iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VI **Month of publication:** June 2019

DOI: http://doi.org/10.22214/ijraset.2019.6095

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VI, June 2019- Available at www.ijraset.com

Content Based Image Retrieval System Using Machine Learning

Nikhil Dalvi[1], Manish Khapre[2], Ankur Repal[3], Shubham Kadam[4], Prof. Yogesh Thorat[5]
[1, 2, 3, 4]*Students,* [5]*Professor of Department of Computer Engineering, Dr. D. Y. Patil School of Engineering, Pune, Savitribai Phule Pune University, Pune*

Abstract: ***In recent times throughout digitization technology is used. Textual content recognition generally abbreviated to OCR, includes a computer system designed to translate pics of typewritten text (usually captured by using a scanner) into gadget editable textual content or to translate pics of characters into a widespread encoding scheme representing them. OCR started out as a discipline of studies in synthetic intelligence and computational vision. Textual content popularity used in legitimate project wherein the big facts must kind like submit offices, banks, schools etc. In real existence packages in which we need to acquire a few information from text written picture. Human beings want to experiment in a file and have the text of that record available in a .txt or .docx format and additionally desire to translate the document in their very own designated Indian language. Optical person popularity (OCR) is technique by which text characters can be entered to a laptop by imparting the computer with an image. The computer makes use of an OCR Engine--a laptop application with the particular feature of making a bet which letter (recognizable to a computer) a picture (recognizable to a human) represents.***

Keywords*:* ***Optical Character Recognition (OCR], image retrieval, OCR engine, Recognition (text recognition), artificial intelligence (AI), Machine Learning (ML) and computational vision.***

I. INTRODUCTION

Human beings may be travelling to one-of-a-type locations for unique motives. At that point it discovers the difficult conversation with the ones close by peoples. Due to the truth traveller people don't understand approximately this language that's utilized in that region. They do not understand the words which are written on board. In order to that factor they've wanted character recognition and character translation inside the one of a kind picture. Our project might be the answer of that hassle, there can be a photograph which can be resized in digital digicam and apprehend over the image and then it translates the text into individual's understandable language. So the people can't be growing a few different hassles for the communication or study a few other region statistics.

Text recognition utilized in professional challenge in which the large facts wish to kind like post workplaces, banks, schools and so forth. In real lifestyles programs wherein we need to gather a few records from text written image human beings want to test in a file and feature the textual content of that file available in a .txt or .docx layout.

Device getting to know is a subfield of artificial intelligence (AI)[6]. The intention of device learning typically is to apprehend the structure of statistics and suit that information into fashions that may be understood and used by human beings. Even though machine gaining knowledge of is a place inside computer science, it differs from traditional computational approaches. In traditional computing, algorithms are sets of explicitly programmed instructions utilized by computer systems to calculate or hassle resolve. Device getting to know algorithms rather allow for laptop systems to educate on facts inputs and use statistical analysis as a manner to output values that fall inside a particular variety because of this, device studying helps computer systems in constructing fashions from sample records as a manner to automate selection-making tactics primarily based on information inputs.

Any generation consumer nowadays has benefitted from gadget mastering. Facial popularity technology permits social media systems to help customers tag and share pics of pals. Optical Character Recognition0 (OCR) converts pictures of textual content into movable kind device engines, powered through device gaining knowledge of advocate what movies or television indicates to observe subsequent based totally on customer alternatives. Self-riding automobiles that depend on machine getting to know to navigate may additionally fast be available to consumers.

II. PROBLEM STATEMENT

In past days, there is lot of problem regarding image retrieval Character retrieval used in official task in which the large data have to type like post offices, banks, colleges etc., in real life applications where we want to collect some information from text written image. People wish to scan in a document and have the text of that document available in a .txt or .docx format. To overcome this problem, we are going to implement a content-based image Character Recognition.

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VI, June 2019- Available at www.ijraset.com

III.RELATED WORK

Device learning is a subfield of synthetic intelligence (AI)[6]. The purpose of gadget studying generally is to recognize the shape of facts and fit that record into fashions that can be understood and used by human beings.

