covid vaccines and doctors and nurses, coupled with the challenge of social distancing affected lives and livelihoods. Some organizations and individuals during 2020- 21 showed resolve and grit and rose above the cause to fight the situation out, Today in 2023, when once again we find rising cases of Covid with varies symptoms, causing fear and distress, the authors think this is a good time to hit the pause button and remind ourselves how resilience through counselling, coordination and leadership can be contagious and help face a crisis. Many B- Schools in the country were requested to render help and assistance in infra- structure facility during the Covid- 19 pandemic. MIT Aurangabad, is one such B- Schools that turned around a hostel facility, first into a fever clinic and subsequently into a Covid care centre
Dealing with a pandemic needs high levels of commitment. There is an incredible number of people across different sections of society who have, often at great risk to themselves, and under difficult circumstances, helped to fight the pandemic and mitigate a looming humanitarian disaster. The

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Original Article

Differential Transformation in Numerical Study: A Case Study Differentiability Equation

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Received Date: 12 April 2023 Revised Date: 15 April 2023 Accepted Date: 21 April 2023

Abstract: *Differential equations play a crucial role in understanding many events in technology and generation. Transformation techniques are one of the numerical approaches that mathematicians have devised to provide a numerical solution of differential equations with the least amount of error. There is currently no transformation method that claims to solve the supplied differential equations numerically or accurately without error. Laplace remodel, Differential transform, crucial remodel procedure, and others are a few of the transformation techniques. Laplace remodel, one of the techniques utilised by scientists and researchers to solve their differential equations, is presented in this study. This study of 18 research publications on Laplace rework programmes shows how many academics have used this rework to obtain the accurate solutions to ordinary, partial, and fractional differential equations. The primary objective of this work is to give a literature review on the use of the Laplace transform.*

Keywords: *Laplace transform, Iterative method, Fisher equation, Diffusion equation, Partial integro differential equation, The equations of gas dynamics, Volterra integral equations, Abel's integral equation, Malthusian regulation of population increase*

I. INTRODUCTION

A real variable is transformed into a complex variable using the Laplace transform, which is an integral transformation. Pierre Simon de Laplace, a brilliant French mathematician, was the creator of the Laplace transform (1749-1847). One sign (rule or equation) can be transformed into any other sign using the Laplace transform (rule or equation). Sending notifications to all areas of the medium has long been utilised in communications. The phone signal is transformed into a time-varying wave, which is then superimposed onto the medium.

The most pleasant method for solving challenging differential equations is the Laplace transform. The differential equation is changed into an algebraic equation. The Laplace transformation is also employed in engineering for a variety of technical tasks, such as device modelling, electrical circuit analysis, digital sign processing, etc..

A. Applications of Laplace transform in Differential and Integral equations

Any linear or nonlinear mathematical problem can be solved using the iterative approach. Fractional order nonlinear ordinary differential equation. Gejji and Jafari first used the iterative approach in 2006 [9]. This method was initially employed to resolve nonlinear intentional equations. The iterative Laplace rework method (ILTM), which combines the Laplace transform with iterative methodology, was then developed by Jafari et al. The numerical solution of systems of fractional partial differential equations is performed using ILTM. The fractional telegraph equation, the fractional warmth equation, and the wave-fashioned equation have all been solved using ILTM as of late. [15].

The Fisher equation is one of the maximum popular equations in partial differential equation. The time-fractional Fisher equation is given as comply with

$$\frac{\partial^{\alpha} u}{\partial t^{\alpha}} = \frac{\partial^{2} u}{\partial x^{2}} + u\,(1-u),\ 0 < \alpha \leq 1,$$

having initial situation u (x, o) = f(x). where u (1-u) stands for the logistic form and u represents the population density.

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A Fuzzy Logic Controller (FLC) and Dynamic Voltage Regulator (DVR) Based Power Quality Improvement In Transmission Line By Using Active Power Filter and Passive Power Filter

Gangasingh K Parmar[1], Sayali G Rathod[2], Deepali N Kende[3], Sonam V Welanjakar[4]

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Abstract: *This paper demonstrates with Active Power Filter and Passive Power Filter. It is great specified in Minimizing the voltage and current based harmonics and improvement in the Power factor with the relatively low capacity active power filter. In reconstitute power system, Power Quality is one of the most important Modern eras. The Problems associated with the voltage sags and voltage swells are one of the powerful impacts on the sensitive loads.*

To recover from this problem, Custom Power devices are usually used. One of those devices is Dynamic Voltage Regulator (DVR) and Fuzzy Logic Controller (FLC). The Dynamic Voltage Restorer (DVR), which is one of the most effective in modern custom power devices used in Power Distribution Network and Fuzzy Logic Controller (FLC) control the algorithm DVR is proposed in this paper to control the load terminal voltage during the sag, swell in the voltage at the point of common coupling (PCC). An adaptive fuzzy dividing frequency control method composed of a generalized PI control unit and fuzzy adjustor unit was proposed. In the new control scheme, The PI control unit is used to achieve dividing frequency control method whereas the fuzzy adjustor unit is used to adjust the parameters of the PI control unit to generate better adaptive ability and dynamic response.

The Fuzzification rules are used to generate The Dynamic Voltage Regulator (DVR). This voltage is injected in series for the pulse Width Modulation (PWM) Control and problems associated with Power Quality are not only easy to be calculated and implemented, but also very effective in reducing harmonics.

Keywords: *FLC controller, DVR, PI controller, APF, PPF, PCC, THD*

I. INTRODUCTION

In case to solve the harmonics problem of the grid, the passive power filters (PPF) is often used at the point of common coupling (PCC) conventionally. However, it has many disadvantages like resonance, instability, mistuning, etc . . . . which prevent its execution [5][6]. The use of the active power filter (APF) to mitigate harmonic problems has drawn much attention since the 1970s. APFs seem to be a feasible solution for eliminating harmonic currents and voltages. There are many different methods to mitigate voltage sags and swells, but the use of a custom power device is considered to be the most efficient method, e.g. FACTS for transmission systems which improve the power transfer capabilities and stability margins. There are different types of Custom Power devices used in electrical network to improve power quality problems. One of those devices are Dynamic Voltage Regulator (DVR) and Fuzzy Logic Controller (FLC)

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DVR is widely considered as an effective custom power device in mitigating voltage sags. In addition to voltage sags and swells compensation, DVR can also add other features such as harmonics and Power Factor correction. Compared to the other devices, the DVR is clearly considered to be one of the best economic solutions for its size and capabilities. DVR also known as Static Series Compensator maintains the load voltage at a desired magnitude and phase by compensating the voltage sags/swells and voltage unbalances presented at the point of common coupling [2].

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Original Article

Blind IQA: A Natural Scene on Statistical Approach in the DCT Domain

Sayali G. Rathod[1], Sonam V. Welanjkar[2], Deepali N . Kende[3], Gangasingh G. Parmar[4]

[1,2,3,4]*Assistant Professor , Electrical & Electronics Engineering Department, ICEEM, Maharastra, India*

Abstract: *We advocate for an effective, broadly applicable image quality evaluation (IQA) computation using a natural scene insights (NSS) model of discrete cosine transform (DCT) coefficients. The calculation is computationally interesting given the availability of stages improved for DCT calculations. Given a set of removed characteristics, the approach predicts picture quality scores using a straightforward Bayesian inferring model. To create the highlights, an NSS model of the picture's DCT coefficients is required. Organisation of inclusions that demonstrate perceptual quality is done using the model's assessed boundaries. With these characteristics, a common Bayesian deduction technique is utilised to forecast quality ratings. The next approach, which we call BLIINDS-II, requires very minimal setup and makes use of a simple probabilistic model for score expectation. Given the retrieved properties from the test picture, the projected quality score of that image is set to maximise the chance of a not quite clear-cut deduction model. When evaluated on the LIVE IQA information base, BLIINDS-II is shown to have a good connection with human evaluations of value, directly competing with the well-known SSIM file.*

Key words: *Discrete cosine transforms (DCT), Bayesian inference model, Blind image quality assessment, natural scene statistics (NSS), and Probabilistic model.*

I. INTRODUCTION

The extensive range of applications that rely on sent computerised visual data, such as individual computerised associates, high-end TVs, web video real-time, and video on request, as well as its pervasiveness in daily and professional life, necessitate the availability of the necessary tools to evaluate the visual quality of this data. From the time a picture is captured until it is used by a viewer, the many stages of the pipeline it travels through might introduce mutilations to the image. The procedures involved in buying, digitalization, pressure, stockpiling, transmission, and display all help modifications understand the unique image. The human observers might be able to perceive these changes, sometimes known as twists or impairments. On the off chance that it is obvious, they exhibit various degrees of annoyance.A crucial cycle for improving the nature of administration in applications, such those previously mentioned, is evaluating perceptually irritating bends. True image quality appraisal (IQA) computations are extremely necessary in these applications since human raters are either unavailable or prohibitively expensive.

