Universitatea POLITEHNICA din București
Facultatea de Inginerie Mecanica si Mecatronica
Departamentul de Mecatronica si Mecanica de Precizie
Laboratorul de Sisteme Ultraprecise de Mecanica Fina

Student: ***Mocanu Sebastian***
Grupa: ***541B_b***
Data efectuării: ***29.04.2021***

Laborator Nr 9:
Interfață grafică utilizator

Enunț:

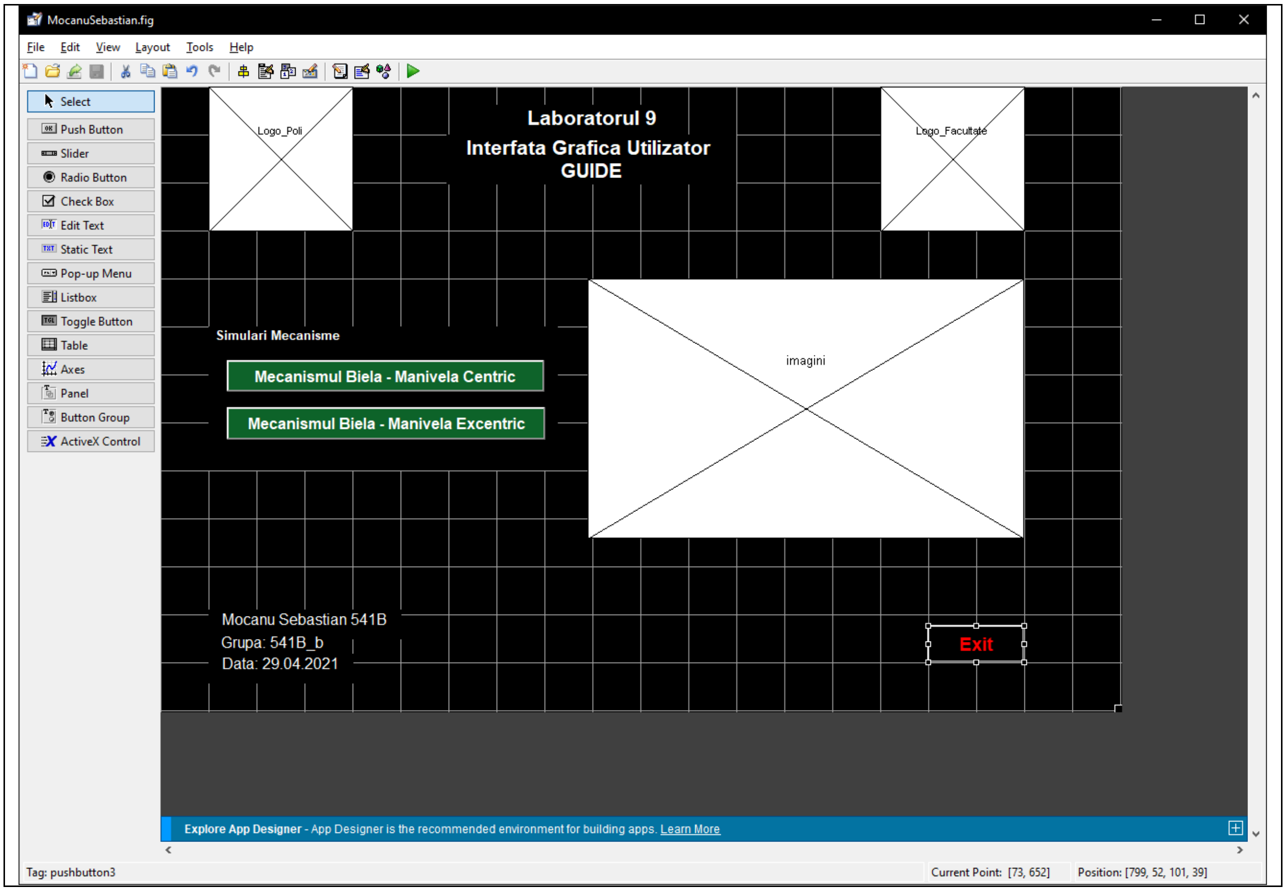
Sa se implementeze o interfața grafica care sa conțină logo-ul facultății si cel al universității si sa conțină doua butoane, unul care la apăsarea lui va afișa mecanism biela-manivela centri si cel de-al doilea sa afișeze mecanism biela-manivela excentric. Interfața va mai avea si un buton de ieșire din aplicație.