Despite the fact that machine studying is a discipline inside laptop science, it differs from conventional computational methods. In traditional computing, algorithms are units of explicitly programmed commands used by computer systems to calculate or trouble remedy system learning algorithms rather permit for computers to teach on facts inputs and use statistical evaluation with a purpose to output values that fall inside a selected variety because of this, device studying allows computer systems in building fashions from pattern facts with the intention to automate selection-making strategies based totally on information inputs.

Any generation person these days has benefitted from device mastering. Facial recognition technology lets in social media systems to help customers tag and percentage pix of pals. Optical text popularity (OCR) technology converts photographs of textual content into movable kind.

Recommendation engines, powered via device getting to know, suggest what films or television suggests observe subsequent based totally on person preferences. Self-riding cars that rely on system studying to navigate can also soon be available to consumers.

In computer technology, virtual photograph processing is the usage of computer algorithms to carry out picture processing on digital pics. As a subcategory or field of digital sign processing, virtual picture processing has many benefits over analog picture processing. It lets in a far wider range of algorithms to be applied to the input facts and might keep away from issues which include the build-up of noise and sign distortion all through processing. in view that snap shots are defined over dimensions (perhaps extra) virtual picture processing can be modelled in the form of multidimensional structures.

These days all over digitization era is used. Optical content recognition normally abbreviated to OCR, entails a computer system designed to translate photographs of typewritten text (usually captured via a scanner) into machine editable text or to translate pics of characters right into a general encoding scheme representing them. OCR is commenced as a discipline of studies in artificial intelligence and computational imaginative and prescient. Textual content popularity utilized in official project in which the huge data have to kind like publish offices, banks, colleges etc., in real life applications where we need to collect some statistics from text written photograph. people wish to scan in a document and have the textual content of that document to be had in a .txt or .docx format and also wish to translate the report of their own distinct Indian language.

IV.SYSTEM REQUIREMENT ANALYSIS

1) *Python[6]:* Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, Python's design philosophy emphasizes code readability with its notable use of significant whitespace. Its language constructs and object-oriented approach aims to help programmers write clear, logical code for small and large-scale projects. Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including procedural, object-oriented, and functional programming. Python is often described as a "batteries included" language due to its comprehensive standard library. Python was conceived in the late 1980s as a successor to the ABC language. Python 2.0, released 2000, introduced features like list comprehensions and a garbage collection system capable of collecting reference cycles. Python 3.0, released 2008, was a major revision of the language that is not completely backward-compatible, and much Python 2 code does not run unmodified on Python 3. Due to concern about the amount of code written for Python 2, support for Python 2.7 (the last release in the 2.x series) was extended to 2020. Language developer Guido van Rossum shouldered sole responsibility for the project until July 2018 but now shares his leadership as a member of a five-person steering council. Python interpreters are available for many operating systems. A global community of programmers develops and maintains CPython, an open source reference implementation. A non-profit organization, the Python Software Foundation, manages and directs resources for Python and CPython development.
2) *Image Processing[6]:* In computer science, image processing is the use of computer algorithms to perform image processing on digital images. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Since images are defined over two dimensions (perhaps more) digital image processing may be modeled in the form of multidimensional systems.

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VI, June 2019- Available at www.ijraset.com

V. SYSTEM ARCHITECTURE

A method is proposed for retrieval based on combination of colour, texture and part functions of photograph. Performance assessment of studied photo retrieval strategies and proposed approach is finished the usage of parameters like Sensitivity, Specificity, Retrieval score and Accuracy. Experimental consequences of overall performance evaluation display that proposed approach outperforms different strategies. The purposed for proposed machine is that the content material based totally for the photo textual content retrieval machine this is the people comprehensible format diverse character can't apprehend the marketed photograph textual content that's why we convert that photo textual content to the retrieval text the usage of the python language.

Device may be taking a stored photograph and then technique on that pics begin from the textual content detection. After the image conversion we are able to manner in this character this is the individual Detection. character Detection is the method that's detects the person over the pics.

Optical individual recognition (OCR)[6] is a procedure with the aid of which textual content characters may be input to a laptop through presenting the computer with a picture. The computer makes use of an OCR Engine--a computer software with the particular feature of creating a wager which letter (recognizable to a laptop) an image (recognizable to a human) represents. Person Segmentation is the approach that's used for the divide the text in a couple of paperwork. This method is likewise used for the individual inside the wide variety of multiple sub parts for the translation.