Full-reference image quality appraisal (FR-IQA) techniques have recently attained an agreeable level of execution, as evidenced by their strong associations with subjective judgements of visual quality made by people. Examples of successful FR-IQA calculations are SSIM [1], MS-SSIM [2], VSNR [3], VIF file [4], and the various standardization-based files in [5] and [6]. These methods need the availability of a reference signal to compare the test signal against. However, in many cases, the reference signal is not available to perform a correlation against. The application space for FR-IQA calculations is severely constrained, and the focus is on the need for reliable visually impaired/NR-IQA calculations. However, no NR-IQA computation has been shown to be consistently accurate in execution [7]. While some FR-IQA calculations have been deemed reliable enough to be included in standards (such as the inclusion of the SSIM list in the H.264/MPEG4 Part 10 AVC reference programming [8], [1]), conventional NR-IQA calculations have been seen as needing much improvement before reaching comparable useful degrees of execution.
The challenge of objectively assessing an image's visual qualities without a frame of reference or the expectation of a single form type necessitates eschewing more traditional notions of value like consistency, proximity, and metric correlation. Eventually, one of three patterns will emerge in NR-IQA calculations: 1) Modifying open approaches. These employ a valid computation to predict an abstract quality score using an explicit twisting model. These formulas count at least one bend, such as darkness, obscurity [10], or ringing before scoring the picture similarly; 3) normal scene measurements (NSS) approaches: these rely on the theory that images of the normal world (i.e., mutilation free images) possess a littlethe subspace of the space of every conceivable image and look to find a distance between the test image and the subspace of regular images [2] to predict the image quality score dependent on various elements extricated from the image.

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Origial Article

Study of Failure Analysis of T-Joint in Arc Welding Under Tensile and Bending Loading Condition

S. S. Tarwadea[1], Mr.S. R. Rathodb[2], Mr. N. V. Kalyankarc[3], Mr. Y. M. Khand[4]

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I. INTRODUCTION

The most common and labor-intensive method for putting machine components and designs together securely is welding. According to A. Thirugnanam (2014), welding is a process that unites materials (metals or thermoplastics) by causing association. Regardless of the expansion of the filler material, the welding application uses heat or maybe pressure in joining systems. To make the interaction possible or to make it simpler, various auxiliary materials, such as protective gases, transition, or glues, may be used. The anticipated energy for welding is supplied by external sources. It is possible to trace the history of welding back to ancient times. Gold roundabout boxes were once welded together in a lap joint pattern during the Bronze Age by applying pressure. Egypt began joining pieces of iron together later in the Iron Age. However, welding as we know it now dates back only to the nineteenth century. Sir Humphrey Davy used two carbon terminals and a battery to generate an electric curve.

Oxy-acetylene welding rose to prominence after the invention of the required welding light in 1900, primarily due to its moderately reduced cost. However, circular segment welding took its place in the majority of current applications during the 20th century. Modern electronic and high accuracy applications now frequently use advanced welding techniques as Plasma Curve Welding, Laser Bar Welding, Electron Bar Welding, Electro-Attractive Heartbeat Welding, and others.

The precise evaluation of the behaviour of the welded associations serves as a reliable fundamental arrangement of welded structures. This clarifies the need for more investigation in this area. This activity is focused on welding joints because of its intricate behaviour and extensive use in constructing designs. A thorough test examination of fillet weld failure has been conducted. Welding is a common method for joining basic steel. Welding is more popular than bolting in many fabrication shops. Due to the requirements for welding conditions, field welding is avoided wherever possible.[1]

In the construction of buildings, there are a few welding procedures, types, and positions to consider. Following the fillet weld joints, there are many types of loads, such as compressive and tractable burdens. Strength loads and other things.

II. LITERATURE SURVEY

Late advancements in material frameworks have increased the temperature range across which adhesively reinforced composite joints can be used, according to Peter A. Gustafson, who focused on logical and exploratory methodologies for adhesively reinforced joints exposed to high temperatures. Several devices are developed in this work to be used in showing joints at various temperatures. The first step is to lay out a number of dimensionless limits that can be used to investigate how a twofold lap joint with orthotropic symmetry performs. Mechanical and thermal loads are recognised to have a fundamental, dimensionless proportion. Aspects of the ensuing pressure distribution are predicted by the proportion.[2]

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In the construction of buildings, there are a few welding procedures, types, and positions to consider. Following the fillet weld joints, there are many types of loads, such as compressive and tractable burdens. Strength loads and other things.

II. LITERATURE SURVEY

Late advancements in material frameworks have increased the temperature range across which adhesively reinforced composite joints can be used, according to Peter A. Gustafson, who focused on logical and exploratory methodologies for adhesively reinforced joints exposed to high temperatures. Several devices are developed in this work to be used in showing joints at various temperatures. The first step is to lay out a number of dimensionless limits that can be used to investigate how a twofold lap joint with orthotropic symmetry performs. Mechanical and thermal loads are recognised to have a fundamental, dimensionless proportion. Aspects of the ensuing pressure distribution are predicted by the proportion.[2]

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Original Article

Image Fusion Based on Absolute Maximum Fusion Rule Using Biorthogonal Wavelet Transform

Welanjkar Sonam V[1], Rathod Sayali G[2], Kende Deepali N[3], Parmar Gangasingh K[4]

[1,2,3,4]*Assistant Professor, Electrical & Electronics Engineering Dept., ICEEM, Aurangabad.*

Abstract: *In computer vision applications, one of the challenging problems is to combine the relevant information from various images of the same scene without introducing artifacts in the resultant image. Because of the different types of sensors are used in image capturing devices and their principle of sensing and also, due to the limited depth of focus of optical lenses used in camera, it is possible to get several images of the same scene providing different information. Therefore, combining different information from several images to get a new improved composite image becomes important area of research.*

This work is related to the development of a system which helps to decompose the different images captured from many sensors from the same, then wavelet coefficients are extracted from that images and these coefficients are combined to form a fused image using Absolute Maximum Fusion Rule. Finally, inverse wavelet transform is used to obtain fused image. This paper focuses on the Pre-processing of Image Fusion.

Keywords: *Image Fusion, Pre-processing of Image Fusion, Multi-focus images, Biorthogonal Wavelet Transform, Fusion Rules.*

I. INTRODUCTION

A. Face Recognition Technology:

Face is a unique feature of a human being. Human faces are nonrigid objects with a high degree of variability in size, shape, color, and texture. The goal of face detection is to efficiently identify and locate human faces regardless of their positions, scales, orientations, poses, and illumination. Any automated system for face and facial gesture recognition will have immense potential in criminal identification, surveillance, missing children retrieval, office security, credit card verification, video document retrieval, and telecommunication.

Facial expressions involve extracting sensitive features (related to emotional state) from facial landmarks such as regions surrounding the mouth, nose, and eyes of a normalized image. Often dynamic image frames of these regions are tracked to generate suitable features.

Figure 1: Face Movements

The location, intensity, and dynamics of the facial actions are important for recognizing an expression. Moreover, the intensity measurement of spontaneous facial expressions is often more difficult than that of posed facial expressions. Face gestures are complex in nature and difficult to recognize.

In computer vision applications, one of the challenging problems is to combine the relevant information from various images of the same scene without introducing artifacts in the resultant image. Because of the different types of sensors are used in image capturing devices and their principle of sensing and also, due to the limited depth of focus of optical lenses used in camera, it is possible to get several images of the same scene providing different information. Therefore, combining different information from several images to get a new improved composite image becomes important area of research.

II. MAIN BODY OF THE PAPER

A. Image Fusion:

1. Image fusion is used to combine relevant information from two or more images of the same scene into a single composite image which is more informative and is more suitable for human and machine perception.

2. Sometimes Texture Identification is not done accurately when images are captured from no. of sensing devices. So, there is requirement of such a technique of identification which can identify texture correctly even when images captured from many sensing devices.

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Original Article

Data Analytics and Viuslization Using Microsoft Power BI

S.B.Gayke[1], A.S.Adik[2], D.Biradar[3], G.k.Barde[4]

Department of MBA, ICEEM, Maharastra, India

Abstract: Visualization of data set is a process of making understand the significance of data through visual context and part of data analytics where it's executed after the data correction. Nowadays visualization is more useful in business intelligence and Analytics in every field, There are different techniques for visualizing the datasets, it may be in dynamic or interactive nature and datasets can be visualized in different types of visuals insights, Data presentation also includes interactive queries and data explorations that help users find useful information. Correspondingly in the technology stack, BI systems include various data visualization and interaction forms and techniques through reports (static and interactive reports), digital dashboards, and more complex analytical visual tools

Keywords: Analytics, Visualization, Business Intelligence, Insights.

I. INTRODUCTION

Data Visualization is a process of making understand the significance of data through visual context, and it is a part of analytics, there are several techniques to visualize the data such as Interactive and Dynamic in nature and coming to visual context, there are a number of things such as plots, graphs, slicers, stacked column charts, Histogram, Bar Charts, tables, matrix and other forms of visual contexts; In this paper we focused on interactive data visualization through Microsoft Power BI tool, Microsoft Power BI is a suite of business intelligence and analytics tool for analyze data and share insights and gets answers quickly with the help of interactive data visualization using dashboard available on every device such as Applications, Desktops, Mobiles...etc. With the help of visuals and filters, the user or person gets convenient and easier to understand the data and it has an architecture of five main components as discussed below and follows Power BI Services, Power BI Gateways, Power BI Desktop, Power BI Apps and Power BI .

