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3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years

S. NO.	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
							Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number		
1	Air Quality Index Analysis and Solutions for High Traffic, Industrial and Residential Regions in Delhi/NCR	Tabish Quadri	CE	Journal of Advances and Scholarly Researches in Allied Education (JASRAE)	2019	2230-7540		http://ignited.in/File_upload/Download_Article/JASRAE_ISSUE_6_VOL_16_109770.pdf	Yes
2	SFDR Enhancement of 120o Phase Angle Based RoF Link by using Linear Polarizers	Shelly Garg	ECE	IEEE PhotonicsTechnologyLetters,	2019	1041-1135		10.1109/lpt.2019.2904726	Yes
3	Mitigating the effects of non linear distortion using polarizers in microwave photonic link	Shelly Garg	ECE	Journal of Optical Communication	2019	21916322		https://doi.org/10.1515/joc-2019-0244	Yes
4	SNDR Optimization of Linearized Mach Zehender Modulator For Multi-Tone RoF System	Shelly Garg	ECE	Journal of Optics, SpringerScience,	2019			https://doi.org/10.1007/s12596-019-00524-2	Yes
5	Intercultural Competence in Lahiri's 'Hell Heaven'	Shivani Kaul	ASHU	THINK INDIA JOURNAL	2022	0971-1260		Vol-22-Issue-04-October-2019	Yes
6	Ball Pen Ink level Indicator	YATIN KUMAR AGARWAL	CSE	IJRTE	2019	2277-3878		INTERNATIONAL	Yes
7	Multiple Object Detection and Tracking	YATIN KUMAR AGARWAL	CSE	IJRECE	2019	2393-9028		INTERNATIONAL	Yes
8	A Review: Cryptography and Steganography for data hiding in images	YATIN KUMAR AGARWAL	CSE	JETIR	2019	2349-5162		INTERNATIONAL	Yes
9	Online retreival and indexing of images using multi feature vectors	YATIN KUMAR AGARWAL	CSE	https://www.ijitee.org/wp-content/uploads/papers/v8i11S/K110409811S19.pdf	2019	2349-5162		INTERNATIONAL	Yes
10	Systemetic analysis of semantic web search based on ontology modeling and its search engines	ARUN MITTAL	CSE	JETIR	2019	2349-5162		INTERNATIONAL	Yes
11	Self-optimization in LTE: An Approach to Reduce Call Drops in Mobile Network	Divya Mishra	CSE	FTNCT 2018, Springer (CCIS Series)	2019			SPRINGER	Yes
12	Performance Enhanced and Improvised Approach to Reduce Call Drops Using LTE-SON	Divya Mishra	CSE	RAACE 2017, Springer (Singapore)	2019			SPRINGER	Yes
13	Fine tuning of MapReduce jobs using parallel K Map clustering	Divya Mishra	CSE	Journal of Emerging Technologies and Innovative Research (UGC)	2019			JETIR	Yes
14	Automated Car Parking with Empty Slot Detection Using IoT	Shilpi Bansal	CSE	International Conference on Advances in Engineering Science Management & Technology (ICAESMT) - 2019,Uttaranchal University, Dehradun, India.	2019			https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3403921	Yes
15	A Review on Software Effort Estimation Techniques	Dhwani Agrawal	CSE	International Research Journal of Management Science and Technology	2019	2395-0072		https://www.irjet.net/archives/V6/i4/IRJET-V6I41063.pdf	Yes
16	An Evolution on Software Effort Estimation Techniques	Abhishek Singh	CSE	International Research Journal of Management Science and Technology	2019			https://scholar.google.com/citations?user=RUvYyVEAAAAJ&hl=en	Yes
17	A Review on Software Effort Estimation Techniques	Reena Chaudhary	CSE	International Research Journal of Management Science and Technology	2019				Yes
18	A Review on Software Effort Estimation Techniques	Rashmi Chaudhary	CSE	International Research Journal of Management Science and Technology	2019				Yes

