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A SURVEY BASED ON CONTENT RETRIEVAL ON IMAGE MATCHING IN SMART TUTOR APPLICATION

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Abstract: **The advancement in mobile technology has opened the windows to the android application. The web applications are slowly vanishing and the mobile applications are emerging today. "Smart tutor" the android application replaces manual database handling of students. This multipurpose functions considers the users as faculties or tutors of an institution. The details can be reviewed and the updations can be made whenever needed. Searching of any student details need not to be manual anymore. The major module is that, on image matching the contents of the students are retrieved. By using this application the complexity of faculties have been greatly reduced. Thus the smart tutor application provides greater flexibility and user pleasant interface.**

Keywords: **mobile technology, android application, students, institution.**

I. INTRODUCTION

"Smart tutor" the android application, handles the database of students automatically. The user of this application is tutor.It is a good platform to manage the details of all students. Achievements and updations about students and tutors can be done then and there by the tutors. Tutors need to verify the proofs and enter the details at the beginning which will be stored in the database. Whenever needed the details can be reviewed and the updations can be made. Searching of any student details need not to be manual anymore. Searching can be automated by using image matching technique. Since it is user friendly the complexity can be greatly reduced.

II. EXISTING ALGORITHMS

Algorithm 1: Retrieving image based on its contents using features extraction:

As the technology grows, there is a huge need in developing new techniques to retreive images rather than using the traditional methods. Since the size of the database and their usage increases there is a need for content based image retrieval(CBIR) technique. By using this technique, special features are retrieved from the source image and represented as vector. After the comparison of extracted features with the images in the database, related images are displayed. This saves time and searching is made efficiently.

Algorithm 2: Image retrieval technique using wavelets and other basic features:

To obtain the sub regions of image, methods such as color, shape, texture etc are used. New approach for image retrieval is done based on retrieval methods like color histogram, Match points, Wavelet, using Eigen values. Images from various types of sources are first identified by using edge detection technique .Once the image is detected, then the image is searched in the relevant source, then all related images are displayed.

Algorithm 3: Image retrieval using dominant color and texture features:

Retrieving images based on color features does not provide efficient and efffective results. This algorithm shows that by using dominant color and their texture or the combination of both image could be retireved.

Algorithm 4: Research of image retrieval based on Multi Feature DS:

The above algorithms are based on image retrieval by single features like either color or texture or shape. This algorithm is based on fusion of multi featured image retrieval. Two features play an important role while retrieving images. They are color and texture. The color feature do not show the information about space in the image. Texture gives the information about spaces arranged in the image. By fusing these two features provides better efficient retrieval of images.

Algorithm 5: Image retrieval based on integrating region segmentation and color histogram

As there is a increase in the multimedia technology, it has lead to a growth in CBIR technique. Speed and efficiency are the measuring factors of color histogram. They are used because of their simplicity. In CBIR method the matching of similar objcts is based on color, texture, shape etc.B using the matlab software it is found that the regions found by using histogram has better performance.

Algorithm 6: Improved accuracy of image retrieval by using K-CBIR

Social networking like facebook, whatsapp, twitter, instagram and flicker allows its users to upload and download images.E-commerce websites such as flipkart, amazon, e-bay etc., also supports the image contents. These images from social media contains many tags, comments etc., The retrieval of images from such websites are really challenging. This algorithm is based on integrated algorithm to retrieve images. That is two methods are used to retrieve images. They are link based and content based image retrieval. By this method the accuracy is greatly improved.

III. PROPOSED ALGORITHM

In the proposed system, the application is divided into 4 major modules.

Module 1

In this module, the first process is login. In the login process the user can input his unique phone number and password if he have already got an account, else the user should sign up by inputting his name, password, email id, mobile number, branch and batch. Thus the user can login to his account with his allocated phone number and password.

This feature will give the user a secure and simple login screen. The login is enabled for the tutor's use only and is not accessible to any other than the tutor. It has only limited access to the members in the institution. Any student cannot enter the routine settings and hamper the system. It will consist of two basic fields, phone number and Password. A message is displayed if any error occured during entering the details. There is a button submit for submitting the entered phone number and password. On successful entry the user will be provided with the tutor control page to control all the settings of the database and on unsuccessful login the user is directed with an error message. The most important function of the login page is to provide access only to the registered tutors.

Module 2

This module contains all the data of students and teachers. There will be a option to search the details of students by name or register number or department or photo etc., On searching we will get the basic details of students and their academic details such as marks(marks will be manually added by respective tutors).

Module 3

The signed in users have access to special features in the application .Using this the details and accomplishments of tutors can also be viewed. Students details also include accomplishments, prizes and awards. Tutor needs to verify the certificates and add the credits of each students at anytime.

Module 4

This module is based on the content retrieval on giving an image through image matching technique. When an image is given as input it should display the details of all the students which matches that image. It must also display the academic and other details about the student. This could be done by **image bit matching algorithm.** The proposed algorithm is that the image which is given as input should be converted into bits and also the image which is stored in the database also should be converted into bits. For example if the image stored in the database is 1000 Mb and if the image given as input is 500 Mb, then half the matching of bits will retrieve the correct information of the students.

IV. PERFORMANCE ANALYSIS

The below table shows the performance based on color histogram and content based image retrieval system.

S. No	Color histogram based		Content based image retrieval	
	recall	precision	recall	precision
1	0.63	0.96	0.99	0.98
2	0.6	1	0.895	1
3	0.42	0.41	0.82	0.65
4	0.41	1	0.89	1
5	0.46	0.77	0.84	1

In bit by bit image matching technique only half the comparison is made to fetch the image. The details can be fetched by half matching. Hence the performance is highly enhanced and also the memory space required for computation is less.

V. CONCLUSION

The era of mobile technology opens the windows to the android app . Hence, the websites are vanishing and the smart phones are emerging .It is time to change from conventional websites to apps which has become the part of our daily routine. “smart tutor” the android application software which replaces manual database handling of students and it gives more comfort and a better user interface.

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