The basic storage architecture of the system is shown in fig.1.

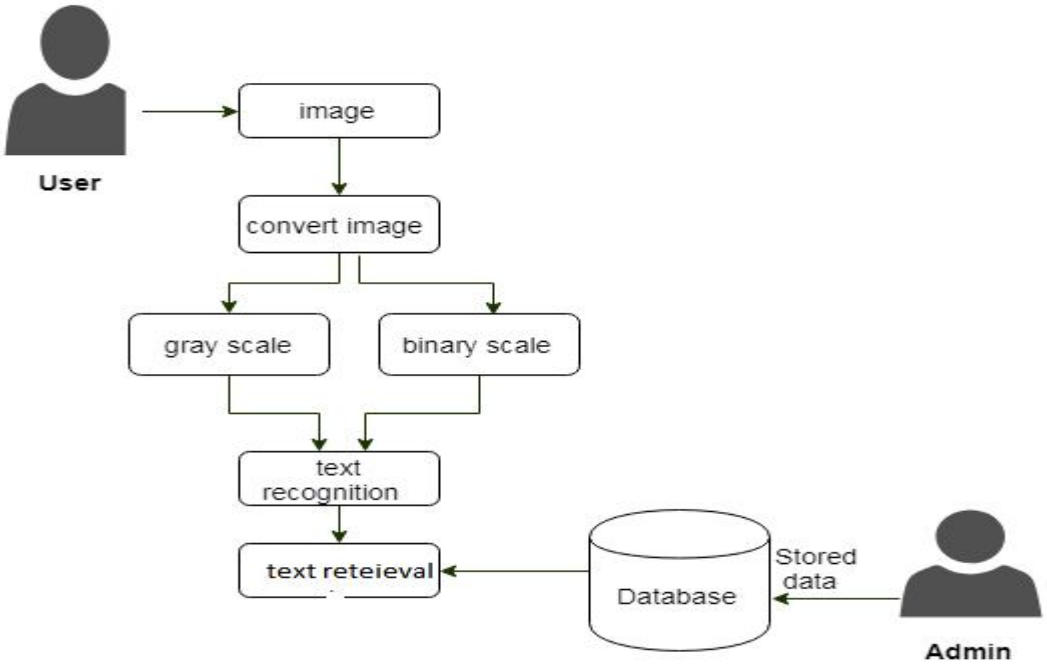


Fig.1 System Architecture

VI. TECHNOLOGIES USED

Machine Learning[6]: Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves. The process of learning begins with observations or data, such as examples, direct experience, or instruction, in order to look for patterns in data and make better decisions in the future based on the examples that we provide. The primary aim is to allow the computers learn automatically without human intervention or assistance and adjust actions accordingly.

Tesseract OCR[6]: Tesseract is an Optical Character Recognition Engine released under Apache Licence. It is developed Hewlett Packard Lab in England. It is available for various Operating Systems like Windows, MAC OS and Linux. It supports various image formats like .jpg, .png, etc. Tesseract has the ability to translate over 140 languages from the world including some major Indian languages like Hindi, Marathi, Gujarati, Tamil, etc.

Algorithm used by Tesseract OCR is K Nearest Neighbour (KNN) algorithm. Tesseract also uses adaptive recognition for more accuracy.

©IJRASET: All Rights are Reserved

VII. RESULT

In this project we have given an input image. Before giving the input image, that image is made noise free by using several data cleansing techniques. After the image is inputted, language is selected in which the text from the image is to be translated. After selecting the language, the input image is processed by machine and output is obtained. The output is the original text from the image and the translated text. Both the texts are editable.