Power BI Services is the main component in the architecture where published reports are made into dashboards to share in the organization, Power BI Gateways is another main component in the architecture where it handles to get data operation from different data sources by means of connectors and protocols, Power BI Desktop is the component in Architecture where the data is analyzed and transformed through some procedure using tools and made to report on the web by means of several visuals, tools and publish feature.

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2) Analyse the data by means of connectors and gateways of organization

3) Build the Report by means of Different Visuals and Filters

4) Publish the Report into web through Power BI Desktop

5) Edit the report if any changes are needed and make shareable by means of publishing on to web option for creating embed URL

6)Access the report data from different applications of Microsoft such as Power Apps, Mobile Power BI

7) Refresh the data using different gateways of Organization for updating the dashboard. In this paper, we discussed on process model and Visuals of the Power BI tool and interactive data visualization technique for analysis and design of educational institution data visualization using Microsoft Power BI tool.

A. Process Model of Power Bi

The Process model consists of Seven steps as discussed below and shown in figure 03. GET DATA, FETCH, PROCESS, ANALYZE, VISUALIZE, EDITING, WEB

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Original Article

Comparison Tools for Big Data Analytics

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Abstract: *Big data analytics is the process of collecting, examining, and analysing large amounts of data to discover market trends, insights, and patterns that can help companies make better business decisions. This information is available quickly and efficiently so that companies can be agile in crafting plans to maintain their competitive advantage. . Across different business segments, increasing efficiency leads to overall more intelligent operations, higher profits, and satisfied customers. Big data analytics helps companies reduce costs and develop better, customer-centric products and services. This paper gives more information about different types of data, different types of software to handle big data and its applications.*

Keywords: *Data Analytics, Crafting Plans.*

I. LITERATURE SURVEY

Various techniques are there to handle big data, In this paper we studied various techniques to handle big data according to its specifications so that readers can easily understand and choose any one technique.

II. TYPES OF BIG DATA ANALYTICS

There are four main types of big data analytics that support and inform different business decisions.

A. Descriptive Analytics

Descriptive analytics refers to data that can be easily read and interpreted. This data helps create reports and visualize information that can detail company profits and sales.

Example: During the pandemic, a leading pharmaceutical company conducted data analysis on its offices and research labs. Descriptive analytics helped them identify unutilized spaces and departments that were consolidated, saving the company millions of dollars.

B. Diagnostics Analytics

Diagnostics analytics helps companies understand why a problem occurred. Big data technologies and tools allow users to mine and recover data that helps dissect an issue and prevent it from happening in the future.

Example: A clothing company's sales have decreased even though customers continue to add items to their shopping carts. Diagnostics analytics helped to understand that the payment page was not working properly for a few weeks.

C. Predictive Analytics

Predictive analytics looks at past and present data to make predictions. With artificial intelligence (AI), machine learning, and data mining, users can analyze the data to predict market trends.

Example: In the manufacturing sector, companies can use algorithms based on historical data to predict if or when a piece of equipment will malfunction or break down.

D. Prescriptive Analytics

Prescriptive analytics provides a solution to a problem, relying on AI and machine learning to gather data and use it for risk management.

Example: Within the energy sector, utility companies, gas producers, and pipeline owners identify factors that affect the price of oil and gas in order to hedge risks.

III. DIFFERENT DATA ANALYTIC TOOLS

A. Hadoop

Apache Hadoop is an open source framework that is used to efficiently store and process large datasets ranging in size from gigabytes to petabytes of data. Instead of using one large computer to store and process the data, Hadoop allows clustering multiple computers to analyze massive datasets in parallel more quickly.

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Original Article

An Efficient FIR filter Design Technique using Graphical Interface

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Received Date: 03 June 2023 Revised Date: 08 June 2023 Accepted Date: 13 June 2023

Abstract: *Spectrum analysis using digital filters is crucial for both signal and picture processing. In this article, all sorts of FIR responses are generated as well as analyzed using windowing techniques. Based on the provided criteria, a window is chosen, and the filter's properties are studied. The design of a FIR filter is described in the second part of this work, which also shows how to put it into practice by simulating it on the MATLAB GUI platform using various windowing strategies for different orders of filter. The effects of various windowing approaches on the FIR filter's design performance are then compared and analyzed.*

Keywords: *FIR Filter Design, GUI, Hamming, Hanning, Rectangular Windowing Technique.*

I. INTRODUCTION

FIR filters are essential for digital signal processing because they have many advantages over model-based filters. There are numerous types of digital Filters, as well as numerous ways to categorize them. The frequency-related operations performed by digital filters include a HPF, LPF, BPF, and BSF. As a result, all such filters are capable of performing conditions that would be simply impossible with an analog application. There are several kinds of filter design techniques, including frequency sampling, optimum filter design, and windowing. The window approach is the method that is most frequently employed since it allows us to quickly obtain the response's coefficient of the necessary magnitude. A sort of digital filter for digital input is the FIR filter. The impulse response of the FIR filter has a limited lifetime. It is additionally referred to as a non-recursive filter because it lacks feedback.

II. RELATED WORK

Y. Xu, "Design of FIR Filter With Several Window Functions," In this paper, author has introduced FIR technique with window functions, and analyzes the necessity of using window functions from a mathematical point of view[1].

T. C. Singh and M. Kumar, "Digital FIR Filter Designs," In this paper, the author has designed 2D FIR filter the output responses are observed using Hamming window, Kaiser Window, and equiripple techniques[2].

K. Thesni, K. Praveen and L. Srivani, "Implementation and Performance Comparison of Digital Filter in FPGA," In this paper, the author has described the design of different variants of FIR filters, their implementation in Field Programmable Gate Array (FPGA) and the performance comparison using a hardware platform[3].

Anshul and K. Rathi, "Comparison of various window techniques for design FIR digital filter". In this paper, the authors have introduced the definition, types and various methods of FIR digital filter are studied. This paper presented the different techniques for designing of filters and then compared them [4].

C. M. Melgoza *et al.*, "Comparing Radar Receiver Pulse Deinterleaving Performance of Differing Window Functions for Bandpass FIR Filter Design". In This paper, the author has introduced the performance of the Bartlett, Blackman-Harris, Chebyshev, Hamming, and Kaiser windows, which were analyzed by implementing each into a algorithm[5].

III. PROPOSED WORK

Window functions, also known as weighing functions, tapering functions are mathematical functions that have a zero value outside of the selected interval. They are well-known as an essential component of digital signal processing.

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Original Article

Use of Information Technology and Channels as a tool for Prevention of Violation of Right to Privacy – Challenges and Governance

Hemant Jahav[1], Dr. Sameer D. Joshi[2]

[1,2]Professor, Department of Management, ICEEM, Maharastra, India.

Abstract: *There are enormous privacy threats and challenges in today's technologically developing world. Different sections of the society are exposed to threats as to privacy. The 21st century has witnessed a number of cases on internet privacy, a peep into the personal life of citizens. Technological development could be like a sword which cuts, many cases are witnesses to this like Google map, right of being online anonymous, mobile phone tracking, surveillance etc which have close tie to safety and freedom of expression. The development of search engines and World Wide Web aid in users to infiltrate in order to seek the information, browse history; violate human rights such as freedom of privacy and compromise third parties rights. There have been many sex and MMS abuse leading to different types of scandals in India. Bulk messaging has also been used as a tool for phishing. There are many unsolicited telemarketing calls and text messages which pose a threat to privacy even if the number is has been listed under the DND Category. In cyberspace users' rights to privacy and freedom of expression, are infringed by government monitoring and surveillance (authorities), Internet intermediaries, corporate sector, Banks and Financial Institutions in the form of data secrecies and other users.*

Key Words: *Privacy Threats, Surveillance, Safety, Freedom of Expression, Monitoring.*

Objective: The work on this paper has been undertaken to find out the various challenges faced by the developing nations in technological progression and co related judgments' made in law to maintain privacy of individuals in the cyberspace which has now been declared as a Fundamental Right in the Indian Legal system.

I. INTRODUCTION

A. As per the Indian Constitutional Provisions:

Article 21 - Protection of Life and Personal Liberty: According to this provision: No person shall be deprived of his life or personal liberty except according to procedure established by law. The right is to prevent encroachment upon personal liberty and deprivation of life only according to procedure established by law.

B. Incidences of Violation of Privacy and their Judgments:

Privacy violation is an activity which is conducted purposefully, intently to harm the reputation of another. It is an act whereby the individual intrudes into the private affairs of the other. It may be by using a name, revealing personal information to the public or setting up false image in front of the public. Posner (1978) has suggested that privacy can be viewed in terms of an economic interest and that information about individuals might be thought of in terms of personal property that could be bought and sold in the commercial sphere. Clarke (1999) has recently suggested that privacy can be thought of as an "interest individuals have in sustaining personal space free from interference by other people and organizations.