19	Prediction Analysis Techniques of Data Mining: A Review	Rajiva Ranjan Divivedi	CSE	International Conference on Advance Computing and Software Engineering ICACSE-2019 Organized by Kamla Nehru Institute of Technology Sultanpur.	2019					Yes
20	Classification Technique for Heart Disease Prediction in Data Mining	Rajiva Ranjan Divivedi	CSE	International Journal of Recent Technology and Engineering (IJRTE)	2019					Yes
21	SARLA - A 3-TIER ARCHITECTURAL FRAMEWORK BASED ON THE ACO FOR THE PROBABLISTIC ANALYSIS OF THE REGRESSION TEST CASE SELECTION AND THEIR PRIORITIZATION	Neha Kashyap	CSE	International Conference on Advancements in Computing & Management (ICACM-2019) SSRN	2019					Yes
22	Audio Steganography using ASCII Code and GA	Amba	CSE	ICTUS 2017, DUBAI	2019					Yes
23	Development and comparison of tensile and compressive strength and percentage shrinkage of glass-jute hybrid fibre reinforced polymer composites	Navin Kumar	ME	IOP Journal of Physics: Conference series	2019	1742-6596				Yes
24	Analyticalstudy onany gate logic function as a pull-up network of pMOS transistors and a pull down tetwork of nMOS transistors	Navin Kumar	ME	IOP Journal of Physics: Conference series	2019	0094-243X (PRINT) 1551-7616 (WEB)				Yes
25	Study on transistors transistors logic with reference to their circuits and noise margin	Navin Kumar	ME	ICABS 2019 ,International conference held at GDC memorial college, Behal, Bhiwani, HR	2019					Yes
26	Role of Fe2O3 and MoO3 content on optical properties of lead borate glasses	Navin Kumar	ME	AIP Conference Proceedings	2019	0094-243X (PRINT) 1551-7616 (WEB)				Yes
27	Synergistic Effects of Some Medicinal Plants and Transition Metal Ferrocyanides on Some Selected Fungus	Dipti Bharti	ASH	Journal of Pharmacognosy and Phytochemistry	2019	2278-4136				Yes
28	Adsorption of hazardous dye crystal violet from industrial waste using low cost adsorbent Chenopodium album	Dipti Bharti	ASH	Desalination and Water Treatment	2019	1944-3986		doi: 10.5004/dwt.2019.24595		Yes
29	A Novel Cryptographic Data Security Approach for Banking Industry to Adopt Cloud Computin	Anuranjan Misra	CSE	International Journal of Recent Technology and Engineering (IJRTE)	2019	2277-3878		https://www.ietir.org/		Yes

Air Quality Index Analysis and Solutions for High Traffic, Industrial and Residential Regions in Delhi/NCR

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Abstract – Air Quality monitoring is important aspect these days as high pollution is causing bad health effects in the Delhi/NCR region. It is necessary to take steps for improve the air quality of the capital and also preserve natural trees for making the environment pollution free. There are a lot of traffic issues, industrial pollution and household pollution which contributes to the bad air quality index. Monitoring is generally done using devices which have sensors like ozone, PM10, PM2.5, CO, SO2, etc. here, a device with IOT is used to measure the sensor values and then convert to Air Quality Index. In this thesis, air quality index is calculated for various areas in Delhi/NCR which are namely, industrial area Patparganj, a high traffic area Wazirpur and a green area near Jawaharlal Nehru stadium. It is seen that there is high pollution in the areas of Patparganj due to industries and in Wazirpur are because of roads connecting major parts of the city and also in the area of Jawaharlal Stadium as its residential area in the surroundings and has greenery has lower pollution level. The analysis is performed for 5 days in each area. Hence, for these areas solution is provided to improve the air quality by the major use of filters and plantation is required in these areas.

Keyword: - Air Quality Index, Delhi/NCR, PM10, PM2.5, Oxygen

- X -

INTRODUCTION

Natural contamination and related human medical problems and environmental harm zone genuine worries since they have turned into a risk to biodiversity as well as become a danger to human populace itself. [1][2] These ecological issues are of uncommon significance since they influence both widely varied vegetation including individuals. They decrease anticipated existence of individuals, hinder development of the youngsters and aggravate the whole economic advancement process. The World Health Organization (WHO) evaluated that in excess of 25 percent of all mortalities in the creating scene are because of natural elements which is very disturbing. [3] The issue turns out to be much additionally exasperated because of spontaneous development of modern groups/townships wherein huge numbers of the ventures have been spurning standards and standards. The significant test in executing any strategy of Environment Action Plans (EAP) is the recognizable proof of contaminating ventures and their area. [4] This can be accomplished by evaluating the current contamination discharges started from various industry sources and taking remedial measures in like manner. Be that as it may, it is likewise a troublesome errand for controlling organizations because of absence of dependable data on the nature and sort of contamination radiating from various modern plants and production lines.

The open air contamination is a developing worry for some urban areas in created and creating nations of the world. While the created and creating nations vary as far as their encompassing models for different contaminations (the dimension at which they believe the contamination to be destructive), the general thought behind the gauges is to know about the harm caused to the general wellbeing and the earth. The urban air toxins emerge from a wide assortment of sources, however fundamentally connected to the burning procedures. [5] The biggest sources incorporate the engine vehicles, assortment of assembling forms (businesses, for example, block furnaces, concrete, metal handling, tanning, and so forth., private fuel utilization, biomass consuming and street dust (particularly in the creating nation urban communities). [6][7] The traffic-produced toxins incorporate nitrogen oxides (NOx), carbon monoxide (CO), unstable natural mixes (VOCs) and particulates (PM). Given the blend of NOx and VOC discharges, joined with solid daylight amid the

SFDR Enhancement of 120° Phase Angle-Based RoF Link by Using Linear Polarizers

Parvin Kumar, *Member, IEEE*, Shelly Singla, and Sanjay Kumar Sharma, *Member, IEEE*

Abstract—A new scheme to improve spurious free dynamic range (SFDR) of high-performance radio over fiber (RoF) link based on 120° phase angle has been proposed and investigated. The proposed link consists of a dual electrode Mach–Zehender modulator (DE-MZM), linear polarizers, and optical filter. The performance is improved by generating an optical single side-band (OSSB) signal using 120° phase angle in DE-MZM. The suppression of third-order intermodulation (IM3) and other harmonics are significantly controlled by adjusting the state of polarization of both the polarizers. The resulting SFDR shows an improvement of 13.4 dB for the proposed linearized link when compared with conventional 90° phase angle-based DE-MZM link.

