CLO 2: CONSTRUCT IMAGE PROCESSING ALGORITHMS USING MATLAB AND SIMULINK.

CLO 3: CONSTRUCT SOLUTIONS FOR COMPLEX REAL TIME IMAGE PROCESSING TASKS

Department of Computer Systems Engineering

UNIVERSITY OF ENGINEERING & TECHNOLOGY,

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Digital Image Processing

Assignment # 1

Instructor: Dr. Aftab Khan

- **Attempt all questions.**
- **Mention your roll and registration number otherwise assignment will not be marked.**
- **Do not copy or cheat in any way from your classmates or anyone else.**
- **If you are utilizing any material from the internet, properly reference it using the Numbered Referencing Style.**
- **Plagiarism is strictly discouraged.**
- **Submit Assignments to me in class. Do not upload assignments or projects to the subject group.**

Objective:

A problem frequently encountered in image processing is dealing with variations in lighting conditions. Often, the first step in any image processing algorithm is to adjust the brightness and contrast of the image. But what happens if a scene contains areas of both high contrast and low contrast, and both high brightness and low brightness? In this assignment, you will address this problem.

The image above was taken in the shadow of a building and the not-so-great camera couldn't compensate for the bright sunlight and the dark shadow simultaneously. As a result, the sunlight areas are a glaring white, and the shadow areas are dark and low contrast. Using the image enhancement techniques covered in class, increase the contrast and the brightness of the dark areas, and reduce the brightness of the sunny areas. Your goal is an image which looks like it might be taken at noon on a cloudy day. Make a print out of your enhanced image and submit it along with a lab write up in class on the due date. The write up should describe in detail the technique(s) which you applied. You will be graded in part on the quality of your enhanced image, so do your best! Also please submit all your .m files via email. Email submissions must be received before class on the due date. There should be an executable Matlab script .m which will generate all your results.

<u>Reporting</u>

Submit working demo of your system in class. Written report is required.