International University of Sarajevo

Faculty of Engineering and Natural Sciences

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INTRODUCTION TO ENGINEERING (ENS101)

PROJECT

“TOOLS PROJECT”

(Users' Pictures' Background Modification)

Table of Contents

1.INTRODUCTİON

1.1 Overview

This report introduces the Users' Pictures' Background Modification project that we implemented using MATLAB software. MATLAB's powerful mathematical calculation capabilities and user-friendly interface allowed the project to be successfully realized.

The Users' Pictures' Background Modification Project allows users to seamlessly upload their pictures to the application and modify the background effortlessly using the provided buttons.

1.2 Goal

This project aims to demonstrate to students that creating Matlab GUIs (Graphical User Interfaces) is not overly challenging, encouraging them to gain confidence in this area. Our project is designed to inspire students to venture into the process of designing GUIs with Matlab, providing them with opportunities to gain more experience in this field.

1.3 Explanations of Functions

In this section, we will explain the crucial functions we used in our project.

Imshow():The imshow function is used to display an image or matrix stored in the MATLAB environment. This function provides a visual presentation by opening the image in the window.

Imread():The imread function is used to read the image in the specified filename and store it as a usable matrix in the MATLAB environment. For example, the command image = imread('file_name.jpg') assigns an image named 'file_name.jpg' to a variable named 'image'

Axes(): The axes function is used to specify or customize a coordinate system within a graphics window in MATLAB. This function can be used for a variety of purposes, such as drawing within a chart, creating a subgraph, or highlighting a specific area.

Slider(): Slider is a tool used in MATLAB GUI (Graphical User Interface) designs. Allows the user to select or set a value. It is often used to determine a numerical value or navigate within a range. It is especially common in interactive applications and user interfaces.

Pushbuttons():In MATLAB, the pushbutton is a graphical user interface (GUI) component that allows users to trigger an action or function when clicked. It is often used as a way to interact with and control the behavior of a MATLAB GUI. To create a pushbutton and handle its callback function, you typically use the uicontrol function.

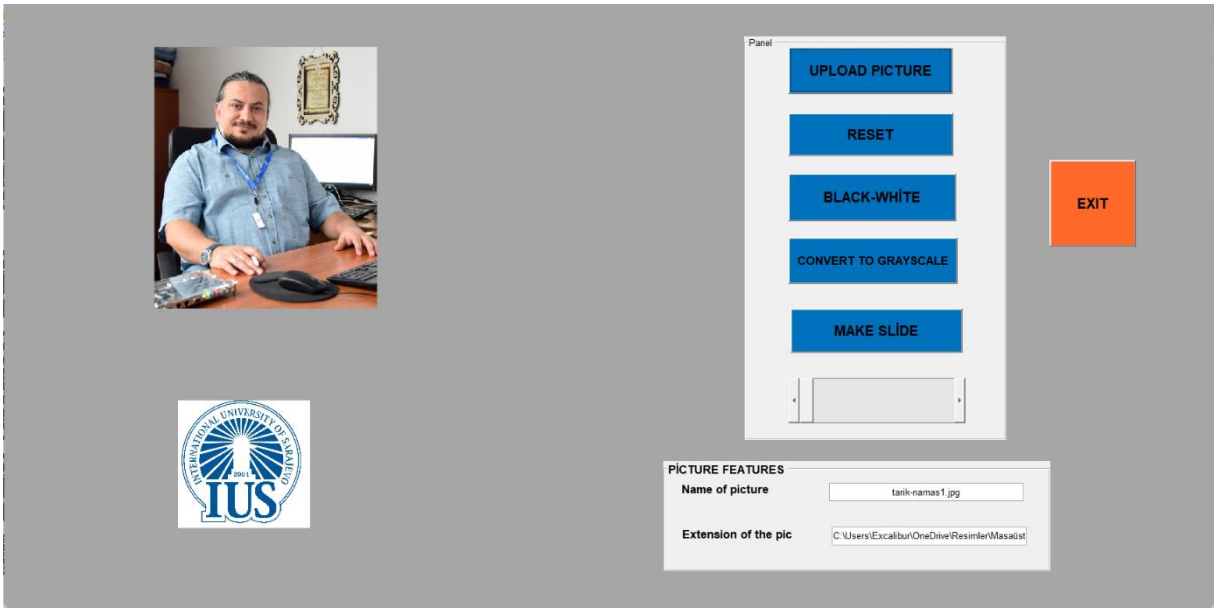
Uigetfile():The uigetfile function is used to open a file selection window in MATLAB. This function allows the user to select a specific file or select a file from a list of files.

1.4 Examples of Project Codes

```
function upload_pic_Callback(hObject, eventdata, handles)


global image
[filename,pathname]=uigetfile();
if filename ==0
    msgbox(sprintf('Please select a picture.'));
end
axes(handles.axes1)
image=imread(filename);
imshow(image);
set(handles.edit1,'string',filename);
set(handles.edit2,'String',pathname);


function reset_Callback(hObject, eventdata, handles)


global image
axes (handles.axes1)
imshow(image);


function blckwht_Callback(hObject, eventdata, handles)


global image
axes (handles.axes1)
x=im2bw(image);
imshow(x);


function grayscale_Callback(hObject, eventdata, handles)


global image
axes(handles.axes1);
y=rgb2gray(image);
imshow(y);


function slider1_CreateFcn(hObject, eventdata, handles)
% hObject    handle to slider1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
end
```

2.0 CONCLUSION

We undoubtedly believe that what can be done with Matlab is unlimited, and we did such a project assignment because we wanted to benefit from this successful application. We would like to share the interface example of our application with you below. By the way, if you want to access the full codes of our project, you can visit the github page below.



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https://github.com/omeryasar18/ENS101