

**APPLICATION FOR FINANCIAL ASSISTANCE FOR
“MINOR RESEARCH PROJECT”**

: SUBMITTED TO:

**The Secretary,
COLLEGE OF COMPUTER SCIENCE AND INFORMATION
TECHNOLOGY (COCSIT) LATUR**

: Submitted Through:

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: Principal Investigator:

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Jan 2022

Proposal for Minor Research Project

Part-A

1. Broad Subject : **“Logo Based Document Image Verification System”**
2. Area of Specialization : **Computer Science**
3. Duration : **1 Years**
4. Principal Investigator :
 - i) Name : **Dr. Vaijinath Vishwanath Bhosle**
 - i) Sex : **Male**
 - iii) Date of Birth : **10-01-1980**
 - iv) Qualification : **M.Sc. (CM), Ph.D. (CS)**
 - v) Designation : **Assistant Professor in Computer Science**
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- Address (Residence) : **Dr. Vaijinath Vishwanath Bhosle
Raje Shivaji, Nagar Pakarsangavi
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- 5) Name of the Institution
Where the Project will be
Undertaken:
 - a) Department: : **Department of Comp Science, College of
Computer Science and Information Technology,
COCSIT Campus, Ambajogai Road,
Latur – 413 531 (M.S.)**
 - b) College/University : **Swami Ramanand Teerth Marathwada**

- 6) Whether the College/University : **Yes**
Is approved under section 2(f) *please see 'Appendix- III'*
And 12(B) of UGC Act?
- 7) Teaching and Research Experience
of the Principal Investigator :
- a) Teaching Experience : **U.G. Courses : 14 Years**
: **P.G. Courses : 14 Years**
- b) Research Experience : 6 years
- c) Publication :
- Paper published**
Accepted : **06 5 in UGC referred International Journals**
and 1 in National Level Conference
- Communicated : ----
- Books Published**
Accepted : ----
Communicated : ----

PART – B

Proposed Research Work

8)

I) Project title:

Logo Based Document Image Verification System

II. Introduction:

Document verification is very important task in day to day life in every field. Because documents are the real evidence for anything like your education, your experience, passing Cheque in Bank, any deal with the company etc. As per concern with this document verification by human being it is quite tedious task. Human or peoples have to take care of some things which are mentioned in 1.7. It is possible to verify & analyze the documents by human being if these are in small

quantity. But some organization or company demands to verify the thousands of documents on daily basis. In that case it is simply impossible to take this routine task by human being. Some of the companies appoint a person for document verification, that person will verify the documents using some parameters like paper quality, logo etc. he or she make a call to the concern institution for verification of document of applied candidate. Again it is difficult to analyze the thousands of documents within less time. Considering this problem proposed research works on the element of document verification.

a) Origin of the research problem

Automatic Logo Based Document verification plays an important role in human computer interfacing. It is very difficult to find out proper document from folder. It is very difficult to clerk to find out the particular document from collection of document. Our countries have launched digital India for connecting of rural area with high speed internet for the paper less work. But putting the record of each and every letter, and searching the letter from electronic devices is very tedious task. For that purpose we have work on automatic logo based document verification and classification. It is easy way for searching the particular document.

b) Interdisciplinary relevance

From the ancient era humans fascinate to use a specific symbol to represent there group, type of work or the kingdom they belongs. In such a way now a days any business, Organization, Educational Institution, Trust, etc. they are having their unique identity. This is represented in the form of LOGO. Logo is the symbolic representation of type of work which is performed but a particular organization. In business it is related to product. Most of the products are recognized by their brand logo. This logo is important at various national and international events. Like Cricket, Football, Kabbadi, Hockey matches, or athletic. Most of the company spends millions of dollars to promote their brand, product, ideas and services. In world there are huge numbers of logos. These logos are registered towards the state government. Detection of Logo is a current issue among the enterprises, Organization, Institutions. Recently Logo detection & recognition attracted the attention of pattern recognition. Different Computer vision techniques and pattern recognition techniques are applied on logo detection & recognition. In document classification LOGO has been used as a key factor. Using the logo real source of document can be identified & it will be used in document classification. Logos are two dimensional shapes with various complexity and diverse structures which may have combination of textual part, graphical part and textual-

graphical part. Basically there are three types of logo depending upon appearance and context present in logo.

c. Review of Literature & Development in the Subject

Review of Literature and development in the subject is related to this study categorized into Logo Based document verification.

INTRODUCTION

This chapter focuses on the different automatic logo detection techniques which are used from last 40 years ago. Logo detection is used for document verification purpose in different offices. Document verification and classification is very difficult task for Human being. Logo detection plays the vital role while performing the automatic document verification system.

