Cairo University
Faculty of Engineering
Computer Engineering Department
CMP 3006

Image Processing

FlawFix

Project Proposal

Team no. 4

Team Members:

1.	Somia Saad ElShemy	Sec: 1	9202666
2.	Rawan Ahmed Fouad	Sec: 1	9220302
3.	Ahmed Hamed Gaber	Sec: 1	9220027
4.	Khalid Mahmoud ElGammal	Sec: 1	9220281

Contact Info:

1. somia.elshemy02@eng-st.cu.edu.eg
2. rawan.mohammed03@eng-st.cu.edu.eg
3. ahmed.hamed03@eng-st.cu.edu.eg
4. khalid.elgammal03@eng-st.cu.edu.eg

Project Idea and Need

Over the past couple of decades, image processing technology has advanced impressively, and has become much more convenient and versatile. This has allowed for advancements in other fields and technologies as well, and it's made life easier.

Today, image processing is more in demand than ever. Because everyone takes pictures. Whether it's a portrait of someone or a picture of a landscape or cityscape, pictures are everywhere and everyone wants their pictures to look great. But due to many external and some innate factors, raw pictures are often quite flawed, and people would like it if that was easy to fix. So, we have decided to implement some of the most effective image processing capabilities for editing images and fixing their flaws.

The aim is to provide users with an intuitive image editing platform that fixes the most common issues and defects that affect image quality. The project's capabilities range from simple preprocessing operations like noise reduction and color correction to more complex operations like resolution enhancement and scratch and dust removal.

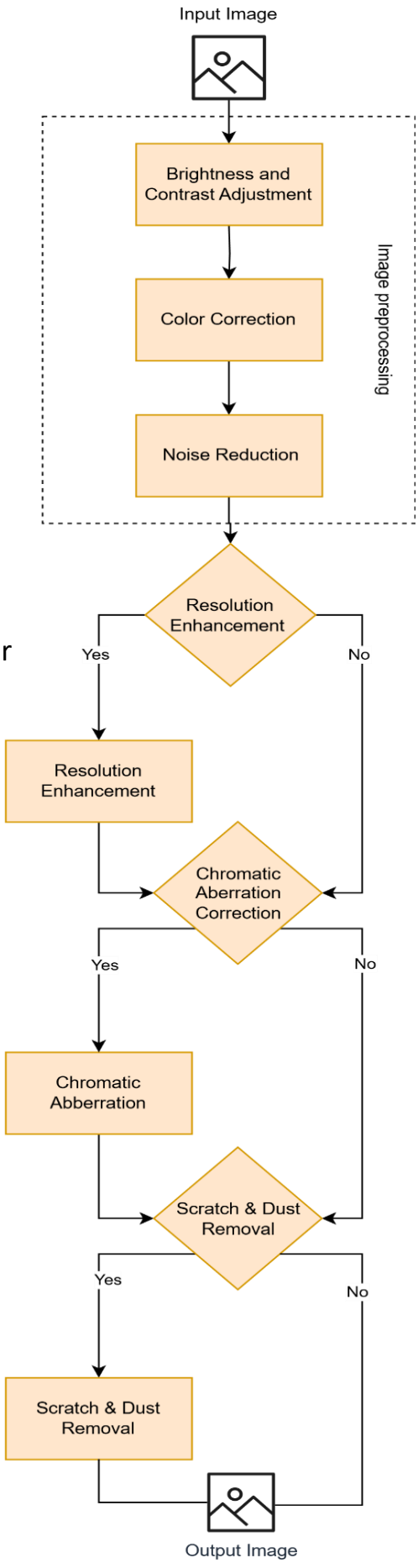
The project will be integrated with a simple desktop GUI, which allows the user to upload an image and choose between the editing options available.

Block Diagram

The user is prompted to upload an image as input, and then choose between the options available for fixes to apply to the image.

A number of preprocessing steps will be automatically performed regardless of the user's choice, as these are necessary for facilitating the functioning of complex operations.

The app then applies each of the operations the user requested and produces the final image as output.



**More features may be added according to need.*

References

1. Color enhancement techniques: link
2. Image resolution enhancement using discrete and stationary wavelet decomposition: link
3. Chromatic aberration correction using cross-channel prior in shearlet domain by CVF: link
4. An approach for scratch removal using image reconstruction: link
5. Underwater image enhancement study by IEEE: link