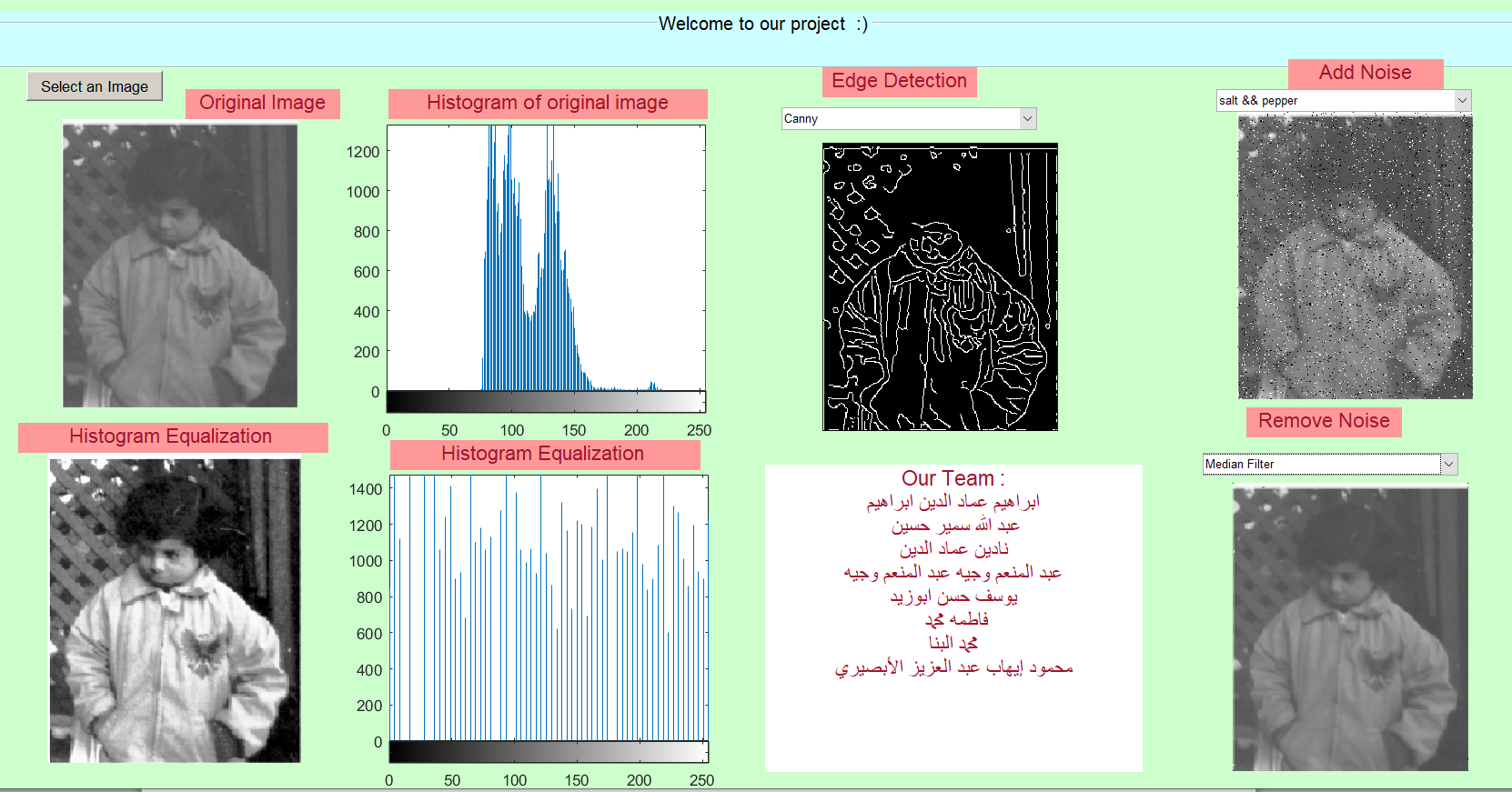
Project Title : Image Segmantaion (number 1,2 )

Team members :