Index Terms—Radio over Fiber (RoF), dual electrode Mach Zehender modulator (DE-MZM), third order intermodulation (IM3), spurious free dynamic range (SFDR).

I. INTRODUCTION

THE demanded key elements of future fifth generation wireless communication network are capacity, data rates, dynamic range of link, low losses, reliability, cost effective, eco-friendly, flexibility in design and implementation of link etc. [1]–[13]. The RoF link can become an important substitute in view of these requirements and it needs a high degree of linearity to attain demanded link performance [1]–[13]. But, nonlinearity of the optical modulator presents harmonic and intermodulation distortion in sub carrier modulation link which degrade the performance of RoF link significantly. Many researchers have contributed to reduce this nonlinear distortion [14]–[19]. However, it is still required to reduce IM3 in order to improve dynamic range of RoF Link. Due to optical fiber chromatic dispersion degradation, the OSSB technique is most desirable for long distance RoF link and this technique is free from frequency dependent power fading in comparison with optical double sideband technique [3]–[6], [8], [13], and [15]. In view of this, the OSSB RoF link has been investigated based on 120° hybrid coupler and DE-MZM which is considered as high performance link. A RF Signal is divided by the 120°
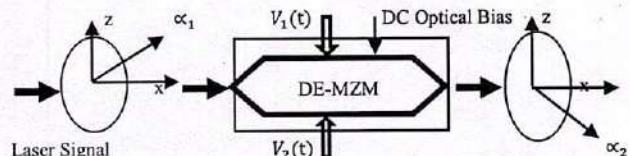
Fig. 1.   Proposed linearized 120° phase angle based OSSB RoF link.

hybrid coupler into two parts with equal power and a phase difference of 120°. Then, it is fed to the two RF ports of the DE-MZM. A phase difference of $n * 2\pi/3 - \emptyset_0$ between optical components in upper and lower arm of DE-MZM is maintained, where n represents the order of sideband and $\emptyset_0$ is an additional phase difference through dc bias. An OSSB signal with -1st and $+2^{nd}$ order sidebands suppressed is generated when $\emptyset_0 = \pi/3$ because the -1st sideband in the two arms of the modulator have a $-180°$ phase difference and they destructively interfere while combining at the output port of DE-MZM. Similarly, $+2^{nd}$ order sideband also destructively interfere due to the phase difference of $+180°$ [14]–[17].

Fig. 1 shows the proposed mixed polarization based RoF link consisting of DE-MZM with two linear polarizers, placed before and after modulator adjusted an angle of $\propto_1$ & $\propto_2$, respectively. Further, linearization of OSSB RoF link based on 120° phase angle is achieved using two linear polarizers. It is identified that z-cut LiNbO$_3$ MZM exhibits an electrooptic coefficient r$_{31}$ along the x-(TE) axis, which is approximately 1/3 of r$_{33}$ coefficient of the z-(TM) axis. This anisotropy will allow for the RF signal to be simultaneously modulated in the both orthogonal polarized states by different amounts. The optical signal entering the modulator passes through a linear polarizer set to an angle $\propto_1$ with respect to z-axis, this will excite a superposition of TE and TM modes that will be modulated to different modulation depths. In other terms, the z-(TM) axis will carry more IM3 distortion, while the x-(TE) axis will carry less IM3 distortion. The optical signal is then passed through a second linear polarizer that is set to angle $\propto_2$ with respect to z- axis. The two angles are related to each other, so they will be selected in such a way as to maximize the RF subcarriers and suppress IM3 distortion. By carefully selecting $\propto_1$ and $\propto_2$ of the two linear polarizers, the combined IM3 distortion from two arms of MZM can be eliminated [15]. A significant improvement in SFDR confirms the performance enhancement of proposed link with mixed polarization.

Sarika Singh*, Sandeep K. Arya and Shelly Singla

Mitigating the Effects of Non-Linear Distortion Using Polarizers in Microwave Photonic Link

Abstract: A scheme to suppress nonlinear intermodulation distortion in microwave photonic (MWP) link is proposed by using polarizers to compensate inherent non-linear behavior of dual-electrode Mach-Zehnder modulator (DE-MZM). Insertion losses and extinction ratio have also been considered. Simulation results depict that spurious free dynamic range (SFDR) of proposed link reaches to $130.743\,dB.Hz^{2/3}$. A suppression of 41 dB in third order intermodulation distortions and an improvement of 15.3 dB is reported when compared with the conventional link. In addition, an electrical spectrum at different polarization angles is extracted and 79° is found to be optimum value of polarization angle.