In today's world a number of instruments like in-line tap, adapters have been developed to monitor telephonic conversation by third people. This may be legal as well as illegal. The following cases are cited which gives us an insight into violation of privacy and necessary court proceedings protecting Right to Privacy.

In People's Union for Civil Liberties versus Union of India [1] popularly known as "Phone Tapping Case" where in the telephone conversation was tapped. The Supreme Court has held that tapping of telephone is a serious invasion of an individual's right to privacy which is a part of the right to "Life and personal Liberty".

The court has further stated that such a right cannot be encroached unless there is a public emergency or essential for public safety .The court has laid the following procedural safeguards for exercise of power i.e. A permission of the Home Secretary of Central Government or the State Government is required. There can be an authority appointed to review such and he shall maintain the records of intercepted communications.

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Excellence In Engg. & MGMT.
Aurangabad

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Original Article

A Case Study on Exhaust Muffler Backpressure Optimization

Nilesh V. Kalyankar[1], Yusufzai M.Khan[2], Shalini.S. Tarawade[3], Shishir.R. Rathod[4]

[1,2,3,4]*Department of Mechanical Engineering, International Centre of Excellence in Engineering and Management, Maharastra, India.*

Abstract: *A silencer is a component that reduces the noise that a machine makes. The silencer needs backpressure to operate effectively. Backpressure, which is the difference between mean exhaust pressure and ambient pressure, is caused by the decrease in stagnation pressure that occurs through various perforated element and area discontinuities. A maximum permitted engine backpressure has been established by the engine manufacturer for all engines. Sometimes it can be excessive, which could harm engine performance, limit power production, and eventually increase fuel consumption. The Computational Fluid Dynamics analysis of these silencer models is carried out in the ANSYS FLUENT programme using the CATIA V5 software and the Computational Fluid Dynamics analysis. These new modelled mufflers' backpressure findings will be compared to those of current ones using this software. We have chosen the most advantageous model from a set of four models based on the various boundary conditions utilised for CFD analysis.*

Keywords: *CFD, Back pressure, Muffler, Limit conditions.*

I. INTRODUCTION

A muffler is a device that is used to reduce machine noise. In order to reduce exhaust noise, an exhaust pipe connects the engine exhaust to a component known as a silencer. The silencer is a crucial component in the reduction of exhaust noise. Internal combustion engines frequently have exhaust mufflers fitted in order to block out the audible pulse created during combustion. Although to varied degrees, all internal combustion engines produce noise. The intensity and loudness of the noise will vary greatly depending on the engine type, such as naturally aspirated or turbocharged, horse power produced, ways of scavenging, kind of fuel used, number of cycles, such as two cycle or four cycle engine, etc. The principal sources that make up the The two primary sources of engine noise are the intake and exhaust systems. In order to reduce airborne noise in engines, mufflers are typically utilised at the intake and exhaust. A maximum permitted engine back pressure has been established by the engine manufacturer for all engines. When it is high, the diesel engine may occasionally encounter different effects. Therefore, reducing the back pressure in the exhaust silencer is the aim of this research. Utilising the computational fluid dynamics (CFD) programme will reduce the back pressure. Then the silencer will be built.

II. PROBLEM FORMULATION

The main factor affecting an exhaust muffler's performance is the backpressure value. The engine will have a number of detrimental effects if the back pressure increases, such as increased pumping work, lower intake manifold boost pressure, cylinder scavenging and combustion effects, turbocharger difficulties, etc. Therefore, lowering backpressure will lead to good engine efficiency. This project's main objective is to reduce the backpressure on the silencer. There are several engine problems as a result of the increased backpressure in the currently in use exhaust silencer. As a result, CATIA software is used to produce four different kinds of models, which are then examined using computational fluid dynamics (ANSYS FLUENT) software in order to lessen backpressure. Based on analytical results, a comparison of backpressure between various existing mufflers and newly modelled mufflers will be conducted. Following comparison, the best-performing silencer model will be one with limiting backpressure.

III. SELECTION FACTORS FOR MUFFLER

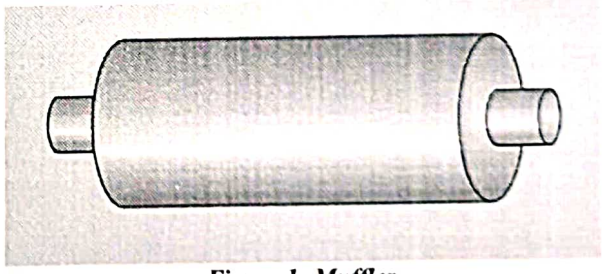

Figure 1: Muffler

A. Execution in the Acoustic:

The acoustical performance criterion, which is normally provided as IL values for each octave band as well as an overall predicted noise reduction value, specifies the minimal insertion loss (IL) of the Muffler. Using the free-field sound pressure levels of the silent and unsilenced systems measured at the same relative locations with regard to the outlet, the insertion loss is determined.

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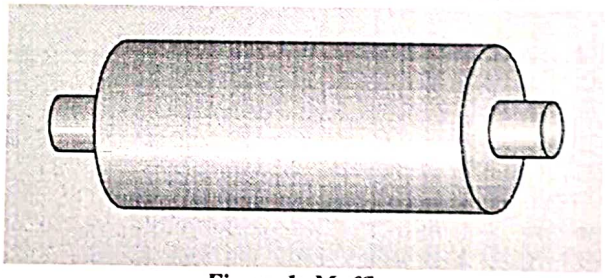

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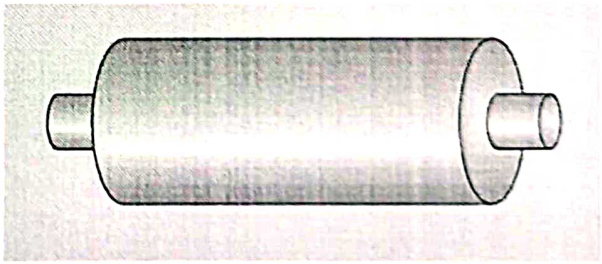

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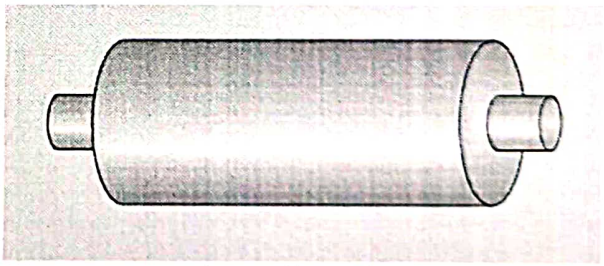

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Emotional Intelligence in Leadership: A Key Determinant in Employee Retention

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Department of Business Management
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International center for excellence in engineering and management (ICEEM)
Infront of Bajaj Auto Ltd., WALUJ MIDC, Maharashtra, India, Pin: 431136

Abstract -Purpose: The purpose of this research paper is to investigate the role of emotional intelligence (EI) in leadership as a critical factor influencing employee retention within organizations. The paper aims to contribute to the understanding of how emotional intelligence exhibited by leaders impacts employee engagement, job satisfaction, and overall retention rates.

Theoretical Framework: The research paper builds upon a comprehensive theoretical framework that integrates concepts from emotional intelligence, leadership theory, and organizational behavior. It draws upon the foundational works of Goleman (1995), Mayer and Salovey (1997), and Bass (1985) to establish the theoretical underpinnings linking emotional intelligence attributes with effective leadership behaviors.

Findings: The findings of this research reveal a strong positive correlation between emotional intelligence exhibited by leaders and employee retention rates. Leaders who demonstrate higher levels of emotional intelligence are observed to foster healthier work environments, better interpersonal relationships, and enhanced employee motivation, consequently leading to increased job satisfaction and prolonged employee tenure.

Research, Practical & Social Implications: This research paper underscores the significance of emotional intelligence in leadership, shedding light on its pivotal role in employee retention strategies. The implications of these findings extend to both research and practice, offering valuable insights for leadership development programs and human resource management initiatives. Moreover, the study contributes to the creation of more harmonious and productive workplaces, thereby fostering a positive social impact on overall employee well-being.

Originality/Value: The originality of this research lies in its comprehensive exploration of the link between emotional intelligence and employee retention, bridging a gap in existing literature. By delving into the intricate interplay between leadership behaviors and emotional intelligence competencies, this paper adds unique value to the field of organizational studies.

Keywords: Emotional Intelligence, Leadership, Employee Retention, Job Satisfaction, Organizational Behavior, Human Resource Management.

