Cartoonify Image Using Gan

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Abstract:- **Cartoonization of images and videos could be used in various different applications, which can be ease in publishing a comic book for a comic, anime, T.V. shows as well as for fun events on social media. This project proposes cartoonization of images and videos through Generative Adversarial Networks (GANs). Thus, an idea to convert real world images and videos into cartoonized one. With cartoonization, we also proposes to make a complete Image-hub for the user with features including upscaling, denoising and editing filters to the input images through the Python OpenCV library. The project also includes video to GIF conversion to use in various social media platforms to achieve cartoon filters. Thus, the project is built to be user friendly and leveraging various other features rather than only cartoonization of images and videos.**

I.   INTRODUCTION

Cartoon is an image or series of images that are formed using a sequence of illustrations for animations. These cartoons may represent realistic or non-realistic features. However, cartoons have gained a huge attention especially by the children, teenagers and artists. Due to which there exists many applications where cartoons are used. Some of these applications include cartoon television shows, comic magazines, cartoon-based image filters and animated films. Some of the applications may also contain some real-world scenes. For example, an animated film may contain an image having a city drawn which corresponds to a city that is present in a real world.

II.   EXISTING SYSTEM

In the existing systems, entire process requires a lot of labour skills and is really time consuming especially while working on animated comics or films. Also, the existing computer software's like Corel Draw or Adobe Photoshop are not free to use and also may not be easy for the beginners to understand and achieve the required quality. So, there is a requirement of technology that can help transform a real-world based photo or video into an animated image or video respectively. This technology when integrated with other software's can help the user to convert their real-world photos or videos into cartoon versions as and when required or can also act as an image filter which is also freely available and easy to use.

III.   PROPOSED SYSTEM

Keeping the existing system in mind, cartoonization of images and videos through Generative Adversarial Networks (GANs). Thus, an idea to convert real world images and videos into cartoonized one. With cartoonization, we also propose to make a complete Image-hub for the user with features including upscaling, denoising and editing filters to the input images through the Python OpenCV library. The project also includes video to GIF conversion to use in various social media platforms to achieve cartoon filters.

we propose a Generative Adversarial Networks (GANs) based approach along with features like image denoising and image upscaling to convert an image, GIF or video files into their cartoon versions. The image upscaling and denoising is achieved using OpenCV. To train the model, data used are a set of photos and a set of cartoon images. The trained model helps in generating the cartoon images or videos that are not a part of training data.

IV.   EXPERMENTAL TOOLS

> *DJANGO*

Django is a high-level Python web framework that enables rapid development of secure and maintainable websites. Built by experienced developers, Django takes care of much of the hassle of web development.

> *MYSQL*

A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structure is organized into physical files optimized for speed. The logical data model, with objects such as data tables, views, rows, and columns, offers a flexible programming environment.

> *WAMP SERVER*

WampServer refers to a solution stack for the Microsoft Windows operating system, created by Romain Bourdon and consisting of the Apache web server, OpenSSL for SSL support, MySQL database and PHP programming language.
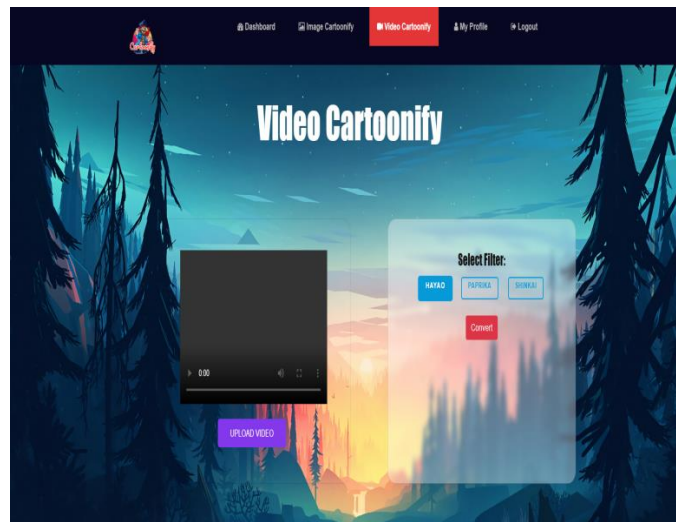
> *VISUAL STUDIO CODE*

Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages and runtimes.