Keywords: MWP, polarizer, DE-MZM, IMD, SFDR

1 Introduction

Due to exponential rise in advancements of communication technologies, the techniques having potential to provide best services to the users can only survive in this present era. Due to wide range of applications offered by MWP link, it has got a concrete ground to stay longer in this modern time. These applications are merely antenna-remoting, signal processing, delay lines, low phase noise RF generation and frequency detection of RF signals [1–3]. Performance of MWP links are subjected to various impairments that can be induced due to nonlinearities in the

transmission lines and optical modulator [4–6]. These errors could be linear or non-linear but non-linear errors such as harmonic distortion (HD) and inter modulation distortions (IMD) are of much concern as they have severe effect on SFDR, which is considered an important performance measurement parameter for MWP links [7–9].

Large no. of techniques has been demonstrated to suppress IMD3 components using Mach-Zehnder modulator (MZM), polarization and phase modulator in different ways viz. pre-post distortion method, adaptive predistortion and single DE-MZM employing direct detection [10–14]. Some other approaches incorporated single, dual, cascaded and parallel combinations of various modulators [15–19]. Main drawback of above techniques is the requirement of proper biasing control to suppress IMD3 and more no. of modulator increases the cost and complexity of system [20–23].

In this paper, we have demonstrated analytical model to improve link performance that consists of a DE-MZM and two polarizers, driven by two sinusoidal RF tone along with photodetector. A phase shift of 90° is introduced through hybrid coupler between two electrode inputs of DE-MZM which leads to optical single-sideband (OSSB) modulation. As optical double sideband modulation is susceptible to dispersion induced power fading, OSSB is preferred over the same. Also, polarizers polarizes optical signal before and after modulation at polarization angles θ_1 and θ_2 in order to maximize fundamental component and minimize third order IMD (IMD3) terms. The value of polarization angles is chosen carefully so that net IMD3 components are cancelled out at the output of second polarizer. A mathematical expression is derived for optimum value of polarization angles at which the maximum suppression in IMD3 components is reported. Simulation results are appended in sound consonance with analytical analysis. Furthermore, performance of proposed & conventional link is measured against IMD3 in term of SFDR.

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2 Principle & system model

Figure 1 shows schematic of considered MWP link based on DE-MZM incorporating polarizers for the linearization
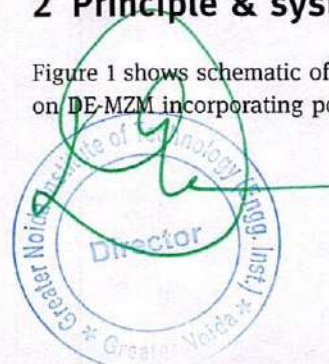
SNDR optimization of linearized Mach–Zehnder modulator for multi-tone RoF system

Shelly Singla[1] · Parvin Kumar[2]

Abstract Radio-over-fiber (RoF) system will be recognized as backbone for next-generation networks by offering capacity, simplicity in design, cost-effectiveness, green communication, etc. But the crucial performance degrading bound for RoF system is third-order intermodulation (IM3) error when high signal input power is employed. In this regard, this paper presents an analytical analysis with verified simulation of three radio frequency signals incorporating dispersion and single sideband modulation technique. This paper illustrates the results to reduce nonlinear distortion errors by selecting the medium values of the modulation index and proper fixed frequency differences between input signals for transmission distances of 25 km and beyond. The performance of multi-tone RoF system is further improved by employing linearization technique. The two linear polarizers are placed before and after Mach–Zehnder modulator. The IM3 can be significantly suppressed by properly selecting the angles between two linear polarizers.

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Introduction

Multi-tone RoF systems can be used for a wide range of applications such as CATV, wireless LANs and mm-wave applications. This is a consequence of the fact that the modulation technique used and data carried on each subcarrier are independent of the subcarriers used. The intermodulation error which is due to nonlinearity of MZM produces severe impact on the performance of multi-tone RoF systems [1–5].

The second-order intermodulation is filtered by symmetrical DE-MZM, but third-order intermodulation (IM3) terms need to be minimized and have severe impact [6–11]. Many attempts have been made in reducing IM3, and in this paper, nonlinear distortion errors are reduced by selecting values of the modulation index. Figure 1 shows schematic of RoF system using SSB modulation using MZM with three input RF signals. Here, three RF signals drive an MZM. Three RF signals are applied to $\pi/2$ hybrid circuit to get composite modulating signal. This composite modulating signal is applied to both electrodes of the MZM, with a 90° relative phase shift between the two arms. A dc bias is used to set the modulator at the quadrature point. Further, the linearization is employed in MZM. The proposed linearized MZM contains two linear polarizers: first fixed at angle α_1 and second fixed at angle α_2. The γ_1 is a dimensionless ratio of less than one and $\gamma_1 = \frac{1}{3}$ for LiNbO$_3$ as well as many poled electro-optic polymers [12]. With $\gamma_1 = \frac{1}{3}$ and properly selecting α_1 and α_2 angles, the IM3 from two arms of MZM can be significantly suppressed. An optical filter is used to filter out the desired signal at the receiver. After this signal is applied to photodetector and three RF signals are extracted using electrical filters, the performance of the system has
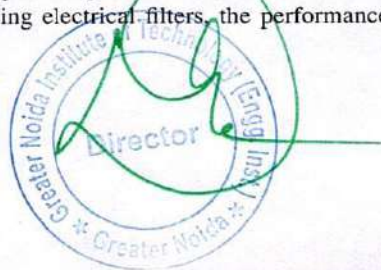
Intercultural Competence In Lahiri's 'Hell Heaven'

