**Pixel Magic-Image editor**

Image Editor is a software program used to edit or otherwise manipulate an image/picture. Image editors are used widely in present day scenarios not only to make models look better and fixing errors in an image like red-eye removal, noise reduction, selective color changing etc. but also used in technical aspects like Steganography which is the art of encoding a secret message in an image and recognizing all the object in the image by boxing it.

We have included features which can manipulate the brightness, contrast, sharpness, cropping, size reduction, enhancing images and gamma correction of the image. The option of changing the saturation of the image is also included. Steganography using the Writeable Raster algorithm has been implemented in our Pixel Magic that enables a user to send a secret message through an image. The concept of face detection using the algorithm Haar Cascade is also facilitated for the red eye removal that often occurs on the account of reflection of light from the retina of the eye. It also has the availability to change the picture by providing some effects including the implementation of the concept of filter detection. Filters include sepia, sketch, cartoon, grayscale, weirdness, inverted. One of our key aspects include object detection using ORB(Oriented FAST and rotated BRIEF) algorithm, which can recognize the position of all the objects in a given image. We can alter the intensity of red, blue and green channels. All of the components would be implemented using either a seek bar or a button thereby restricting our topic to the concepts provided by java. The user interface would be developed using swings and applets. The major part of our project would include the use of OpenCV. (**OpenCV** (*Open Source Computer Vision*) is a [library of programming functions](https://en.wikipedia.org/wiki/Library_(computing)) mainly aimed at real-time [computer vision](https://en.wikipedia.org/wiki/Computer_vision)- **Image Library**).

Towards the end we would be ready with image editor called Pixel Magic where we would have implemented all of the mentioned features used for enhancement of the image which would not only provide almost all functionalities as the image editor but also be very handy and useful. This application is a cross-platform and function on both Windows and Unix Based systems. It has been built using Java and open source image library Open-CV.

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