Program:

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

% Last Modified by GUIDE v2.5 29-Apr-2021 17:22:01

% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                   'gui_Singleton',  gui_Singleton, ...
                   'gui_OpeningFcn', @MocanuSebastian_OpeningFcn, ...
                   'gui_OutputFcn',  @MocanuSebastian_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 MocanuSebastian is made visible.
function MocanuSebastian_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 MocanuSebastian (see VARARGIN)

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

% Update handles structure
guidata(hObject, handles);

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


% --- Outputs from this function are returned to the command line.
function varargout = MocanuSebastian_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 during object creation, after setting all properties.
function Logo_Poli_CreateFcn(hObject, eventdata, handles)
% hObject    handle to Logo_Poli (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called
axes(hObject);
imshow('logo-poli.png');
handles.axe(1) = gca;
guidata(axe1, handles);
% Hint: place code in OpeningFcn to populate Logo_Poli


% --- Executes during object creation, after setting all properties.
function Logo_Facultate_CreateFcn(hObject, eventdata, handles)
% hObject    handle to Logo_Facultate (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called
axes(hObject);
imshow('logo-facultate.png');
handles.axe(1) = gca;
guidata(axe1, handles);
% Hint: place code in OpeningFcn to populate Logo_Facultate


% --- Executes on button press in Centric.
function Centric_Callback(hObject, eventdata, handles)
% hObject    handle to Centric (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
axes(handles.imagini);
imshow('centric.png');


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


% --- Executes on button press in Excentric.
function Excentric_Callback(hObject, eventdata, handles)
% hObject    handle to Excentric (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
axes(handles.imagini);
imshow('excentric.png');


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


% --- Executes during object creation, after setting all properties.
function imagini_CreateFcn(hObject, eventdata, handles)
% hObject    handle to imagini (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called
handles.axe(3) = gca;
set(handles.axe(3), 'Visible','off');
guidata(axe3, handles);
set(AxesHandle, 'Units', 'pixels', 'Position', [10, 10, 50, 50]);

% Hint: place code in OpeningFcn to populate imagini


% --- Executes on button press in pushbutton3.
function pushbutton3_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton3 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
closereq();

    text(60,30, strcat("\phi = ", num2str(phi_grade(i)), "\circ"));
    ylabel('y [mm]');
    xlabel('x [mm]');

    M(:,i)= getframe(gcf);
end
%movie(M, 1, 10);