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Abstract

With the advent of globalization, concepts like diaspora, displacement, identity have become prominent topic of discussion.In search of identity, diasporas make compromises, negotiations. Thepresent paper intends to explore the concept of identity and cultural hybridity in the works of JhumpaLahiri. An eminent Indo-American writer, Lahiri herself is a child of immigration and multiculturalism which enables her to portray the characters both in the light of native and alien culture. Her works project realities of human existence in a beautiful manner. In spite of being in a constant struggle of confusing identity, and dilemma between two worlds, the protagonists of her story strive towards a happier world full of zeal and zest. The story under analysis is „Hell-Heaven".The analysis reveals that Lahiri is a master playwright who depicts the lives of diasporas in an intricate manner.

Introduction

Under the influences of globalization, now-a-days it is quite common that the participants meet new and unfamiliar elements in their familiar context or even coming across new communicative contexts where the participants do not share but construct meanings is also not something unexpected. Under such circumstances, the normal behavior of a person may be interpreted differently by the other person and the participants may find it challenging to

Online Retrieval and Indexing of Images using Multi Feature Vectors

Yatin Kumar Agarwal, Dilkeshwar Pandey, Manoj Singhal

Abstract— In technology proliferated era of modern world, health care has witnessed huge developments. The cutting edge technologies have paved way for sophisticated and feature rich image processing in medical field using colour tomography and medical resonance imaging. The images obtained using radiological techniques can be stored in a database and the features and implications can be recorded in the database after the analysis of those images by physicians. These databases can be used in obtaining the meaningful analysis of the images obtained through radiology in rural areas of developing countries like India, where sophisticated medical facilities are a dream for many in developing nations. The dataset of images can be divided into training and testing set. Training set of data is utilized to obtain multi feature vectors based on Caffe. Caffe is used in this training with a focus on image recognition. The image feature is a simple image pattern based on which the description of image can be obtained. The features of an image are transformed to a vector space using computer vision algorithms. Moreover a framework has been evolved in this paper to extract the features from image using image descriptors-white box algorithms and neural nets-black box algorithms. We also present the pros and cons of our novel framework for online retrieval and indexing of images using multi feature vectors.

Keywords: Image processing, vectors, caffe, image descriptors, neural nets.

I. INTRODUCTION

In many applications of image processing, it is very much important to store images in a database. After storing in the database, it becomes necessary in many occasions to retrieve the images from database. For further processing or retrieval, mainly content based concept is employed but for indexing, most of the time concept based /description based or text based image indexing [1] is utilized. In text based image indexing keywords, description of images, captions or natural language text is used. In the image indexing methodologies, mostly a set of attributes of an image stored in the database [2] is used. In the second approach, an integrated feature extraction/object recognition subsystem was utilized. The third and relatively less used approach consists of image annotation [3]. Moreover, low level image features are utilized in the few of the image indexing approaches.

These image indexing techniques find widespread applications in the medical domain and health care sector , as huge data storage is available at low cost. Advancements in image acquisition techniques paved way for large sized

image datasets. Especially in large sized image datasets in healthcare sector, lot of image analysis needs to be carried out, to extract meaningful information. This medical domain is considered to be one of the main areas where Content Based Image Retrieval (CBIR) has found huge application.

After indexing of images and the storage of images in databases, image retrieval techniques are applied for selecting and displaying the matching images. One of the oldest techniques used in image retrieval is text based. In this text based retrieval of images, the keywords may be image name, date of addition, deletion and modification. The fundamental problems faced in text based image retrieval include certain intangible components such as feelings, emotions and multiple expressions, with homonyms and misspellings. One of the recently and widely used techniques in image retrieval in today's applications include CBIR.

This paper is organized into many sections. Section 2 of this paper deals with the corresponding literatures in the field of image indexing and retrieval. Section 3 discusses about the approach taken by us in extracting various features using multi vectors. Section 4 presents the experimental results of our approach in the context of precision and accuracy using WEKA and provides a comparative analysis with three other approaches that are widely used in healthcare. The final section of the paper deals with the conclusion of the paper.

II. LITERATURE REVIEW

This section of the paper will deal with the analysis of various approaches that were followed in the literature.

Messaoudi et al [4], discussed about medical image indexing based on the reports obtained from various experts. Their work concentrated on the removal of unavailability of expert medical facilities in rural and semi urban areas. This paper had proposed a kind of comments' summary keywords-based method. The comments based keywords are very relevant to the comments or annotations provided by physicians.