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DOI: https://doi.org/10.46632/jacp/2/1/6

Functionalization of Natural-Fiber Using the WSM Methods

***Chandraprakash Shivram Padmavat**
International Centre of Excellence in Engineering and Management, Aurangabad, Maharashtra, India.
*Corresponding Author Email: drcspadmavat@gmail.com

Abstract: *Global environmental concerns and renewable green Next generation due to resource awareness Environmentally friendly and biodegradable for composition products A lot of efforts have been made to deliver the goods. This research paper is green from natural fibers and uniquely exemplifies the use of compounds, especially chitosan, natural-fiber-rolled Especially chitosan, natural-fiber-rolled the development of chitosan nanocomposites and characteristics. Durability Natural fiber composites are less expensive, have Less weight, more Specific strength, abrasion Absent, equally good engine properties, environmental friendliness and it has many advantages like biodegradability. Research significance: Abaca uses WSM methods, Hemp, sisal, kenaf, and coconut. Abaca, hemp, sisal, kenaf, and Natural fibers like coconut were considered in the present study. Jute Fiber: It is a golden thread Also known as. Compared to other natural fibers These fibers are cheap and Durable. Sisal Fiber: Sisal fibers are made from sisal leaves that can be obtained or extracted. It is also known as Brazilian fiber. Abaca Fiber: this fibrous plant is Also obtained from the stem. Another of these threads the name is Manila Fiber. The advantage of the WSM method is that It is proportional to raw data is a linear transformation. comparison scale of standardized scores It means that the sequence is equal. This method is WSM's Consider it a change. And other in problem solving It is more efficient than methods. The natural fiber is another solution to the problem WSM method is more efficient than methods. The weighted Sum Model (WSM), WSM is the general approach used, and natural-fiber solutions are used in these methods. To solve individual decision-making problems This technique is used by researchers. Evaluation preference: Diameter (μm), Density (g/cm3), Tensile strength (MPa), Young's Modulus (GPa). Alternative: Abaca, Jute, Sisal, Kenaf, Coconut. Result: As a result, coconut is ranked first while abaca is ranked lower.*

Keywords: *Abaca, Jute, Sisal, Kenaf, Coconut, Natural-Fiber, WSM.*

1. INTRODUCTION

Global environmental concerns and renewable green Awareness of resources Due to the next generation combination the products are eco-friendly and biodegradable A lot of efforts have been made to deliver the goods. This review article is about natural fiber-reinforced Chitosan biopolymers, chitosan composites, and the Development of chitosan nanocomposites Among the characteristics, natural fiber, especially chitosan Uniquely use of green compounds exemplifies. Durability, low cost of natural fiber composites, Low weight, high specific strength, Abrasion free, equally good Mechanical properties, environment It is friendly and biodegradable It has many advantages like Natural fiber is mainly cellulose, Hemicellulose, lignin, Pectin, wax, ash, and Moisture is lignocellulose made of matter. Natural fiber hair or thread-like in nature with higher ratio products, and of these fibers Application Low cost, lightweight and biodegradability, etc. There is a high demand due to the benefits. However, natural fibers in nature Hydrophilic Nature Come with inherent drawbacks. The hydroxyl group absorbs moisture and damage and Prevents decay. Natural fibers are animal, vegetable, and mineral fibers divided into three categories. Abaca, cotton, jute, flax, jute, and coconut are A variety of natural fibers such as Used for industrial applications. Recently, in natural fiber composites in various areas of research and innovation, there has been rapid growth. Natural fibers such as plant fibers are light in weight, many advantages including low cost and biodegradability provide. of chitosan-based green composites Mechanical properties at their full potential in specific applications They also allow the ability to be used. Natural fibers are natural and animals, from plants and minerals Derivatives, are abundant. Sisal, jute, pineapple, and other fibers derived from plants such as Research being done. The benefits of natural fibers are limited Density, easy biodegradability, cheap, and Fewer health risks. High availability, low pollutant, Comparable mechanical properties, and lower cost are joint ventures and have attracted Researchers in this field. are natural fibers specific to Different thermostats for applications and are bonded to thermoplastic matrices. This grows in the soil fibers in nature hydrophilic; It is with hydrophobic resin and does not mix well. These chemical components are fibrin Determine the tensile strength Not the same factors. Fiber age, maturity, location, and with fiber source factors such as processing methods Some fiber tensile Also affects strength. These

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Original Article

Indian Musical Instrument Recognition Using Integrated Mean Method

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Received Date: 03 March 2023 Revised Date: 16 March 2023 Accepted Date: 03 April 2022

Abstract: *Daily, numerous musical works are uploaded on social media platforms. The process of searching for content according to our preferences is time-consuming. One of the emerging research fields that is concerned with the process of extracting content from audio data is known as musical information retrieval. The field of musical information retrieval contains a subfield known as musical instrument recognition. Previous studies had primarily concentrated on a variety of western instruments that belonged to diverse families, such as brass, string, and woodwind instruments. The objective of this research is to categorize different types of musical instruments by making use of the Integrated Mean technique and acoustic features. The experiments make use of homophonic recordings of musicians performing solo on their instruments. Temporal and spectral aspects of sound have been accounted for in acoustic features. The new approach Integrated Mean method provides a vector that combines the mean that was obtained with the features that were extracted. A produced vector is used to categorize the musical instruments of the IRMAS and ISI-500 dataset. The proposed method obtained higher accuracy than using audio features independently. The K-nearest neighbour classifier has been utilized here for the purpose of classification.*

Keywords: *Musical Instruments, Machine Learning, k-NN, IRMAS Dataset, Audio Features, Integrated Mean*

I. INTRODUCTION

One of the most important aspects of human life is music. It has a calming effect on both your mind and body, while also connecting to your spirit. the vast majority of musicians worldwide today promote their work on social media platforms. On the internet, you can listen to music from an extremely wide range of genres. It can be challenging and difficult to find a specific one based on criteria, depending on the genre, performer, instrument, piece of music and so on that, you are looking for. The retrieval of musical information can be used for a different type of purposes[1-3], including the identification of musical instruments, the searching of songs based on their contents, the sorting of audio, the categorization of songs according to their genre, and the recognition of musical performers.

Each instrument produces a sound that is uniquely its own, which is influenced by the type of material it is made of, in addition to the instrument's dimensions and shapes. There are primarily four families of musical instruments, which include percussion instruments, string instruments, brass instruments, and wind instruments. Striking, plucking, and bowing are the three different ways that string instruments can be played, and this further divides string instruments into three groups. The classification of musical instruments into their respective families has been the subject of a significant amount of research. [4–8] It can be difficult to distinguish one instrument from another member of the same family of instruments.

A method that integrates Mean with extracted audio data is proposed in this research, and it is used to conduct an analysis of the timbre of various musical instruments. A k-NN classifier is used to analyze a solo dataset consisting of Indian string instruments after the dataset has been prepared. In addition to it, the benchmark dataset known as IRMAS [9] is taken into consideration during the evaluation process. Within the scope of this part, we have investigated the research that is associated with the field of musical instrument recognition.

The researchers made use of attributes to capture timbre's spectrum envelope, tonal and noise-like range, as well as Spectro temporal evolution. In terms of overall performance, it reveals that 1-NN classifiers are superior to SVM. The accuracy of the results produced by the GMM classifier is lower than that of the results obtained by the k-NN and SVM classifiers respectively [10].

Sarfaraz Masood, Shubham Gupta, and Shadab Khan used a neural network to test wind and stringed instruments[11].

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Original Article

Advisory Functions and Advance HRMS in New Era

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Received Date: 12 March 2023 Revised Date: 27 March 2023 Accepted Date: 11 April 2023

Abstract: *The personnel management system, an application-based system, consists of two applications that have been developed. While one programme is used by companies to keep track of employee information, the other is used by employees to track their attendance. Information systems[2.] are used by every company, public or commercial, to maintain personnel data. Nonetheless, it has been shown that many small businesses in India still keep records using paper and pen. Although there are several high-tech devices that can do this function, they are all pricey for reasons related to unpromising sectors. In this essay, we'll talk about how to solve their problems more cheaply. This system will monitor each employee's attendance, and at the end of the month, their wages will be calculated. It determines the regular working hours and overtime for each employee. The employer is allowed unlimited discretion over how to handle each employee's holidays and workweek because every small firm has its own preferred holidays and we k off policy.*

Keywords: *Attendance, Employee Management, Payroll, Salary Calculation.*

I. INTRODUCTION

Keeping employee records is a crucial aspect of managing an organization's workforce, which includes calculating pay and evaluating employee performance. The process of managing these records is often time-consuming and challenging for the HR team. Employee management systems (EMS) can help streamline this process, saving time and resources. Both public and private organizations require EMS, but many continue to use traditional methods of pen and paper, which can be prone to errors. However, there has been a significant increase in the adoption of automated systems for wage calculation. To make EMS more accessible to smaller organizations, an EMS mobile application has been developed, which can accurately compute each employee's wage and daily attendance. The system ensures that all necessary computations are completed and encourages automated use, minimizing the chances of fraud. The EMS mobile application also enables employees to choose their days off, which can impact their salaries. By using the EMS, the HR team can save time and ensure timely and accurate payment of employee salaries. The development process of the EMS mobile application, challenges encountered, and advantages of using the system are explored in this essay. The goal of the EMS mobile application is to improve the process of managing personnel and make it more dependable, which can positively impact the growth of an organization.