The document verification is very important in government offices, colleges, institutes, banking. There are multiple parameters used for verification such as logo, signature, stamp, refno, date, name etc. In this research we have used logo for document verification. Generally logo detection is used in various areas such as car brand detection, advertising detection, document retrieval, road sign detection. In our research work we have use logo based document verification in which we have detected the logo from document image.

REVIEW OF AUTOMATIC LOGO SEGMENTATION

Fanman Meng Fellow, IEEE (2013) is worked on different Logo based document verification approaches, those are as below.

LOGO DETECTION:

Logo detection is the goal of research in this paper. They uses training image for each logo in which there are three steps for logo detection. In first step as we observed, Iij is matched with training image by using SIFT Match Algorithm. In the second step seating sliding windows and extract best window as a result in the final step.

OBJECT SEGMENTATION:

After extracting logo boundary, the images are converted into two parts outside boundary and inside boundary. They called it region R_0 and R_i it is defined as background region and foreground and then object is extracted by graph-cuts algorithm [1].

Fanman Meng, Hongliang Li, Guanghui Liu (2013) in their research entitled Segmenting specific object based on logo detection, they worked by SIFT algorithm for locate the logo then they used boundary for extract the logo by location. They used Markov random for segment the logo. The database is collected by using Google and Flickart [2].

Qiting Ye, Zhao Luo, Xiaobing Xiao, Shiming Ge (2017) in their research paper entitled GeLogo: Detecting TV logos from Web-Scale Videos, they worked on to detect TV logo from video frames

they provide “GeLoGo” for web-scale video modules. First extract number of key frame from video for segmentation. They have used some pre-defined logo detectors. They used spatial verification module to identify the logo from videos. They used 10,000 video frames in 32 classes for experiment it gives 99.1% accuracy by CNN classifiers[3].

S.Balan, Dr.P.Ponmuthuramalingam (2016) in their research paper entitled Automatic Web Page Logo Detection; they worked on the study of logo matching, detection, extraction from document images. They used semantic relevance feedback low level features from document images. Then developed software for color, semantic and shape based logo retrieval. They have automatically detected and extracted the logo from document images [4].

d) International/ National status.

International Status:

This research is focused on only segmentation and classification of document with organization wise. In future work different parameter are used to document authentication such as refno, name, date, signature and logo for checking originality of document using OCR and auto crop technique. Next step up of present study is to extend this tool to implement its application in access confidential document like stamp papers, farmer valued document, government certificates, car brand detection, TV advertising, Road Sign Detection etc.

National Status:

National status of the study will also be more impactful because most document verification system is very important in multinational company and colleges. Through this scheme they can use more users friendly, logo based verification

e) Significance of the study.

In this study verification of the document is necessary part of human being while working in different areas. The manually document verification is very tedious job in various government office, organization and colleges. Know days government offices are going to digitalize mention the record in digital form, Sort-out the document from different devise it is very default for human being. So this system can sort the document with organization wise and put it into different folder.

III. Objectives

There are many technique is used for document verification and classification. The main purpose of research work is study of predefined technique and suggests a new one. This is helpful for document verification and classification. The manual document verification is very tedious and routine task. The objective of the research work is to develop a system which automatically

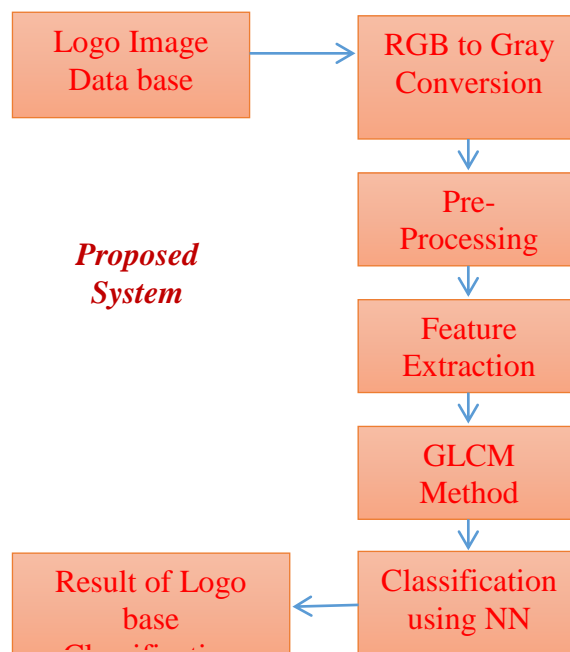
recognize the document and classify the document desirable. Document verification is very wide area of research work. This task is covered following aspects.

