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function varargout = picdemGUI(varargin)
% PICDEMGUI M-file for picdemGUI.fig
% PICDEMGUI, by itself, creates a new PICDEMGUI or raises the existing
% singleton*.
%
% H = PICDEMGUI returns the handle to a new PICDEMGUI or the handle to
% the existing singleton*.
%
% PICDEMGUI('CALLBACK',hObject,eventData,handles,...) calls the local
% function named CALLBACK in PICDEMGUI.M with the given input arguments.
%
% PICDEMGUI('Property','Value',...) creates a new PICDEMGUI or raises the
% existing singleton*. Starting from the left, property value pairs are
% applied to the GUI before picdemGUI_OpeningFcn gets called. An
% unrecognized property name or invalid value makes property application
% stop. All inputs are passed to picdemGUI_OpeningFcn via varargin.
%
% *See GUI Options on GUIDE's Tools menu. Choose "GUI allows only one
% instance to run (singleton)".
%
% See also: GUIDE, GUIDATA, GUIHANDLES

% Edit the above text to modify the response to help picdemGUI

% Last Modified by GUIDE v2.5 04-Nov-2009 14:37:11

% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                  'gui_Singleton',  gui_Singleton, ...
                  'gui_OpeningFcn', @picdemGUI_OpeningFcn, ...
                  'gui_OutputFcn',  @picdemGUI_OutputFcn, ...
                  'gui_LayoutFcn',  [] , ...
                  'gui_Callback',   []);
if nargin && ischar(varargin{1})
    gui_State.gui_Callback = str2func(varargin{1});
end

if nargout
    [varargout{1:nargout}] = gui_mainfcn(gui_State, varargin{:});
else
    gui_mainfcn(gui_State, varargin{:});
end
% End initialization code - DO NOT EDIT

% --- Executes just before picdemGUI is made visible.
function picdemGUI_OpeningFcn(hObject, eventdata, handles, varargin)
% This function has no output args, see OutputFcn.
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
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% varargin    command line arguments to picdemGUI (see VARARGIN)

% Choose default command line output for picdemGUI
handles.output = hObject;
handles.user.connected = false;

% Update handles structure
guidata(hObject, handles);

% UIWAIT makes picdemGUI wait for user response (see UIRESUME)
% uiwait(handles.figure1);

% --- Outputs from this function are returned to the command line.
function varargout = picdemGUI_OutputFcn(hObject, eventdata, handles)
% varargout    cell array for returning output args (see VARARGOUT);
% hObject     handle to figure
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

% Get default command line output from handles structure
varargout{1} = handles.output;

% --- Executes on button press in pushbutton_connect.
function pushbutton_connect_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton_connect (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

if (handles.user.connected)
    fprintf('Already Connected\n');
else
    fprintf('Connecting to com port\n');
    %pic = openSerial(1);
    comPort = str2double( get( handles.edit_comPort , 'String' ));
    handles.user.pic = openSerialWithHandles(comPort, handles);
    handles.user.connected = true;
    guidata(hObject, handles);
end

% --- Executes on button press in pushbutton_disconnect.
function pushbutton_disconnect_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton_disconnect (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

if (handles.user.connected)
    fclose(handles.user.pic);
    fprintf('Closed Connection\n');
    handles.user.connected = false;
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    guidata(hObject, handles);
else
    fprintf('Nothing to close\n');
end

function edit_comPort_Callback(hObject, eventdata, handles)
% hObject    handle to edit_comPort (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of edit_comPort as text
%        str2double(get(hObject,'String')) returns contents of edit_comPort as a double

% --- Executes during object creation, after setting all properties.
function edit_comPort_CreateFcn(hObject, eventdata, handles)
% hObject    handle to edit_comPort (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: edit controls usually have a white background on Windows.
%       See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'), get(
(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end

% --- Executes on button press in pushbutton_getRA0.
function pushbutton_getRA0_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_getRA0 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

if (handles.user.connected)
    fprintf('Sent: A\n');
    fprintf(handles.user.pic, 'A');
else
    fprintf('No Connection - Sends: A\n');
end

% --- Executes on button press in pushbutton_startBuzzer.
function pushbutton_startBuzzer_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_startBuzzer (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

if (handles.user.connected)
    fprintf('Sent: V\n');
    fprintf(handles.user.pic, 'V');
else
    fprintf('No Connection - Sends: V\n');
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end

% --- Executes on button press in pushbutton_stopBuzzer.
function pushbutton_stopBuzzer_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_stopBuzzer (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

if (handles.user.connected)
    fprintf('Sent: N\n');
    fprintf(handles.user.pic, 'N');
else
    fprintf('No Connection - Sends: N\n');
end

% --- Executes on button press in pushbutton_sendMessage.
function pushbutton_sendMessage_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_sendMessage (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

messageToSend = get( handles.edit_sendMessage , 'String');

if (handles.user.connected)
    fprintf('Sent: %s\n',messageToSend);
    fprintf(handles.user.pic, messageToSend);
else
    fprintf('No Connection - Sends: %s\n',messageToSend);
end

function edit_sendMessage_Callback(hObject, eventdata, handles)
% hObject    handle to edit_sendMessage (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of edit_sendMessage as text
%        str2double(get(hObject,'String')) returns contents of edit_sendMessage as a
double

% --- Executes during object creation, after setting all properties.
function edit_sendMessage_CreateFcn(hObject, eventdata, handles)
% hObject    handle to edit_sendMessage (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: edit controls usually have a white background on Windows.
%        See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'), get(
(0,'defaultUicontrolBackgroundColor'))
```

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    set(hObject, 'BackgroundColor', 'white');  
end
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