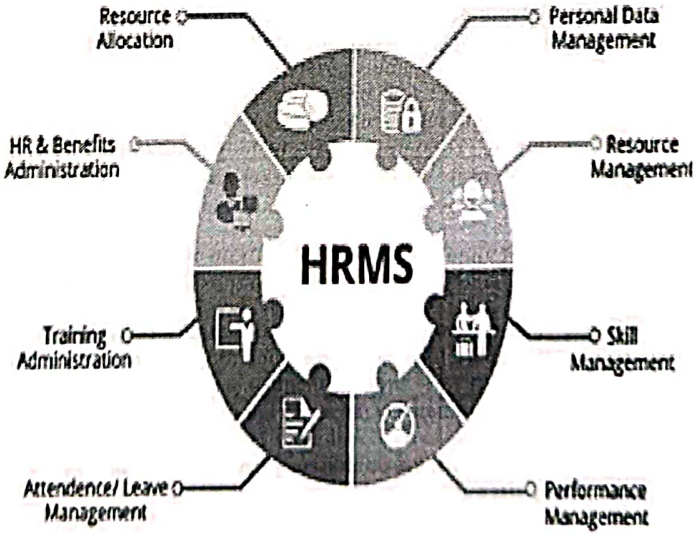

Figure 1: System Architecture

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Original Article

Experimental Investigation on Compressive Strength and Flexural Strength of High Strength Concrete by using Alcofine, Fly Ash, and Steel Fibers

Vinod B. Shikhare[1], Archana T. Kunte[2], Shivam B. Gawande[3], Mangal P Kale[4]

[1,2,3,4]*Assistant Professor, Department of Civil Engineering, International Centre of Excellence in Engineering and Management, Aurangabad, Maharashtra, India.*

Received Date: 03 July 2023 Revised Date: 26 July 2023 Accepted Date: 31 July 2023

Abstract: *This experimental investigation looked at how the addition of steel fibres, fly ash, and alcofine to concrete sample affected some of its mechanical properties. This project's goal is to use steel fibre, ash, and aluminium fines to generate concrete that is more ductile and strong. The trials included two different types of steel fibres, with steel fibre volume percentages ranging from 0.5% to 4.0%. By weight of the cementitious material composition, Alcofine and fly ash were added to the concrete in quantities of 5 and 10, respectively. The ratio of water to cement was 0.27. Concrete specimens that had been hardened underwent testing for both flexural and compressive strength. The use of Alcofine improved the concrete's mechanical strength.*

Keywords: *Steel fibres, Alcofine, and Compressive Strength.*

I. INTRODUCTION

Due to the development of larger and higher concrete structures, the study of high-strength concrete has gained interest. Alcofine can be used in concrete as a Supplementary Cementitious Material (SCM) to increase durability, decrease permeability, and increase strength and the rate at which strength is gained. Concrete's porosity is reduced with alcofine. Concrete has very little elasticity and very little crack resistance. The concrete naturally contains internal micro-cracks, and as a result of these micro-cracks spreading, the concrete has a low durability that finally leads to brittle fracture. It has been suggested that adding small, evenly dispersed fibres will significantly increase the concrete's compressive and flexural strength qualities and act as a crack preventer.

II. MATERIAL USED

A. Cement

In the investigation, regular hydraulic cement of Grade 53 complying with IS: 12269-1987 was used. Cement has a specific gravity of 3.10.

B. Course Aggregate

The substance was broken stone metal from a local source with a maximum particle size of 12.5 mm and an accurate gravity of 2.7.

C. Fine Aggregate

It was decided to use locally available river sand that had been graded in accordance with IS: 383-1970's grading zone II and had gone through a 4.75 mm IS sieve. The specific gravity of the fine aggregate was 2.54.

D. Alcofine 1203

Alcofine 1203 is a cementitious ingredient that can successfully take the place of silica fume in high performance concrete. Patented mineral supplement Alcofine 1203, based on low calcium silicate. Controlled granulation produces a certain distribution of particle size.

E. Fly Ash

Fly ash is available from Dirk India Pvt. Ltd. in Nasik in the form of dry powder. The light grey ash sold under the brand name "Pozzocrete 83" can be bought in 30 kg bags. The company's ash production conforms with all IS: 3812-1981 requirements.

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Original Article

Soil Cement-Effective Method for Soil Stabilization

Shivam B. Gawande[1], Vinod B. Shikhare[2], Archana T. Kunte[3]

[1,2,3]*Civil Engineering Department, ICEEM, Aurangabad, India*

Received Date: 10 July 2023 Revised Date: 31 July 2023 Accepted Date: 02 August 2023

Abstract: *In order to create a solid and long-lasting pavement basis, soil cement is a mixture of soil, Portland cement, and water. Concerns about suitable quality control procedures and testing process for soil cement have been raised as a result of construction practises and discrepancies in core strength data. They also debated and analysed the methods applied to various soil cement sample formats. Numerous soils and types of cement are briefly covered, as well. Likewise, figuring out different cement contents in soil for stabilisation and boosted soil strength.*

Keywords: *Soil Cement, Stabilization*

I. INTRODUCTION

When building roads, slope protection, or pipe bedding, soil cement is typically utilised as a sub-base layer to reinforce and safeguard the subgrade. It is brittle and has poor tensile strength, but it has strong compressive and shear strength and is hence prone to cracking. The quantity of paste (a cement-water mixture) in soil cement mixtures is different from Portland cement concrete. with contrast to Portland cement concrete, where the paste coats and binds all of the aggregate particles, with soil cements there are gaps left behind due to the decreased cement content, resulting in a cement matrix with nodules of uncemented material.

As a building material, soil cement is made of natural soil that has been ground up, a tiny amount of Portland cement, and water. It is often processed in a tumbler and compacted to a high density. The hydration of the cement particles produces a hard, semi-rigid, long-lasting substance.

II. NEED AND NECESSITY

A solid foundation is always important when building roads and pavements. The foundation itself needs to be constructed of a sturdy material that can withstand extended periods of increased traffic without losing its integrity. This can be accomplished by working with a substance known as soil cement. In order to support business lading, soil cement is utilised to strengthen the supporting soil conditions. Another frequent procedure to enhance the base section directly beneath rigid or flexible pavements is the use of cement stabilised base. To pave highways, parking lots, airfields, household thoroughfares, and more, utilise soil cement. It is an economical pavement base that is renowned for its durability and strength.

III. OBJECTIVE

1. To achieve the strength of soil by using cement in soil.
2. To study the black cotton soil.
3. Comparative study of various mixed soil cement.
4. To stabilize the soil by using a cement mix.
5. To study erosion of black cotton soil.

IV. LITERATURE REVIEW

A. Anil Pandey (June 2017)

General By blending and combining various elements, soil stabilisation is a technique for enhancing the qualities of soil. There are numerous soil stabilisation techniques, as well as numerous materials, available.

B. James Alexander. S, Antony Godwin, S. Alexander

In water permeability, It has o% permeabilized it states that it is highly impervious for red to mixed concrete. In porosity, in red soil mixed concrete, porosity is higher than in plain concrete but the permeability is low in red soil compared to plain concrete. Due to tiny pores in fine s,oil can hold water tighter in small pores so that it is low in permeability, and it resists fluid passage. Hence it is impervious.

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Original Article

Design and Development of Optimized Cardiovascular Disease Prediction Model using Artificial Intelligence

Nitin Sonaji Magar[1], Zafar Ul Hasan[2], Anand B.Humbe[3]

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Abstract: *The medical industry is expanding quickly as new ailments are discovered daily, necessitating the development of effective treatment options. The muscular heart, which is about the size of a clenched human fist, is in charge of blood circulation. Although heart/cardiac disease is the term used to describe conditions that generally affect the heart, there are numerous conditions that fall under this umbrella term, including coronary artery disease (CAD), cardiomyopathy, cardiovascular disease (CVD), and others that depend on blood flow throughout the body. The heart disease data prediction has been made to analyse medical data with clinical expertise in order to assist clinicians in the diagnosis of heart disease. The accuracy of heart disease diagnostic decisions can be improved by the development of these predictive algorithms. The prognosis of heart illness depends heavily on data mining. The Naive Bayes (NB), C4.5, and Artificial Neural Network (ANN)-Back Propagation (BP) methods are employed in this work. These age-old techniques are used to forecast cardiac disease. The NB classifier approach, which is based on the Bayesian theorem, is employed when the input's dimensionality is extremely high. It performs better than other protocols despite being straightforward. The C4.5 protocol use data entropy perception to create decision trees from a training data set. It is a widely used procedure also referred to as the statistical classifier. ANN has been used as a method for resolving a variety of decision modelling issues in common situations. Modelling, pattern recognition, data processing, and sequence recognition systems are examples of applications where ANNs are used.*