obj = VideoWriter("video_biela1.avi");
set(obj, "FrameRate", 60);
open(obj);
for k = 1:5
    for jj = 1:361
        writeVideo(obj, M(jj));
    end
end
close(obj);
```

Interfata GUIDE:



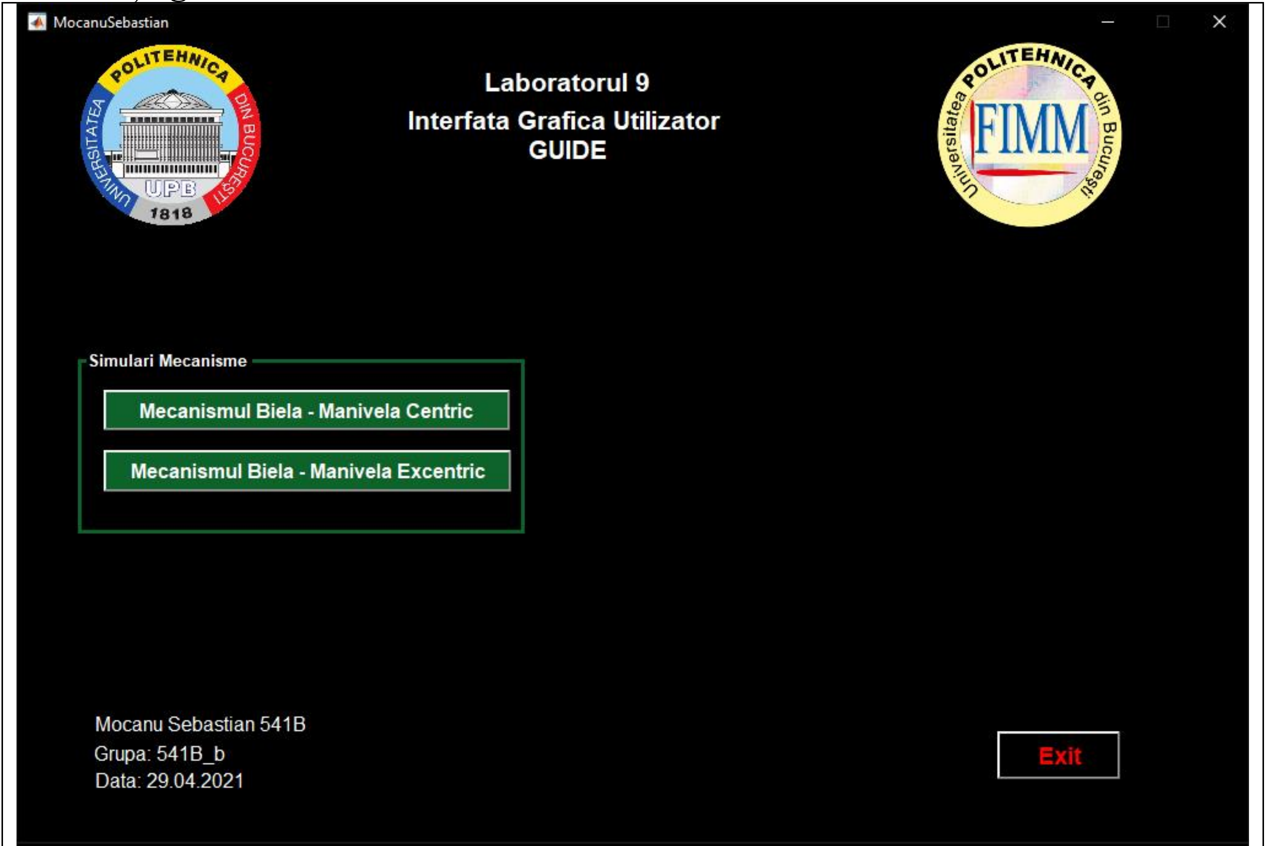
Explore App Designer - App Designer is the recommended environment for building apps. Learn More

Tag: pushbutton3

Current Point: [73, 652]

Position: [799, 52, 101, 39]

Interfața grafica realizata:



MocanuSebastian

Laboratorul 9

Interfata Grafica Utilizator

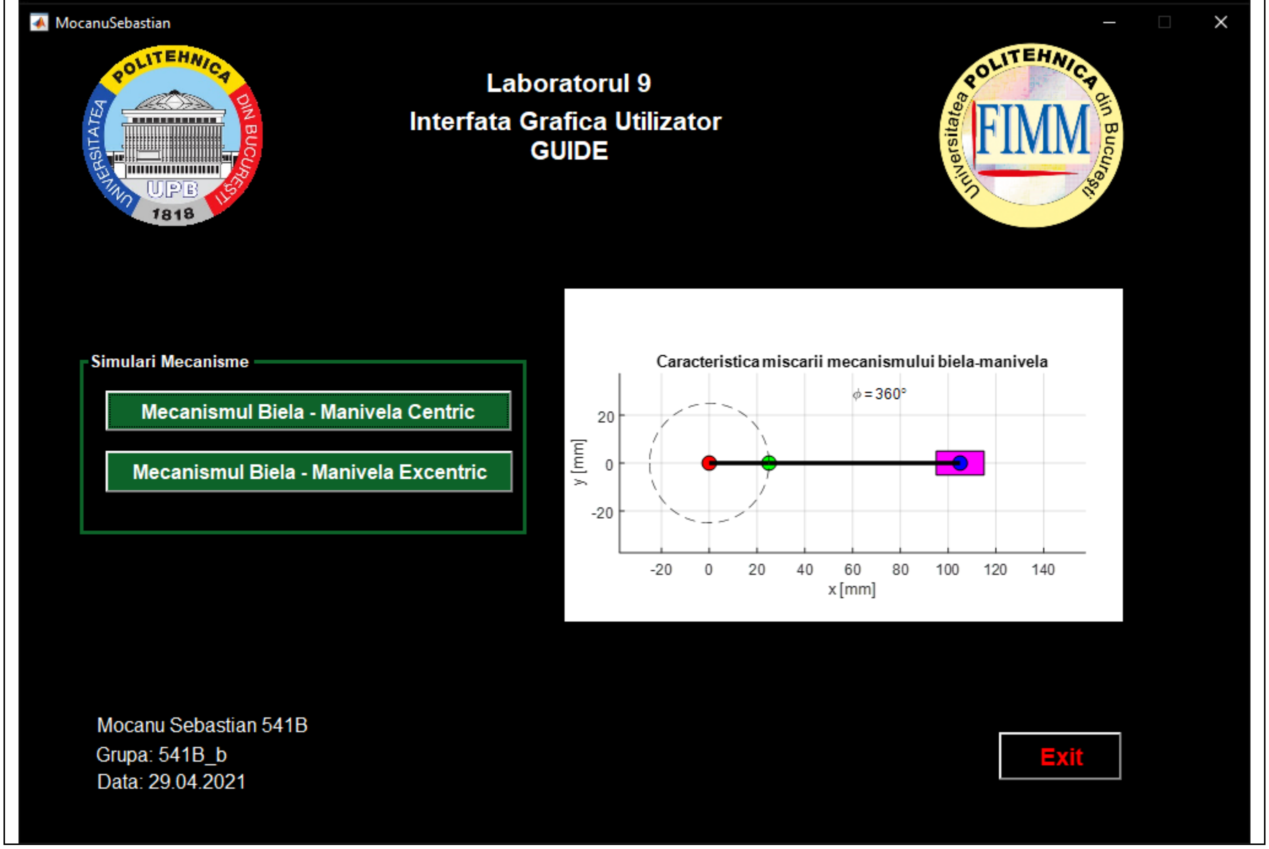
GUIDE

Simulari Mecanisme