These keywords that are extracted provide robust image indexation. His approach proposed by the authors is referred as Terminology Extraction of Annotation (TEA) mixed approach.

R.Chbeir et al [5], proposed another efficient method for image indexing in medical application. The authors have addressed the spatial and evolutionary issues of images using different types of relations. This method is considered to be highly explanatory and reliable mechanism for indexing images.

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Automated Car Parking with empty slot detection using IoT

Ankush Sharma[1], Shilpi Bansal[2], Shivam Mishra[3], Praveen Kumar[4] , Tanupriya Choudhury[5]

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ARTICLE INFO

ABSTRACT

Nowadays the number of cars on road are increasing which leads to various problems of which one of them is parking. The public faces various problem such that parking has vacant slot or not. By using the proposed system one can preemptively know whether there is an empty slot or not by looking the LCD display outside the premises as well as android application which will show all the vacant parking slots. The system uses IR sensors alongside engines, LCD and microcontroller for controlling the system. The lcd shows void spaces to new car at gate of parking. On the off chance that no parking spot is accessible the system does not open the door and lcd says parking full.If space is vacant system enables car to enter the parking and shows void openings where client can stop. To identify vehicle opening inhabitance the system utilizes IR sensors. Additionally System utilizes IR sensors to distinguish vehicles touching base at stopping gates,to open the doors naturally on vehicle landing. The microcontroller is utilized to encourage the working of the whole system. Android application can also be used to find alternate parking premises in the area by displaying number of vacant parking slots in them too. It also allow user to book parking slot 15 minutes before user arrives else it will get cancelled if the user doesn't arrive in the specified time.

1. Introduction

As the population in the cities are increasing, thenumber of vehicles got increased dramatically. It causes issues for parking in the public places like cinema halls, hotels especially during festivals. Now a days driver invests around 10 min to park his vehicle because he isn't able to find free slot which leads to 30-40 minutes to congestion. Here we are going to see the solution of the above problem. This problem is a issue of significance not only on a local level and at the higher level of planning. This task aims to solve this problem of car parking.To solve this problem we have created this system which uses open source hardware, sensors,and computers to understand the output. In addition an android application is created to check priorly whether there is a free slot or not and the person has an option to book a free parking slot.

2. Technology Used

2.1. Arduino (ATmega380P)

Arduino is an open-source Computer equipment/programming stage for creating digital devices and interactive objects which detects and control the environment surrounding it. It consists of an open supply device that allow the clients to create their own working kit. The software of the Arduino is applicable to a huge range of activity frameworks like Ubuntu, Microsoft OS, and Macintosh. It likewise consists of wide supply software system feature that allows tough software framework developers to use the Arduino code to execute with the prevailing programming language framework and can be extended and altered. For Starters, it is extremely easy to use as well as economic.It very well may be used to create such gadgets that can cooperate with the surrounding to make use of the sensors and modern actuators. Like, ROBOTS, Motion Detectors ,etc.
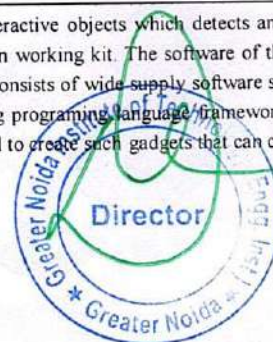
An Evolution on Software Effort Estimation Techniques

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Abstract— The effort estimation is most important aspect for software project development. In the past literatures, there are many methods to estimate effort. Accuracy is still the issue for the estimation, since the data available is incomplete in many cases. In this paper, a systematic review is given of major estimation models, their strength and weaknesses are discussed. The literature review shows the algorithmic models and non-algorithmic models such as COCOMO, Function Point Analysis, expert judgement, fuzzy logic etc. Cost is the major feature in estimation, so both overestimation and under estimation are dangerous for software development team. In this paper, various techniques are elaborated and hence it is concluded that by using combination of two or models effort can be estimated accurately.
Key words: Effort Estimation, Accuracy, COCOMO, Function Point Analysis, Fuzzy logic, Neural Networks.

I. INTRODUCTION

Software effort estimation has always been a major part of software development, since it has the crucial effect on development process. Accuracy is the main concern in the effort estimation because inaccurate effort can cause drastic outcomes. It is not only necessary for project development, but also to keep record of progress, planning and resources.

Although, it is not an easy to calculate effort accurately. In case of over estimation, there are wastage of resources or in case of under estimation, project cannot be complete on time because of lack of resources. So, accurate cost prediction to develop a project is very risky and very important task for any organization.

Even with the perfect estimation process, it is still very difficult to estimate perfect cost estimation because of many probabilities at the time of estimation. The effort which is calculated for a software development relies on may different factors, some of them are probabilistic factors which cannot be report in advance, such as illness of staff, but some of them are non-probabilistic in nature which can be report in advance.

Due to the relationship between the factors is very complex, it is surely affecting the process of estimation. Sometimes, it is lower than estimation, sometimes it goes higher. So, it is difficult to estimate but because of this, the process of development becomes easy since programmer already knew the resources which are going to be used in the project.