Keywords: *Classifier, Swarm Optimization, AI, Cardiovascular Disease, ANN*

I. INTRODUCTION

Health is everyone's most fundamental requirement. According to figures from the World Health Organisation, heart disorders account for one-third of all fatalities worldwide and 24% of deaths in India. Of the approximately 17 million fatalities from cardiovascular illness that occurred in 2016, 31% were fatal heart attacks and strokes. The biggest cause of death worldwide is heart disease, which ranks first on the list of the main factors. According to World Health Organisation (WHO) studies, cardiovascular diseases are to account for 16.9 million annual fatalities. According to this figure, 21% of all deaths worldwide. India has become the front-runner in this regard as a direct outcome of the survey's findings. With 1.6 million fatalities in 2016, cardiovascular disease was the main cause of death in India. Ailment is a condition that robs a person of both their identity and their ability to preserve their financial stability, according to the conclusions of study on the global burden of disease that was finished in 2016 and published that same year. It would ultimately have a much greater influence than the others. According to projections made by the World Health Organisation (WHO), between the years 2005 and 2016, heart-related ailments are expected to have directly caused economic losses for India that may have reached as high as $230 billion. Therefore, strategies for predicting heart-related disorders must be developed. The most crucial component of any live organ is the human heart. Heart failure might result in risky circumstances. It is challenging for heart experts to accurately anticipate heart disease at the correct time. Many people do not believe that the conventional medical history is a trustworthy way to diagnose heart disease in particular. Non-invasive procedures based on IoT are effective and trustworthy for classifying healthy persons who have heart disease. The realm of medicine can benefit from these prediction approaches. Along with maintaining a healthy diet and lifestyle, early diagnosis is crucial. Risk factors for heart disease include age, high cholesterol, sex, high blood pressure, smoking, obesity, family history, physical inactivity, poor diet, diabetes, alcohol consumption, and hereditary factors [2]. [5]. Angina pectoris,

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Keywords: *Field Mapping, Mobile QGIS Online Reprocessing Geo Location Data*

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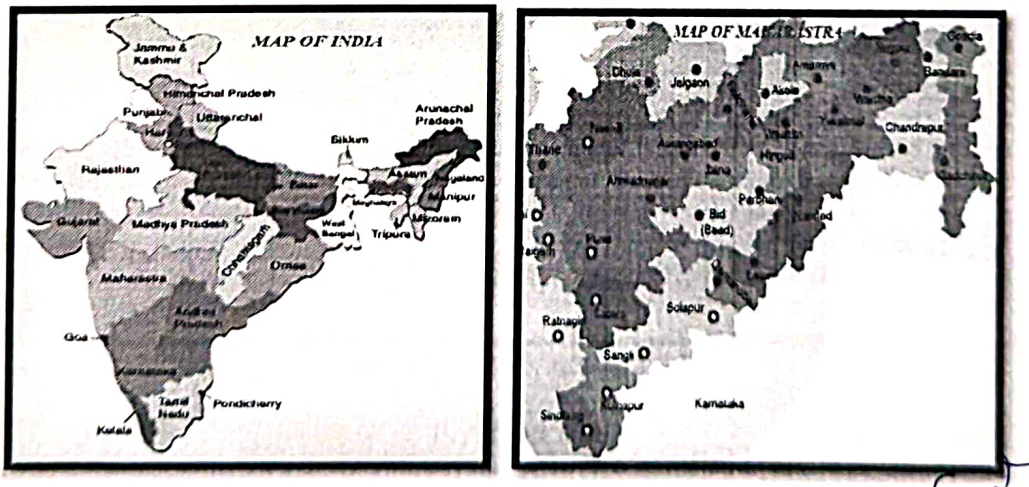
Environmental changes that are of concern today due to environmental devastation and harm to human health are caused by both natural and human activity in both urban and rural settings [1]. Environmental researchers employ a variety of tools and techniques to analyse and record information about plants, locations, soil textures, acceptable sites, etc. Among these technologies are portable mapping tools and software. GIS mapping technology, for example, has caught our attention recently. For proper planning, management, and exploitation of natural resources, it is crucial to research land use and cover [2]. With the help of the GPS (Global Positioning System) and QGIS replaced in every person's smartphone, the geographic location and description of plants and things, together with their range of application, is made possible.



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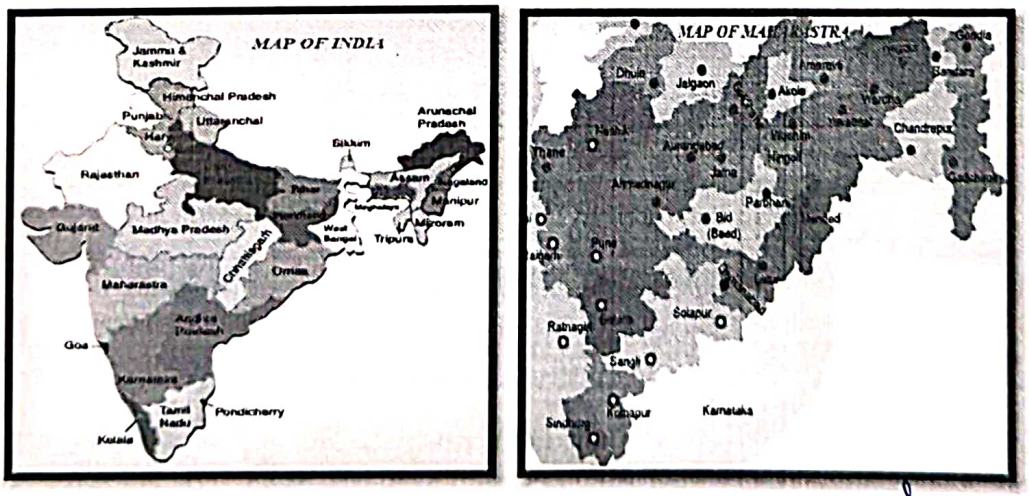

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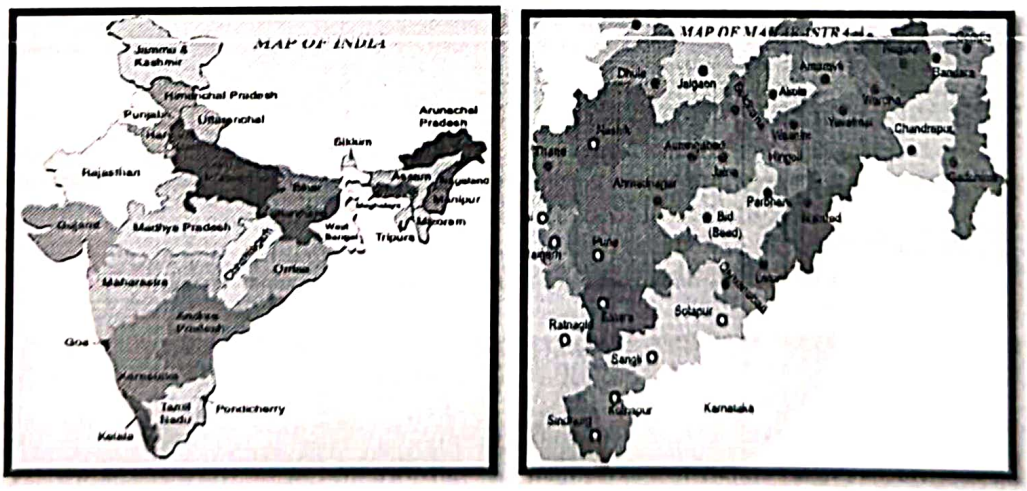

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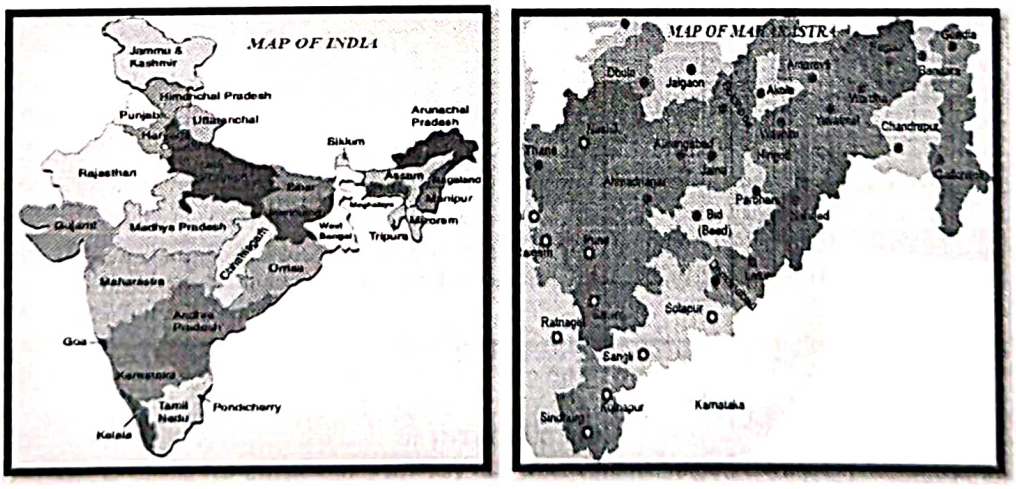

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HUMAN RESOURCE MANAGEMENT THROUGH GAMIFICATION: A NEW APPROACH

Dr. Deepmala Biradar(Hallale), *PhD (Management Science), Head &Associate Professor in Dept. of Management Science, ICEEM College, Aurangabad. (MS)*

I. Introduction

People are an organization's most valuable resource, and business leaders' top five worries are related to people issues. Organizations are continuing to step up their global investment as the international economies continue to globalize. (Guthridge and Komm, 2008). The past ten years have seen a significant increase in the emphasis on and momentum surrounding talent, which reflects the crucial role that talented individuals' attraction, development, and retention play in the success of businesses. Gamification, which refers to the use of game elements outside of gaming situations, has emerged as the newest buzzword in the HR industry.