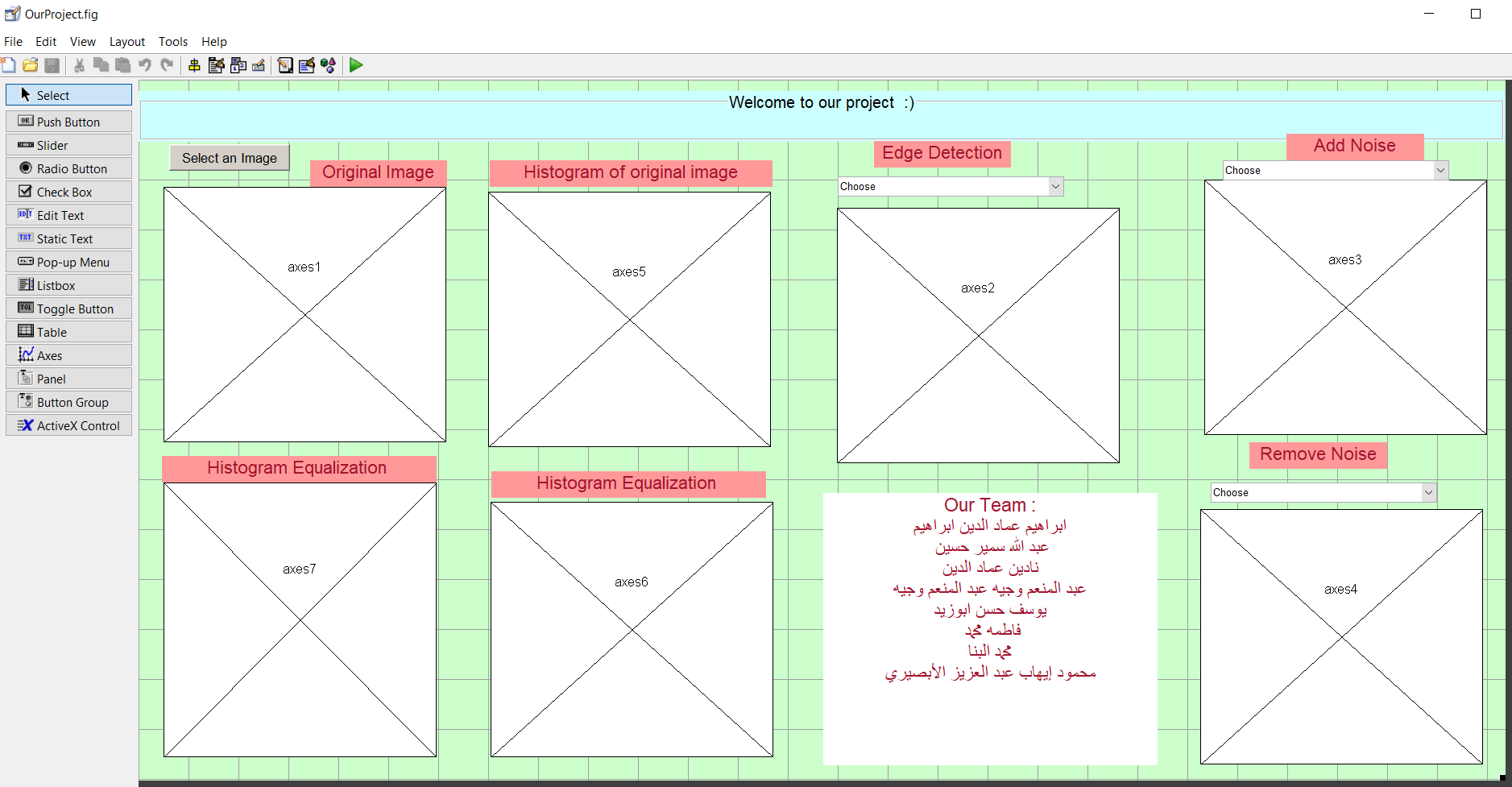
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2. عبد الله سمير حسين
3. عبد المنعم وجيه عبد المنعم
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6. فاطمه محمد
7. محمد نصر البنا
8. يوسف حسن ابوزيد