II. EFFORT ESTIMATION MODELS

A. ALGORITHMIC MODELS:

Algorithmic models used mathematical equations to calculate effort. Mathematical equations are based on a research and use some input to process. There are multiple models such as COCOMO, COCOMO II and Function Point Analysis to predict cost. These models try to map the relationship between effort and one or more project characteristics.

COCOMO Model: Known as Constructive Cost Model, introduces by Berry Boehm in 1981, it is the well-known model for effort estimation. The mathematical equation for basic COCOMO is simple:

$$\text{Man-Months} = a \, (KLOC) \, b \qquad (i)$$

Where, the value of a and b is depending upon the which development mode of COCOMO is used in the project. The three modes are: Organic, Semi-detached and Embedded. Organic mode is used when the size of the project is relatively small, requirements are well-known and environment is stable. Semi-detached mode is in between organic and embedded mode. Embedded mode is used for relatively large-scale projects. These are the complex projects where requirements are changing constantly.

The Intermediate COCOMO Model: Basic COCOMO model was good and quick but it lacks in accuracy. So, intermediate version is introduced to enhance the accuracy. It has 15 cost drivers which are divided into four categories and each cost driver has its rating associated with it. This rating goes from very low to very high (in total, six ratings). The adjusted effort is then estimated through these cost factors by multiplying the cost factors with value for cost estimates.

The 15 cost drivers are as follows:
1. Product Attributes:
    a. RELY: Required Software Reliability.
    b. DATA: Database Size
    c. CPLX: Product Complexity.

2. Computer Attributes:
    a. TIME: Execution Time Constraints.
    b. STOR: Main Storage Constraint
    c. VIRT: Virtual Machine Volatility

Article

SARLA – A 3-Tier Architectural Framework Based on the ACO for the Probablistic Analysis of the Regression Test Case Selection and Their Prioritization

Prashant Vats · Neha Kashyap · Manju Mandot

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Abstract

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Role of Fe_2O_3 and MoO_3 content on Optical Properties of Lead Borate Glasses

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Abstract. Glasses with compositions $xM.(40-x)PbO.60B_2O_3$ ($M= Fe_2O_3$ and MoO_3) have been synthesized by standard melt-quenching technique. The amorphous nature of the each sample was ascertained by XRD patterns. The absorption edge ($\lambda_{cut-off}$) shifts toward longer wavelengths with an increase in Fe_2O_3 as well as MoO_3 content in the glass matrix. The Urbach's energy is used to characterize the degree of disorder in amorphous solids. The values of optical band gap energy for indirect allowed and forbidden transitions have been determined and it was found that it decreases faster in Fe_2O_3 based samples than the samples containing MoO_3 Content. From these results, it was observed that Fe_2O_3 to be a better probe to generate non-bridging oxygens (NBOs) than MoO_3 content in the present study.

INTRODUCTION

It is well known that the borate glasses are generally insulating in nature and addition of transition metal oxides (TMO) such as Fe_2O_3 and MoO_3 make these glasses semiconducting [1]. The introduction of TMO in the glass system may enter either as a network former or as a modifier. The interest for the present glass systems is determined by the presence of network forming oxide, the classical network former B_2O_3 and PbO. It was observed in earlier studies that when PbO is added to other network forming oxide glasses, it acts mainly the network modifier (with PbO_6 structural units) and by network former in both covalent and ionic bondings with $PbO_{4/2}$ pyramidal units connected in puckered layers, depending upon its concentration in the glass [2-3]. In oxide glasses, B_2O_3 is a basic glass former because of its higher bond strength, lower cation size, smaller heat of fusion and trivalancy of boron. In these glasses, the boron (B^{3+}) ions are triangularly coordinated by oxygens to form glasses easily. The main structural units of vitreous B_2O_3 glasses are BO_3 triangles forming six membered boroxol ring connected by B-O-B linkage [4]. It has also been reported that addition of network modifier (e.g. PbO) in borate glasses could convert some of the triangular BO_3 structural units to BO_4 tetrahedra with a coordination number of 4, which are incorporated in more complex cyclic groups such as biborate, triborate, tetra or pentaborate along with the formation of non-bridging oxygens (NBOs) atoms [5-6]. Iron and Molybdenum oxide has been added as a transition metal oxide, inside the PbO- B_2O_3 to form Fe_2O_3-PbO-B_2O_3 and MoO_3-PbO-B_2O_3 glass systems respectively. Ternary borate glasses are very interesting for glass scientists and technologists due to their wide range of technological applications such as memory switching devices and gas sensors [7]. The glasses containing transition metal ions, such as Fe_2O_3 and MoO_3, have attracted interest because of their potential use in electrochemical, electronic and electro-optic devices [8-9]. In Fe_2O_3-PbO-B_2O_3 glasses, Fe_2O_3 [10-11] enters the structure in two forms: as a network former and/or a network modifier. But, the Molybdenum ions in the present glasses exist in only Mo^{6+} valence state is observed from EPR studies [12]. The molybdenum cations could act as a network former as