A widely recognized definition of gamification is lacking, according to Werbach & Hunter (2014, p. 28), who define it as "the use of elements of games and technologies of design of games in contexts that are not games."

Herger (2014, p. 8) provides a different definition of gamification, saying that it can also refer to altering behaviors, engaging users, forming habits, and finding game-like solutions to problems...To achieve this use what we learned from videogames and behavior science and motivation theories. That means we apply game elements and principles to make work less boring and more fun. As it turns out, gamification is quite effective".

Games are frequently utilized to acquire a competitive edge by successfully attracting, engaging, inspiring, and retaining talent because of their incredible capacity to hold people's attention for an extended period, form relationships, win recognition, and promote innovation.

A key success factor in improving decision-making and creating more creative business solutions is the digitalization of human resources in the workplace and on leadership teams. According to research, organizations with more gamified digital HR processes initiativesnearly flexibility in thought.

It is not a novel concept to use games in learning.In situations when employees and the organization communicate directly, this is usual.

II. Literature Review

One of the earliest examples of gamification may be found in 1910, when Kellogg's cereals gave away its first "premium," the Moving-Pictures book, with every two boxes in an effort to boost sales. To combat monotony and boredom, workers in a Chicago textile industry started playing a daily ritual game in which they steal bananas. Games are thought to increase productivity and happiness, which has spurred research in this area. Professors at the Massachusetts Institute of Technology started debating the use of gamified components in education in the 1980s. The development of gaming consoles in the 2000s led to the creation of educational games, games that teach social graces, etc. A California-based startup called Bunchball created gaming elements to aid companies in enhancing online engagement. 2011 saw Volkswagen disclose (McCormick, 2013)

The application of game-play mechanics to non-game applications is known as gamification (Deterding et al., 2011). Theoretically, every programme, task, procedure, or situation might be made game-like. By utilizing game-like approaches like scoreboards and personalized fast feedback, gamification aims to increase user engagement (Flatla et al., 2011). increasing the sense of purpose and ownership among the workforce as they engage in jobs (Pavlus, 2010)

A business may establish a high-performance workforce, lower the cost of employee turnover, and attract and keep the greatest personnel by putting a clear emphasis on gamification. Costly resources are used to make video games for educational purposes. Using gamification to make the material

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Original Article

Study of the Cryogenic Treatment For Different Cutting tools

Mr.S. R. Rathoda[1], Mr. N. V. Kalyankarb[2], Mr. Y. M. Khanc[3], Mrs. S. S. Tarwaded[4]

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Received Date: 08 June 2023 Revised Date: 12 June 2023 Accepted Date: 15 June 2023

Abstract: *Nowadays, cryogenic treatment of materials used in cutting devices is well recognised as a correlative procedure used to improve the material's mechanical and physical properties. For various grades of hardware preparations and tungsten carbide embeds, reports have been made regarding improvements in wear resistance, sturdiness, break obstruction, expanded hardness, improved warm conductivity, lower synthetic corruption, and fantastic remaining pressure condition. Unlike surface medications, it is a single therapy that affects the majority of the part. In order to understand why and how the progressions might be occurring at the nuclear level in the material, this research makes a serious effort to explain the thermodynamic uniqueness of superconductivity at cryogenic temperatures. Additionally, it summarises the writing's most feasible metallurgical systems that have been implicated in changes in the apparatus properties following cryogenic treatment.*

Keywords: *Cryogenic Treatment, Cutting Tool, Correlative Procedure.*

I. INTRODUCTION

Improvement of polymer mixes is anticipated to produce the desired property mixes from each individual polymer part [1-3] because, frequently, the desired property mixes cannot be obtained by any one of the polymer parts alone. In order to achieve a certain property mix, it is now widely accepted that the microstructure of the polymer mixtures must be carefully tailored according to the characteristics of each individual component. Consequently, the design of high strength and high durability polymer mixtures requires a thorough understanding of the mechanical, physical, and compound properties of each polymer component. Additionally, this knowledge should not only include data from tests conducted on mass polymers; rather, it should also include information from each polymer component while it is in a mixed condition.

Even under identical testing conditions, it is generally predicted that a polymeric material's distortion conduct won't be nearly the same as that observed in the mass state. This is due to the fact that after combining with other polymers, the polymer's size, shape, and environment are drastically altered. Undoubtedly, the effects of testing temperature, strain rate, and structure on the distortion conduct of the mix components would also vary depending of how the variables affected the corresponding mass polymers. Therefore, it is crucial to establish the relationship between the properties obtained from the two states so that the disfigurement behaviour of a polymer in its mixed state can be predicted from the information obtained in its mass state. The final opinion has been studied for a very long time and is logically unquestionably known. Fundamentally, once the connection is set up, intensive polymer mixtures can be prepared by properly identifying the polymer components, selecting the optimum piece, and carefully regulating the microstructure.

The current analysis of polycarbonate-poly(butylene terephthalate), designed for its unique transesterification responses inducing properties, would provide a clear understanding of the key attributes of this type of mixtures, including their uniqueness, their limit for specialised mixtures, and their potential for producing even miscible mixtures. Additionally, this poll made an effort to link anticipated applications by tying thoughts on rheology/handling and mechanical property together. Through this audit of shifted works produced over many years all over the world, Perusers would understand "what happens when" sort of tool kit for such PC-PBT combinations.

II. LITERATURE SURVEY

Metallurgical findings from the literature:

When the item is delivered at room temperature, the transformation of austenite to martensite is frequently complete.However, the problem of Held Austenite after extinguishing is a severe setback for the majority of device designs. The metastability of this retained austenite can negatively affect the layered dependability and wear resistance during administration. Due to surface grinding heat, the retained austenite will often transform into martensite during administration under pressure or possibly temperature-actuated circumstances [4]. This transformation of retained austenite into martensite is associated with a volumetric growth of about 4%.

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Even under identical testing conditions, it is generally predicted that a polymeric material's distortion conduct won't be nearly the same as that observed in the mass state. This is due to the fact that after combining with other polymers, the polymer's size, shape, and environment are drastically altered. Undoubtedly, the effects of testing temperature, strain rate, and structure on the distortion conduct of the mix components would also vary depending of how the variables affected the corresponding mass polymers. Therefore, it is crucial to establish the relationship between the properties obtained from the two states so that the disfigurement behaviour of a polymer in its mixed state can be predicted from the information obtained in its mass state. The final opinion has been studied for a very long time and is logically unquestionably known. Fundamentally, once the connection is set up, intensive polymer mixtures can be prepared by properly identifying the polymer components, selecting the optimum piece, and carefully regulating the microstructure.

The current analysis of polycarbonate-poly(butylene terephthalate), designed for its unique transesterification responses inducing properties, would provide a clear understanding of the key attributes of this type of mixtures, including their uniqueness, their limit for specialised mixtures, and their potential for producing even miscible mixtures. Additionally, this poll made an effort to link anticipated applications by tying thoughts on rheology/handling and mechanical property together. Through this audit of shifted works produced over many years all over the world, Perusers would understand "what happens when" sort of tool kit for such PC-PBT combinations.

II. LITERATURE SURVEY

Metallurgical findings from the literature:

When the item is delivered at room temperature, the transformation of austenite to martensite is frequently complete.However, the problem of Held Austenite after extinguishing is a severe setback for the majority of device designs. The metastability of this retained austenite can negatively affect the layered dependability and wear resistance during administration. Due to surface grinding heat, the retained austenite will often transform into martensite during administration under pressure or possibly temperature-actuated circumstances [4]. This transformation of retained austenite into martensite is associated with a volumetric growth of about 4%.

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Original Article

Study of the Cryogenic Treatment For Different Cutting tools

Mr. S. R. Rathoda[1], Mr. N. V. Kalyankarb[2], Mr. Y. M. Khanc[3], Mrs. S. S. Tarwaded[4]

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Received Date: 08 June 2023 Revised Date: 12 June 2023 Accepted Date: 15 June 2023

Abstract: *Nowadays, cryogenic treatment of materials used in cutting devices is well recognised as a correlative procedure used to improve the material's mechanical and physical properties. For various grades of hardware preparations and tungsten carbide embeds, reports have been made regarding improvements in wear resistance, sturdiness, break obstruction, expanded hardness, improved warm conductivity, lower synthetic corruption, and fantastic remaining pressure condition. Unlike surface medications, it is a single therapy that affects the majority of the part. In order to understand why and how the progressions might be occurring at the nuclear level in the material, this research makes a serious effort to explain the thermodynamic uniqueness of superconductivity at cryogenic temperatures. Additionally, it summarises the writing's most feasible metallurgical systems that have been implicated in changes in the apparatus properties following cryogenic treatment.*

Keywords: *Cryogenic Treatment, Cutting Tool, Correlative Procedure.*

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