Mecanismul Biela - Manivela Centric
Mecanismul Biela - Manivela Excentric
Exit

Mocanu Sebastian 541B

Grupa: 541B_b

Data: 29.04.2021



MocanuSebastian

Laboratorul 9

Interfata Grafica Utilizator

GUIDE

Simulari Mecanisme
Mecanismul Biela - Manivela Centric
Mecanismul Biela - Manivela Excentric
Caracteristica miscarii mecanismului biela-manivela
$\phi = 360°$
20
0
-20
y [mm]
-20
0
20
40
60
80
100
120
140
x [mm]
Exit

Mocanu Sebastian 541B

Grupa: 541B_b

Data: 29.04.2021

Varianta Cu HTML, CSS si Javascript

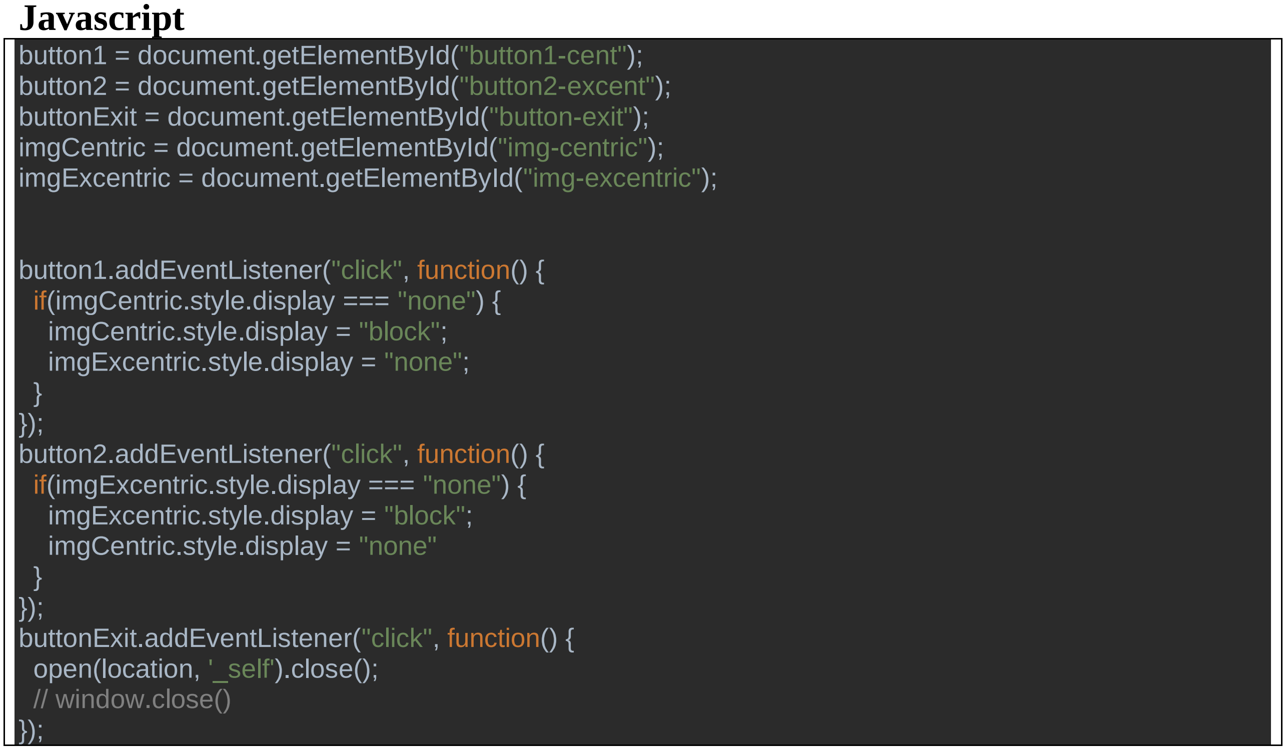
HTML (Hypertext Transfer Protocol):