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Synergistic effects of some medicinal plants and transition metal ferrocyanides on some selected fungus

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Abstract
Transition ferrocyanides were synthesized and characterized by IR spectra, magnetic susceptibility and XRD studies. The medicinal plants which contain natural antimicrobial properties such as Phyllanthus emblica, Psidium guajava, Jatropha gossypifolia, Mangifera indica were showed synergistic effect with transition metal ferrocyanides. These plant extracts with metal ferrocyanides complexes were found to be having more antifungal property in comparison to metal ferrocyanides and plants extract individual. Antifungal activities of medicinal plants and metal hexacyanoferrate (II) compounds were tested against Rhizoctonia solani causing black scurf in potato. Cadmium ferrocyanide with Phyllanthus emblica extract and nickel ferrocyanide with Mangifera indica extract complexes were found to have maximum and minimum antifungal property, respectively.

Keywords: Medicinal plants, transition metal ferrocyanides, synergistic effects, *Rhizoctonia solani*.

Introduction
Phytochemicals are bioactive compounds found in vegetables, fruits, cereal grains, and plantbased beverages such as tea and wine. Phytochemical consumption is associated with a decrease in risk of several types of chronic diseases due to in part to their antioxidant and free radical scavenging effects. Because it is hypothesized that the beneficial health effects observed from phytochemicals are related to the synergistic mixture of phytochemicals and other nutrients found in whole foods and its components, consumption of variety of plant-based foods is encouraged (Chopra, 1956) [4]. Researchers are exploring the use of phytochemicals to product economically important crops against various pest and pathogens. Potato is world's fourth economically important food crop after wheat, rice and maize because of its greater yield potential and high nutritive value. Its constituents nearly half of the worlds annul output of all root and tuber crops. A large percentage of potential production is reportedly destroyed by pests and pathogens. Annual yield loss of potato crop quality is due to *Rhizoctonia solani* infection can be 15-20 % (Rauf, 1999 and Beagle-Ristaino *et al.*, 1985) [1, 3]. *Rhizoctonia solani is* a fungus that attacks tubers, underground stems and stolons of potato plants. Although it probably occurs wherever potatoes are grown, it causes economically significant damage only in cool, wet soils (Frank, 1986) [2].

Rhizoctonia is a soil borne fungus with more or less continuous vegetative growth of brown threadlike branching mycelium in warm, moist soil conditions. These fungal strands grow between the soil particles and in dead non-living plant material to promote its decay and breakdown of organic matter in temperate production areas, losses from *R. solani* are sporadic and occur only when weather is cold and wet in the weeks following planting. In northern areas, where growers often must plant in cold soils, black scurf caused by *R. solani* is a more consistent problem. Poor stands, stunted plants, reduced tuber number and size, and misshapen tubers are characteristic of the black scurf disease (Frank, 1986) [2].

The use of medicinal plants as a source for relief from illness can be traced back over five millennia to written documents of the early civilization in China, India and the near east, but it is doubtless an art as old as mankind. Neanderthals living 60,000 years ago in present day Iraq used plants such as holly back, these plants are still widely used in ethno medicine around the world (Khare, 2007) [8].

Phyllanthus emblica L. (syn. *Emblica officinalis*) is commonly known as Indian gooseberry. All parts of this plant are used for medicinal purposes, especially the fruit which has been used in Ayurveda as a potent Rasayana (rejuvenator) (Neeraj *et al.*, 2017) [5]. *P. emblica* contains phytochemicals including fixed oils, phosphatides, essential oils, tannins, minerals, vitamins, amino acids, fatty acids, glycosides, etc. Various pharmaceutical potential of *P. emblica* has been reported previously including antimicrobial, antioxidant, anti-inflammatory, analgesic and antipyretic, adaptogenic, hepatoprotective, antitumor and antiulcerogenic

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Adsorption of hazardous dye crystal violet from industrial waste using low-cost adsorbent *Chenopodium album*

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ABSTRACT

The present article describes the use of *Chenopodium album* ash (wildly growing weed) as effective adsorbent for the removal of a hazardous dye, crystal violet, from its aqueous solutions. This paper presents an experimental study and discussion of the adsorption characteristics of this dye on the plant ash. Two techniques, that is, batch and column operations have been used to explain the removal process. Column capacity is found to be lesser than the batch adsorption capacity. Batch adsorption studies were conducted as a function of adsorbent dose, equilibrium pH, contact time, initial dye concentration, kinetics and Freundlich isotherms. Extent of adsorption has been found to be greater at neutral pH. Kinetic studies indicate that the overall adsorption process is best described by pseudo-first-order kinetics. The adsorption data were fitted to linearly transformed Freundlich isotherm with R^2 (correlation coefficient) 0.999. Values of Freundlich parameters n and K_f have been found to be 1.642 and 14.253, respectively. These results indicate that ash of *Chenopodium album* can be used as an effective and low-cost adsorbent for the treatment of wastewaters contaminated with organic dye crystal violet.

Keywords: Crystal Violet; *Chenopodium album*; Adsorption; Dye removal; SEM; Isotherm

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