> *RATIONAL ROSE*

The Rational Rose is a visual modelling tool from Rational Software which supports object-oriented modelling and controlled iterative development.
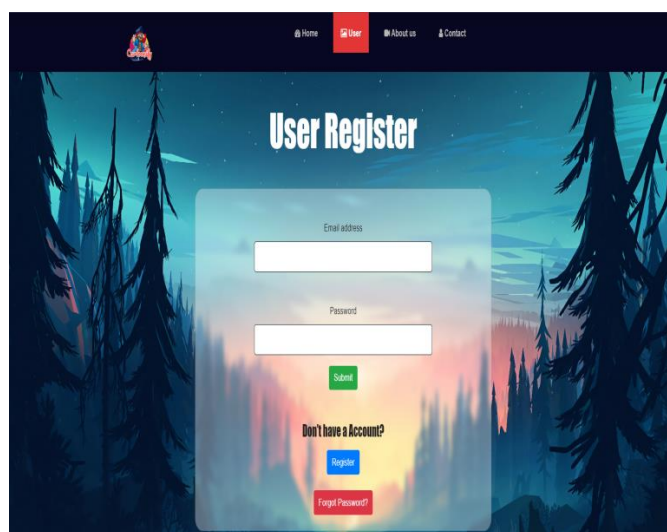
V. OUTPUT

To convert an image to a cartoon, multiple transformations are done. Firstly, an image is converted to a Grayscale image. Yes, similar to the old day's pictures.! Then, the Grayscale image is smoothened, and we try to extract the edges in the image. Finally, we form a colour image and mask it with edges. This creates a beautiful cartoon image with edges and lightened colour of the original image.
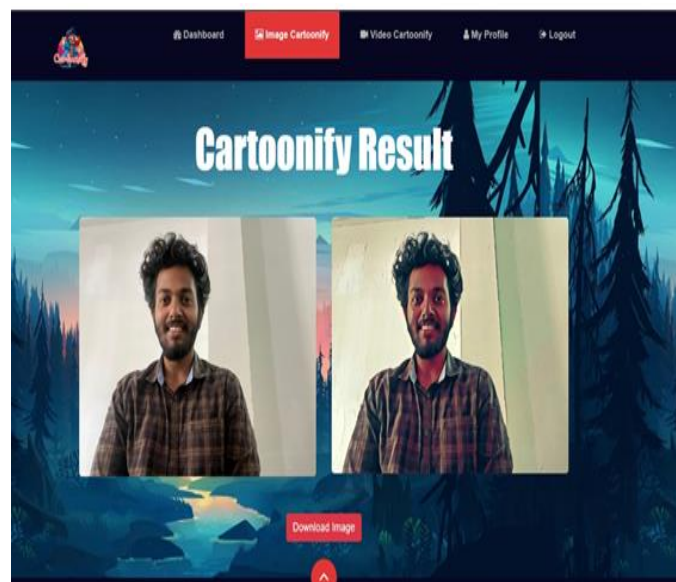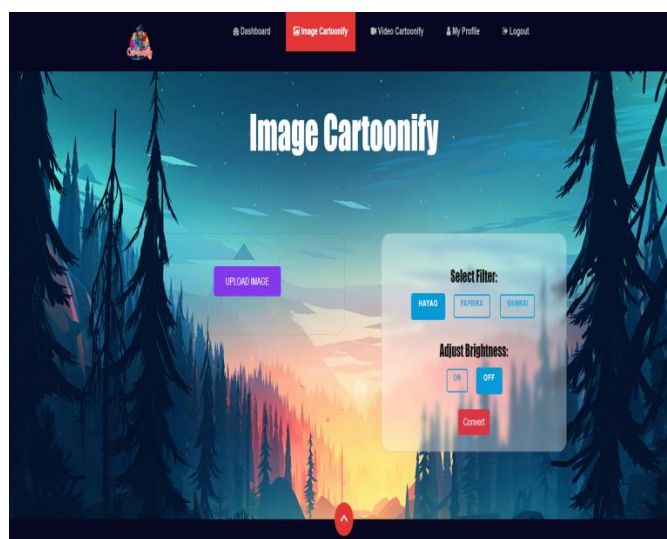

(Fig 1. Login Page)

(Fig 2. Image Cartoonify)

(Fig 3. Video Cartoonify)

(Fig 4. Test Case)

VI. CONCLUSION

We purposed a system that helps in cartoonization of images and videos with the help of Generative Adversarial Models (GANs). To implement this, real-world image files are denoised and then passed through the GAN model which generates the desired cartoonized image. The video is cartoonized by dividing the video into multiple image frames and simultaneously extracting audio from the image file. Hence, the GAN based Cartoonization model helps with less noise and better quality.

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