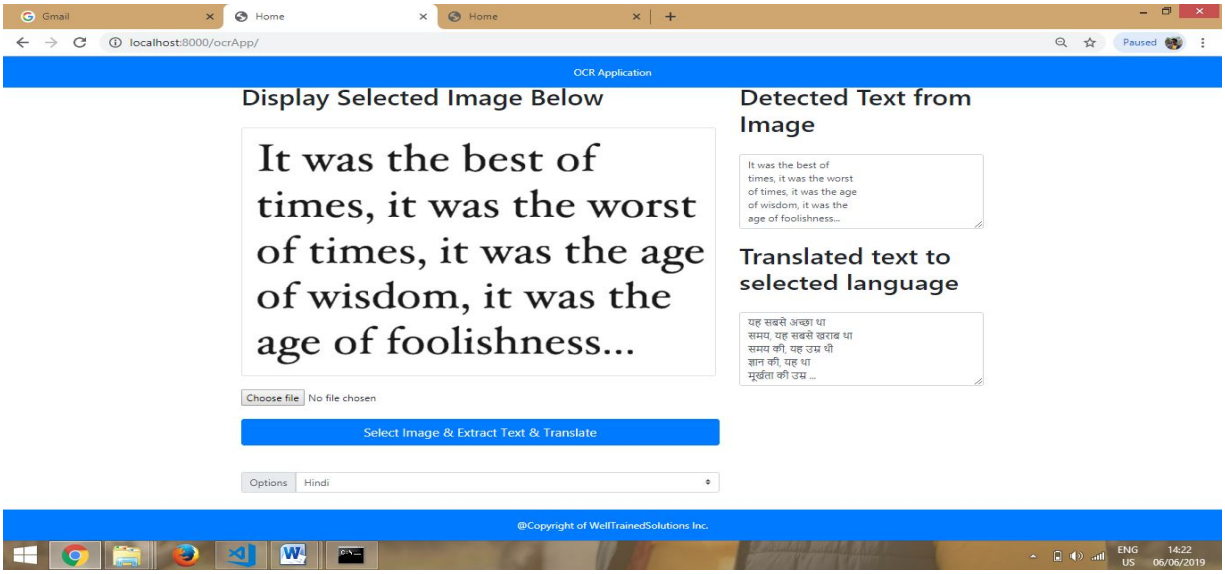


Fig.2 Result of the system developed.

VIII. CONCLUSION

Although tool studying is a place internal computer generation, it differs from conventional computational processes. In conventional computing, algorithms are gadgets of explicitly programmed commands used by computer systems to calculate or problem resolve. Machine reading algorithms alternatively allow for computers to teach on facts inputs and use statistical analysis so that it will output values that fall inner a specific variety. Because of this, tool studying helps computer systems in constructing fashions from sample statistics so you can automate selection-making strategies based mostly on statistics inputs. Any generation text in recent times has benefitted from device learning. Facial recognition technology lets in social media systems to help clients tag and share photos of friends. Optical person recognition (OCR) technology converts pictures of text into movable kind. Device engines, powered by means of device learning, propose what films or tv shows indicates looking at next primarily based on individual options. Self-using motors that depend upon tool learning to navigate may soon be to be had to customers.