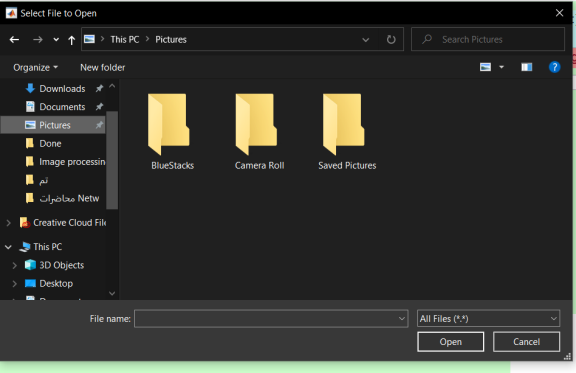
Project description:

GUI :



.Fig file format :



Project Objects :

1. Image selection from disk:

We use ( uigetfile({'\*.\*'})) to get image file name and path

Then we create the full path and store it using:

imageLocation = fullfile(path,file);

Now we can read this image by:

RGB = imread(imageLocation);

Then display this RGB image on axes1

Now we need an Gray scale image to perform Filters on it so we convert the image to gray scale using:

GrayImg = rgb2gray(RGB);

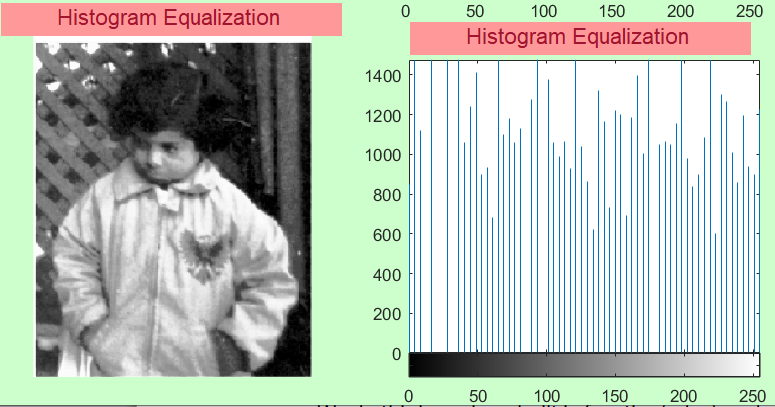
1. We Applied a histogram Equalization on it to enhance the image by using :

enhanced = histeq(GrayImg);

1. We displayed the image histogram and enhanced histogram by using :

imhist(GrayImg);

imhist(enhanced);



1. Now we perform Edge detection filters as (Robert , prewitt, canny ,LOG,DOG,Sobel)

We do this by using a built in function(edge) and pass to it the gray scale image and our choosen filter as :

edge(GrayImg ,'Roberts')

Edge = edge(GrayImg ,'Prewitt')

Edge = edge(GrayImg ,'Sobel')

Edge = edge(GrayImg ,'canny')

Edge = edge(GrayImg ,'Log')

But in case of DOG filter we use Difference of 2 Gaussian masks where (DOG) consist of ☺

Each Gaussian mask we created it using fspecial function as following

gaussian1 = fspecial('Gaussian', 21, 15);

gaussian2 = fspecial('Gaussian', 21, 20);

dog = gaussian1 - gaussian2;

then we applied this mask to the image but image must be in double format as follow:

Edge = conv2(double(GrayImg), dog);

1. Now we display this filtered image on our project GUI
2. Add Noise section :

We have different types of additive noise but we choose 2 types : salt & pepper and Gaussian noise

As we know salt & pepper noise displayed as "On and Off" pixels or white and black pixels

And Gaussian noise is Gaussian white noise with constant mean and variance

We use a built in function to perform these filters which is imnoise()

We pass to it the gray scale image and kind of noise we want to implement as follow:

Noise = imnoise(GrayImg ,'salt & pepper')



Noise = imnoise(GrayImg ,'gaussian')

1. Remove Noise Section :

we have different ways to remove noise from image we choose the average filter and median filter in our project for examples

we use a built in function to perform a median filter : medfilt2() as follow :

Filtered = medfilt2(Noise);

In case of average filter we use fspatial() function to create average mask with window size 3 then we applied the filter to our noisy image as following :

Filtered = filter2(fspecial('average',3),Noise)/255;