```html
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta http-equiv="X-UA-Compatible" content="ie=edge">
  <title>Laborator 9 SSM</title>
  <link rel="stylesheet" href="style.css">
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css" integrity="sha384-Vkoo8x4CGsO3+Hhxv8T/Q5PaXtkKtu6ug5TOeNV6gBiFeWPGFN9MuhOf23Q9Ifjh" crossorigin="anonymous">
</head>

<body>

  <div class="container">
    <div class="container div-imgs">
      <img class="img-left" src="./img/logo-poli.png" alt="">
      <img class="img-right" src="./img/logo-facultate.png" alt="">
    </div>
  </div>

  <div class="container text-container">
    <br>
    <h2 class="text-col">Laboratorul 9</h2>
    <h2 class="text-col">Interfață grafică utilizator</h2>
    <h2 class="text-col">GUIDE</h2>
  </div>

  <div class="container stuff">
    <div class="row">
      <div class="container col col-md-6">
        <div class="panel-stuff">
          <h4 class="text-col">Simulari Mecanisme</h4>
          <button id="button1-cent" class="centric" type="button" name="button">Mecanism Biela-Manivela Centric </button>
          <br>
          <button id="button2-excent" class="excentric" type="button" name="button">Mecanism Biela-Manivela Excentric</button>
        </div>
      </div>
      <div class="container col col-md-6">
        <div class="mecanism-centric">
          <img id="img-centric" class="img-grafic" src="./img/centric.png" alt="" style="display:none;">
        </div>
        <div class="mecanism-excentric">
          <img id="img-excentric" class="img-grafic" src="./img/excentric.png" alt="" style="display:none;">
        </div>
      </div>
    </div>
  </div>
  <br>
  <div class="container">
    <div class="container text-eu">
      <h5 class="text-col">Mocanu Sebastian 541B</h5>
      <h5 class="text-col">Grupa: 541B_b</h5>
      <h5 class="text-col">Data: 29.04.2021</h5>
    </div>
    <button id="button-exit" class="centric" type="button" name="button">Exit</button>
  </div>

  <script type="text/javascript">
    window.onbeforeunload = function(e) {
      e = e || window.event;
      if (e) {
        e.returnValue = 'Sure?';
      }
      return 'Sure?';
    };
  </script>
  <script type="text/javascript" src="app.js"></script>
</body>
</html>
```

CSS (Cascading Style Sheets)

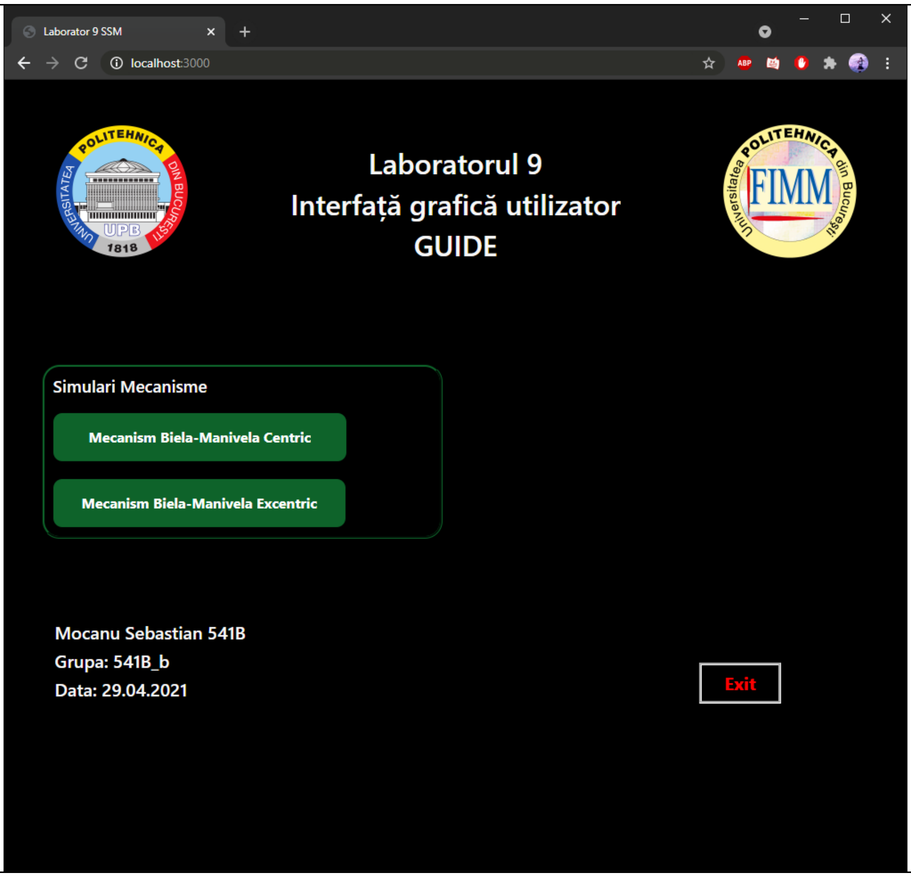
```
body {
  background-color: #000 !important;
}
h2 {
  text-align: center;
}
.text-col {
  color: #F8F8F8;
}
.img-right {
  height: 150px;
  width: 150px;
  float: right;
}
.img-left {
  height: 150px;
  width: 150px;
  float: left;
}
.div-imgs {
  margin: 50px 0px 50px 0px;
}
.panel-stuff {
  border: 3px groove rgb(14,99,42);
  border-radius: 20px;
  margin-top: 35px;
}
h4 {
  font-size: 19px !important;
  margin: 10px 10px 10px 10px !important;
}
.centric {
  background-color: rgb(14,99,42);
  border: none;
  color: white;
  padding: 15px 40px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
  font-size: 16px;
  font-weight: bold;
  border-radius: 10px;
  margin: 10px 10px 10px 10px;
}
.excentric {
  margin: 10px 10px 10px 10px;
  background-color: rgb(14,99,42);
  border: none;
  color: white;
  padding: 15px 32px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
  font-size: 16px;
  font-weight: bold;
  border-radius: 10px;
}
#img-centric {
  height: 271px;
  width: 455px;
}
#img-excentric {
  height: 271px;
  width: 455px;
}
.stuff {
  margin-top: 80px;
  height: 200px;
}
.img-grafic {
  border: 5px groove #222;
  border-radius: 20px;
}
#button-exit {
  float: right;
  margin: -50px 100px 0px 0px;
  color: red;
  background-color: #000;
  font-size: 20px;
  border: 3px groove white;
  border-radius: 0px;
  padding: 5px 25px;
}
.text-eu {
  margin-top: 100px;
}
```

Javascript