- To study predefined techniques for document verification.
- To introduce different feature extraction techniques for segmentation, document verification and classification.
- To compute the verification or classification rate using Neural Network tool.
- To compare these feature extraction methods for better result.

IV. Methodology:

Our proposed Logo Based Document Image Verification System performs following steps:

- Input gray scale image of logo from the database
- Perform pre-processing on the input image like resizing and smoothing
- Segment the image to get suspected area
- Extract features of the suspected area
- Classification using Fuzzy Neural Classifier



V. Year-wise Plan of work and targets to be achieved:

Tentative phase wise plan of proposed study we have designed as per the convenience of the study.

Phase 1:

1. Study/review various types of logo based document verification for degree certificate.
2. Analyzing the different method for document verification.

Phase 2:

1. Designing and developing a module of various types of images such as binary, gray, and color.
2. Perform segmentation, feature extraction using different method.

Phase 3:

1. Comparing the developing scheme with existing scheme and analyze the performance and effectiveness of the scheme.
2. Improving the quality of final image by applying some error diffusion technique.
3. Find the result by using GLCM Technique

Phase 4:

1. To contribute the commendation and assumption for the future development
2. Report Writing.



VI. References

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3. Qiting Ye, Zhao Luo, Xiaobing Xiao, Shiming Ge, “Gelogo: Detecting TV Logos From Web-Scale Videos” IEEE Third International Conference On Multimedia Big Data 978-1-5090-6549-3/17 2017.
4. S.Balan, Dr.P.Ponmuthuramalingam, “Automatic Web Page Logo Detection” International Conference On Signal Processing, Communication, Power And Embedded System (SCOPE)-2016.
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13. Sung Ju Hwang, Student Member, IEEE, and Kristen Grauman, Member, IEEE, Reading between the Lines: Object Localization Using Implicit Cues from Image Tags, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 34, No. 6, June 2012.
14. Mohamed Ben Salah, Ismail Ben Ayed, Member, IEEE, and Amar Mitiche, Member, IEEE Computer Society, Active Curve Recovery of Region Boundary Patterns, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 34, No. 5, May 2012.
15. Ms. Girja Sahu, Mr. Lalitkumar P. Bhaiya, Classification of MRI Brain images using GLCM, Neural Network, Fuzzy Logic & Genetic Algorithm, International Journal on Recent and Innovation Trends in Computing and Communication, Volume: 3 Issue: 6, ISSN: 2321-8169, 3498 – 3504. June 2015.

9. Financial Assistance Required

Sr No	Item	Estimated Expenditure
1	Books	Rs. 10000/-
2	Equipments	Rs. 10000/-
3	Field Work and Travel	Rs. 30,000/-
4	Chemicals and glassware	-----
5	Contingency	Rs. 10,000/-
6	Hiring Services	
Total		Rs. 60000/-

10. Whether the teacher has received support for the research project from the UGC under Major, Minor, and scheme of support for research or from any agency? If so, please indicate:

----- Yes -----

- i. Name of the agency from which the assistance was approved

College

ii. Sanction letter No. and date under which the assistance was approved

iii.

iv. Amount approved and utilized

60,000

v. Title of the project for which assistance was approved

“Logo Based Document Image Verification System”

vi. In case the project was completed, whether the work on the project has been published

No

vii. If the candidate was working for the doctoral degree, whether the thesis was submitted and accepted by the University for the award of degree.

No

(A summary of the report/thesis in about 1,000 words may please be attached with the application)

viii. If the project has not been completed, please state the reasons

Not Applicable

11. (a) Details of the project/scheme completed or ongoing with the P.I

(b) Institutional and Departmental facilities available for the proposed work:

----- Yes -----

Equipments:

Our Institution is Research Center in Computer Science and Biotechnology. So, basic environment and facilities like computer systems, Wi-Fi, internet connection etc. is available in our institution for research development.



Other Infrastructural Facilities:

1. Library
2. Computer Systems(P4)
3. Programming language C
4. Broad band Internet Connection
5. Hardware toolkit for embedded system.
6. Fingered print scanner
7. Journals
8. Magazines
9. Research Review Papers



Certificate

To certify that:

- a) I shall abide by the rules governing the scheme in case assistance is provided to me from the College for the above project.
- b) I shall complete the project within the stipulated period. If I fail to do so and if the College is not satisfied with the progress of the research project, the Commission may terminate the project immediately and ask for the refund of the amount received by me/us.
- c) The above research Project is not funded by any other agency.

Place : Latur

Date : 05/01/2022



(Dr. V. V. Bhosle)
Principal Investigator



(Dr. N. S. Zulpe)
Principal
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