

```
function varargout = robotCarGUI(varargin)
% ROBOTCARGUI M-file for robotCarGUI.fig
%     ROBOTCARGUI, by itself, creates a new ROBOTCARGUI or raises the existing
%     singleton*.
%
%     H = ROBOTCARGUI returns the handle to a new ROBOTCARGUI or the handle to
%     the existing singleton*.
%
%     ROBOTCARGUI('CALLBACK',hObject,eventData,handles,...) calls the local
%     function named CALLBACK in ROBOTCARGUI.M with the given input arguments.
%
%     ROBOTCARGUI('Property','Value',...) creates a new ROBOTCARGUI or raises the
%     existing singleton*. Starting from the left, property value pairs are
%     applied to the GUI before robotCarGUI_OpeningFcn gets called. An
%     unrecognized property name or invalid value makes property application
%     stop. All inputs are passed to robotCarGUI_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 robotCarGUI

% Last Modified by GUIDE v2.5 09-Oct-2009 23:53:56

% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                  'gui_Singleton',  gui_Singleton, ...
                  'gui_OpeningFcn', @robotCarGUI_OpeningFcn, ...
                  'gui_OutputFcn',  @robotCarGUI_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 robotCarGUI is made visible.
function robotCarGUI_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)
```

```
% varargin    command line arguments to robotCarGUI (see VARARGIN)

% Choose default command line output for robotCarGUI
handles.output = hObject;

% Update handles structure
guidata(hObject, handles);

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

% --- Outputs from this function are returned to the command line.
function varargout = robotCarGUI_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_goLeft.
function pushbutton_goLeft_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton_goLeft (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)
fprintf('Sending: L\n');
%TODO - Send the 'L' out using the serial object
fprintf(handles.user.robotCar, 'L');

% --- Executes on button press in pushbutton_goRight.
function pushbutton_goRight_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton_goRight (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)
fprintf('Sending: R\n');
fprintf(handles.user.robotCar, 'R');

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

fprintf('Sending: F\n');
fprintf(handles.user.robotCar, 'F');

% --- Executes on button press in pushbutton_stop.
function pushbutton_stop_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton_stop (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
```

```
% handles    structure with handles and user data (see GUIDATA)
fprintf('Sending: S\n');
fprintf(handles.user.robotCar, 'S');

function edit_left7seg_Callback(hObject, eventdata, handles)
% hObject    handle to edit_left7seg (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_left7seg as text
%         str2double(get(hObject,'String')) returns contents of edit_left7seg as a double

% --- Executes during object creation, after setting all properties.
function edit_left7seg_CreateFcn(hObject, eventdata, handles)
% hObject    handle to edit_left7seg (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_left7seg.
function pushbutton_left7seg_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_left7seg (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

left7segValue = str2double(get(handles.edit_left7seg,'String'));
outStr = sprintf('Sending: D%d\n', left7segValue);
fprintf(outStr);
outStr = sprintf('D%d\n', left7segValue);
fprintf(handles.user.robotCar,outStr);

function edit_right7seg_Callback(hObject, eventdata, handles)
% hObject    handle to edit_right7seg (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_right7seg as text
%         str2double(get(hObject,'String')) returns contents of edit_right7seg as a
double
```

```
% --- Executes during object creation, after setting all properties.
function edit_right7seg_CreateFcn(hObject, eventdata, handles)
% hObject    handle to edit_right7seg (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_right7seg.
function pushbutton_right7seg_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_right7seg (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

right7segValue = str2double(get(handles.edit_right7seg,'String'));
outStr = sprintf('Sending: B%d\n', right7segValue);
fprintf(outStr);

outStr = sprintf('B%d\n', right7segValue);
fprintf(handles.user.robotCar,outStr);

% --- Executes on button press in pushbutton_getA0.
function pushbutton_getA0_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_getA0 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

fprintf('Sending: A0\n');
fprintf(handles.user.robotCar,'A0');
%set(handles.text_A0value,'String',500);

% --- Executes on button press in pushbutton_getA2.
function pushbutton_getA2_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_getA2 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

fprintf('Sending: A2\n');
fprintf(handles.user.robotCar,'A2');

% --- Executes on button press in pushbutton_getA1.
function pushbutton_getA1_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton_getA1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
```

```
% handles      structure with handles and user data (see GUIDATA)

fprintf('Sending: A1\n');
fprintf(handles.user.robotCar, 'A1');

% --- Executes on button press in pushbutton_getA3.
function pushbutton_getA3_Callback(hObject, eventdata, handles)
% hObject      handle to pushbutton_getA3 (see GCBO)
% eventdata    reserved - to be defined in a future version of MATLAB
% handles      structure with handles and user data (see GUIDATA)

fprintf('Sending: A3\n');
fprintf(handles.user.robotCar, 'A3');

% --- 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)

fprintf('Opening serial object\n');
comPortValue = str2double(get(handles.edit_comPort, 'String'));
handles.user.robotCar = openSerialWithHandles(comPortValue, handles);

% Update handles structure
guidata(hObject, handles);

% --- 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)

fprintf('Closing serial object\n');
fclose(handles.user.robotCar);

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

% Hint: get(hObject,'Value') returns toggle state of radiobutton_slowest

fprintf('Sending: P0040\n');
fprintf(handles.user.robotCar, 'P0040');

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

% Hint: get(hObject,'Value') returns toggle state of radiobutton_slower

fprintf('Sending: P0080\n');
fprintf(handles.user.robotCar, 'P0080');

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

% Hint: get(hObject,'Value') returns toggle state of radiobutton_slow

fprintf('Sending: P0120\n');
fprintf(handles.user.robotCar, 'P0120');

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

% Hint: get(hObject,'Value') returns toggle state of radiobutton_medium
```

```
fprintf('Sending: P0200\n');  
fprintf(handles.user.robotCar, 'P0200');
```

```
% --- Executes on button press in radiobutton_fast.  
function radiobutton_fast_Callback(hObject, eventdata, handles)  
% hObject    handle to radiobutton_fast (see GCBO)  
% eventdata  reserved - to be defined in a future version of MATLAB  
% handles    structure with handles and user data (see GUIDATA)  
  
% Hint: get(hObject,'Value') returns toggle state of radiobutton_fast
```

```
fprintf('Sending: P1000\n');  
fprintf(handles.user.robotCar, 'P1000');
```