```
button1 = document.getElementById("button1-cent");
button2 = document.getElementById("button2-excent");
buttonExit = document.getElementById("button-exit");
imgCentric = document.getElementById("img-centric");
imgExcentric = document.getElementById("img-excentric");


button1.addEventListener("click", function() {
  if(imgCentric.style.display === "none") {
    imgCentric.style.display = "block";
    imgExcentric.style.display = "none";
  }
});
button2.addEventListener("click", function() {
  if(imgExcentric.style.display === "none") {
    imgExcentric.style.display = "block";
    imgCentric.style.display = "none"
  }
});
buttonExit.addEventListener("click", function() {
  open(location, '_self').close();
  // window.close()
});
```

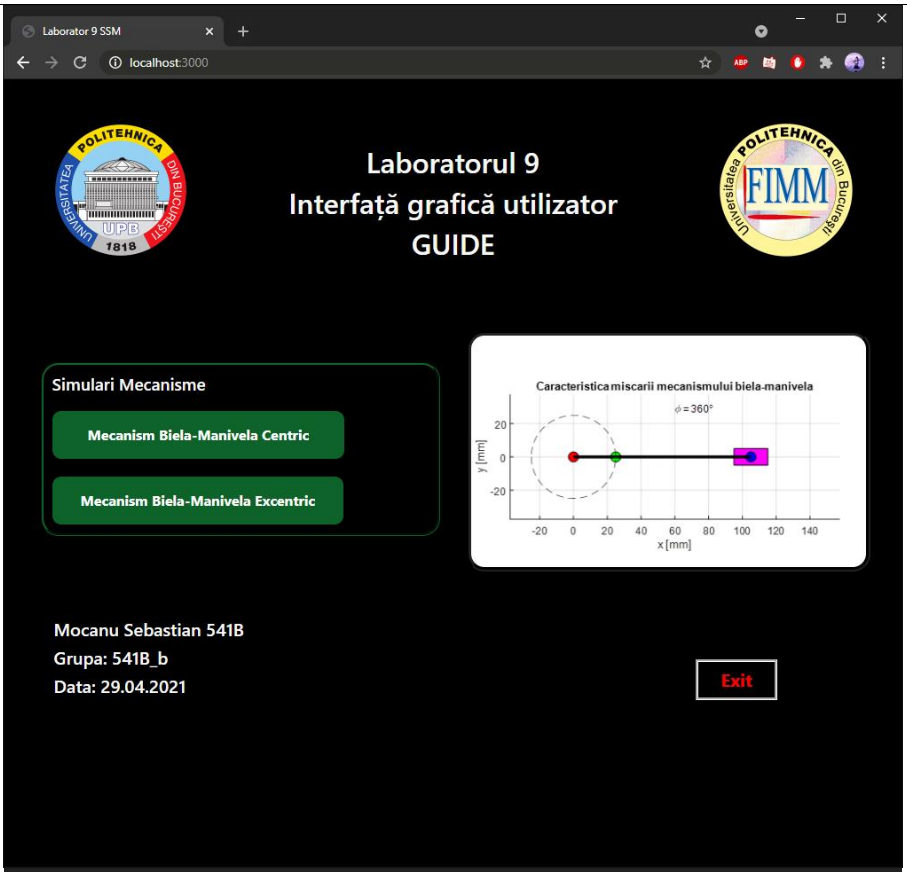
Interfata GUIDE:


Laborator 9 SSM
localhost:3000
Mecanism Biela-Manivela Centric
Mecanism Biela-Manivela Excentric
Exit

Laboratorul 9
Interfață grafică utilizator
GUIDE

Simulari Mecanisme

Mocanu Sebastian 541B