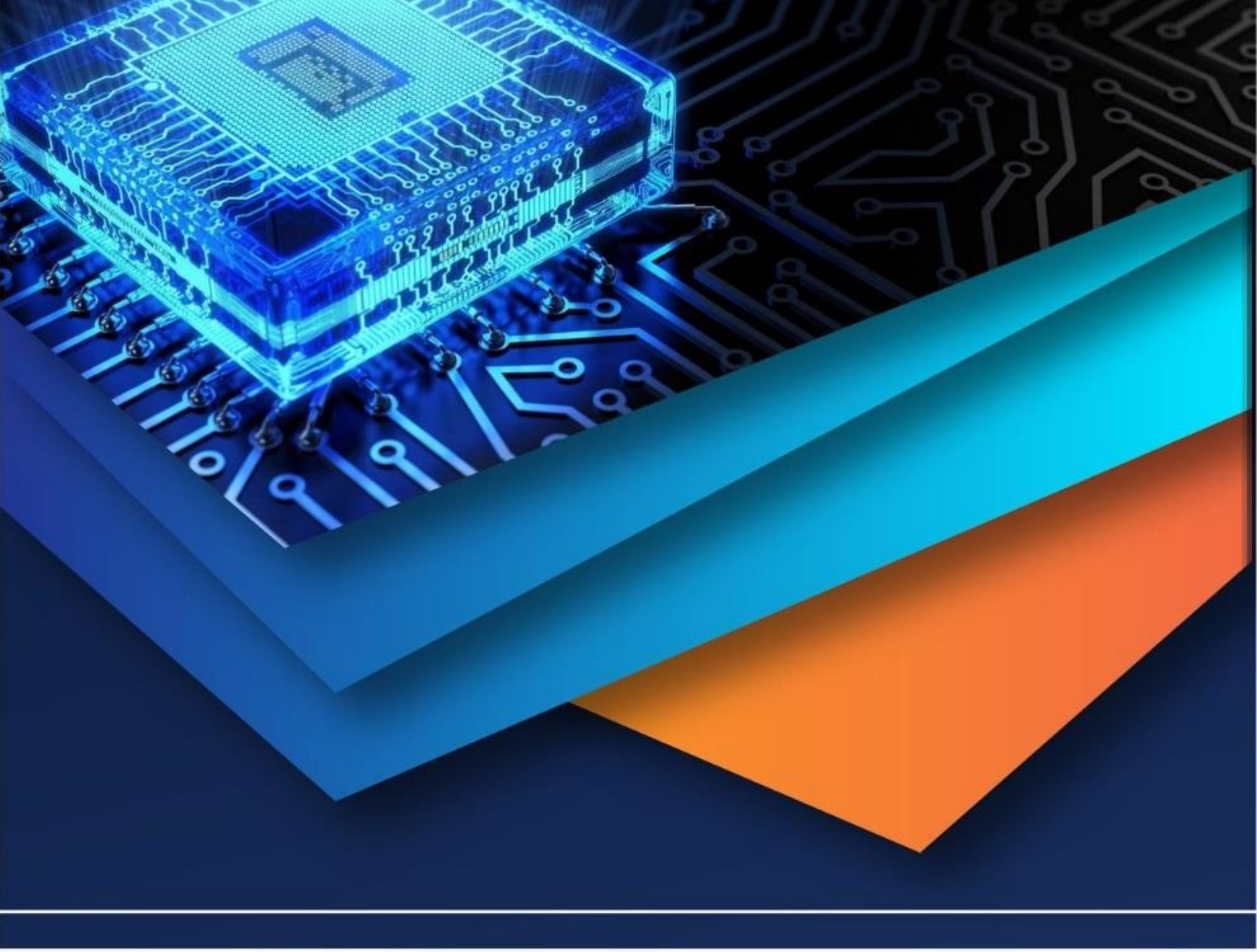
IX. ACKNOWLEDEGMENT

I would prefer to give thanks the researchers likewise publishers for creating their resources available. I'm conjointly grateful to guide, reviewer for their valuable suggestions and also thank the college authorities for providing the required infrastructure and support.

REFERENCES

[1] A. Kannan, Dr. V. Mohan, Dr. N. Anbazhagan, "Image Clustering and Retrieval using Image Mining Techniques" 2010 IEEE International Conference on Computational Intelligence and Computing Research.
[2] Raniah A. Alghamdi, Mounira Taileb, Mohammad Ameen, "A New Multimodal Fusion Method Based on Association Rules Mining for Image Retrieval". 17th IEEE Mediterranean Electro Technical Conference, Beirut, Lebanon, 13-16 April 2014.
[3] Xin Zhou, Adrien Depeursinge, Henning Muller, "Information Fusion for Combining Visual and Textual Image Retrieval". 2010 International Conference on Pattern Recognition.
[4] Pradeep K. Atrey, M. Anwar Hossain, "Multimodal fusion for multimedia analysis: a survey". Multimedia Systems (2010) 16:345–379
[5] Herbert Bay, Tinne Tuytelaars, and Luc Van Gool, "SURF: Speeded Up Robust Features". The ACM SIGACCESS International Conference on Computers and Accessibility (ASSETS'10), 2010.
[6] Nikhil Dalvi, Manish Khapre, Ankur Repal, Shubham Kadam, Yogesh Thorat, "A survey on Image retrieval using Machine Learning". Savitribai Phule Pune University, Pune, India, November 2018.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)