Grupa: 541B_b
Data: 29.04.2021



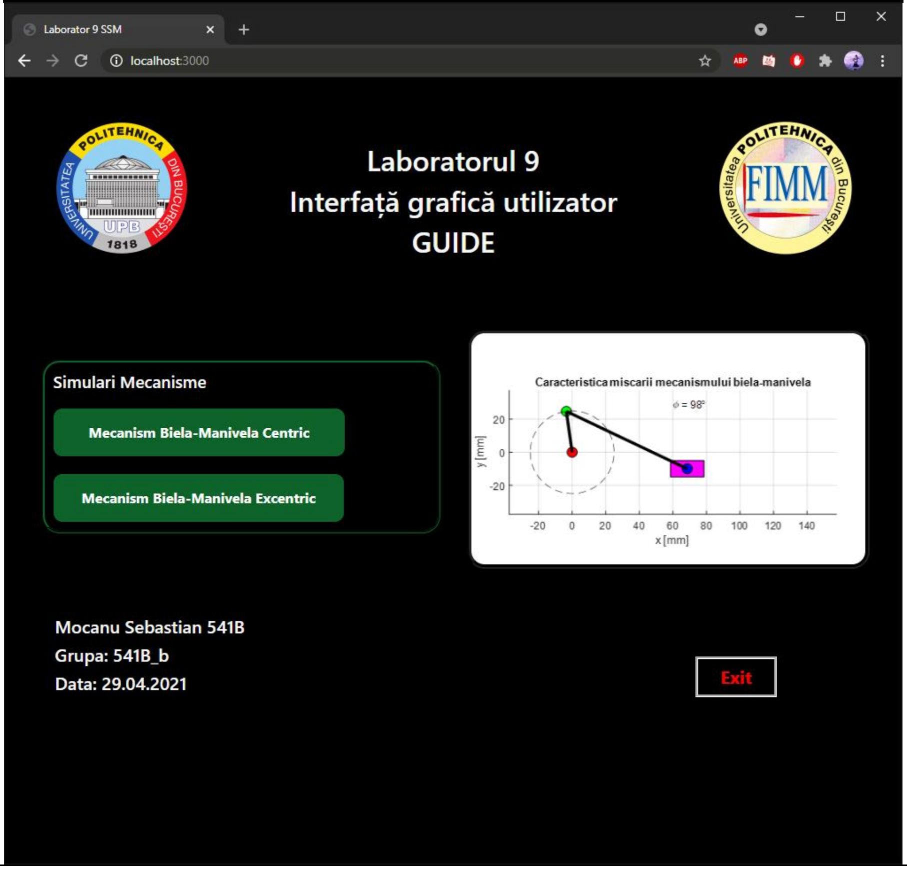
Laborator 9 SSM
localhost:3000

Laboratorul 9
Interfață grafică utilizator
GUIDE

Simulari Mecanisme

Mecanism Biela-Manivela Centric
Mecanism Biela-Manivela Excentric
Caracteristica miscarii mecanismului biela-manivela
ϕ = 360°
20
0
-20
y [mm]
-20
0
20
40
60
80
100
120
140
x [mm]
Exit

Mocanu Sebastian 541B
Grupa: 541B_b
Data: 29.04.2021



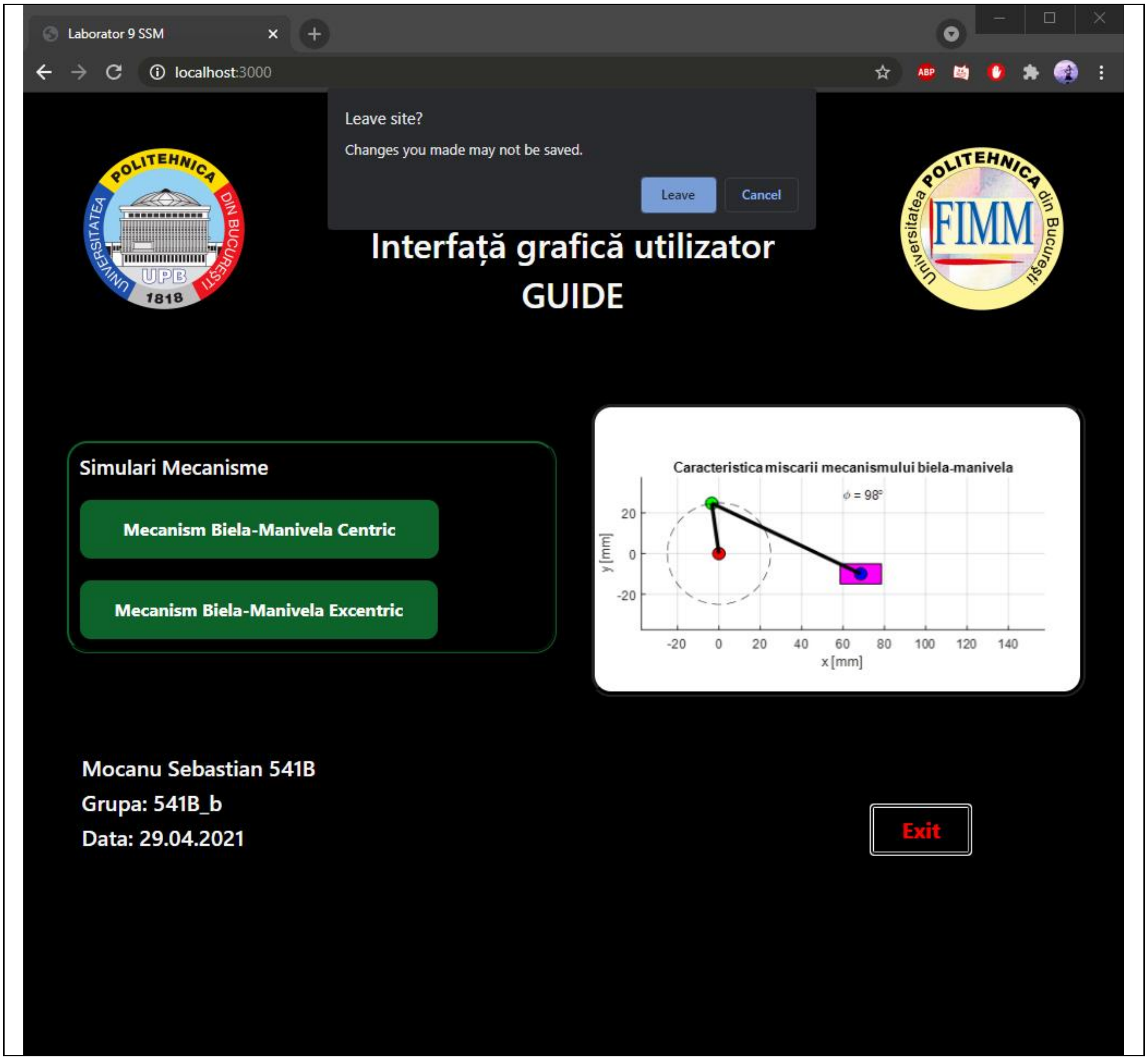
Laborator 9 SSM
localhost:3000

Laboratorul 9
Interfață grafică utilizator
GUIDE

Simulari Mecanisme

Mecanism Biela-Manivela Centric
Mecanism Biela-Manivela Excentric
Caracteristica miscarii mecanismului biela-manivela
ϕ = 98°
20
0
-20
y [mm]
-20
0
20
40
60
80
100
120
140
x [mm]
Exit

Mocanu Sebastian 541B
Grupa: 541B_b
Data: 29.04.2021



Leave site?

Changes you made may not be saved.

Interfață grafică utilizator
GUIDE

Mocanu Sebastian 541B
Grupa: 541B_b
Data: 29.04.2021

Laborator 9 SSM
localhost:3000
Leave
Cancel
Simulari Mecanisme
Mecanism Biela-Manivela Centric
Mecanism Biela-Manivela Excentric
Caracteristica miscarii mecanismului biela-manivela
φ = 98°
y [mm]
20
0
-20
-20
0
20
40
60
80
100
120
140
x [mm]
Exit

Concluzii:

S-a creat o interfața grafica cu ajutorul Matlab GUIDE ( ).

Pentru adăugarea imaginilor s-a folosit Axes si s-a folosit CreateFcn si s-a adăugat in aceasta funcție metoda imshow(); cu path-ul fotografiei.

Pentru butoanele mecanismului s-a adăugat in Panel iar in cazul butoanelor PushButton, funcționalitatea acestora s-a făcut in funcția „callback” iar, design-ul acestora s-a făcut cu property inspector.

Pentru titlu, nume, grupa si data s-au adăugat cu ajutorul „Static Text” si design-ul a fost creat cu ajutorul property inspector.

S-a creat si un site WEB cu ajutorul HTML, CSS si Javascript care s-a postat pe github:

- Link pentru pagina: https://brittleru.github.io/Laborator9-SSM/
- Link pentru vizualizarea codului: https://github.com/brittleru/Laborator9-SSM