cam=ipcam('http://192.168.2.20/video/mjpg.cgi');

% preview(cam);

prt = serial('COM6','BaudRate',9600);

set(prt,'DataBits',8);

set(prt,'StopBits',1);

set(prt,'Parity','none');

fopen(prt)

while(1)

%close all;

img = snapshot(cam);

[xm ym area] = find\_ball(img);

%imagesc(img)

%hold on

%Create Serial Port Object

if(area>20000)

disp('TAMAM');

fwrite(prt,'x', 'uchar'); % TOP YAKINDA DUR

elseif( 240<ym & ym<430)

disp('DÜZ GİDİYORUM');

fwrite(prt,'o', 'uchar'); % TOP ÖNÜNDE DÜZ GİT

elseif(0<ym & ym<240)

disp('SOLA DÖNÜYORUM');

fwrite(prt,'z', 'uchar'); % TOP SOLUNDA SOLA DON

elseif(430<ym & ym<681)

disp('SAĞA DÖNÜYORUM');

fwrite(prt,'c', 'uchar'); % TOP SAĞINDA SAĞA GİT

else

disp('ARIYORUM');

fwrite(prt,'z', 'uchar'); % TOP YOK ARA

end

end

fclose(prt)

delete(prt)

**Matlab Function:**

function [xm ym area]= find\_ball(img)

R = img(:,:,1); %Kırmızı

G = img(:,:,2); %Yeşil

B = img(:,:,3); %Mavi

justgreen = G - R/2 - B/2;

%justgreen = R - G/2 - B/2;

bw1 = justgreen > 40;

bw = bwareaopen(bw1, 50); %Burası çıkartılıp en büyüğünü alan komut eklenecek.

[x, y] = find(bw);

xm = round(mean(x))

ym = round(mean(y))

area = sum(sum(bw));

**Function Code of Manuel Control:**

function varargout = arayuz(varargin)

% ARAYUZ MATLAB code for arayuz.fig

% ARAYUZ, by itself, creates a new ARAYUZ or raises the existing

% singleton\*.

%

% H = ARAYUZ returns the handle to a new ARAYUZ or the handle to

% the existing singleton\*.

%

% ARAYUZ('CALLBACK',hObject,eventData,handles,...) calls the local

% function named CALLBACK in ARAYUZ.M with the given input arguments.

%

% ARAYUZ('Property','Value',...) creates a new ARAYUZ or raises the

% existing singleton\*. Starting from the left, property value pairs are

% applied to the GUI before arayuz\_OpeningFcn gets called. An

% unrecognized property name or invalid value makes property application

% stop. All inputs are passed to arayuz\_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 arayuz

% Last Modified by GUIDE v2.5 19-Jun-2015 15:44:13

% Begin initialization code - DO NOT EDIT

gui\_Singleton = 1;

gui\_State = struct('gui\_Name', mfilename, ...

'gui\_Singleton', gui\_Singleton, ...

'gui\_OpeningFcn', @arayuz\_OpeningFcn, ...

'gui\_OutputFcn', @arayuz\_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 arayuz is made visible.

function arayuz\_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 arayuz (see VARARGIN)

% Choose default command line output for arayuz

handles.output = hObject;

% Update handles structure

guidata(hObject, handles);

% UIWAIT makes arayuz wait for user response (see UIRESUME)

% uiwait(handles.figure1);

%Create Serial Port Object

global s;

s = serial('COM6','BaudRate',9600);

set(s,'DataBits',8);

set(s,'StopBits',1);

set(s,'Parity','none');

fopen(s);

% --- Outputs from this function are returned to the command line.

function varargout = arayuz\_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 W.

function W\_Callback(hObject, eventdata, handles)

% hObject handle to W (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'w','uchar');

function S\_Callback(hObject, eventdata, handles)

% hObject handle to S (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'s','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in D.

function A\_Callback(hObject, eventdata, handles)

% hObject handle to D (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'a','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in A.

function D\_Callback(hObject, eventdata, handles)

% hObject handle to A (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'d','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in stop.

function stop\_Callback(hObject, eventdata, handles)

% hObject handle to stop (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'x','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in Z.

function E\_Callback(hObject, eventdata, handles)

% hObject handle to Z (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'e','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in Q.

function Q\_Callback(hObject, eventdata, handles)

% hObject handle to Q (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'q','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in Z.

function Z\_Callback(hObject, eventdata, handles)

% hObject handle to Z (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'z','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in C.

function C\_Callback(hObject, eventdata, handles)

% hObject handle to C (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% s = serial('COM6','BaudRate',9600)

% set(s,'DataBits',8);

% set(s,'StopBits',1);

% set(s,'Parity','none');

% fopen(s)

global s;

s1 = s;

fwrite(s1,'c','uchar');

% fclose(s)

% delete(s)

% --- Executes on button press in togglebutton1.

function togglebutton1\_Callback(hObject, eventdata, handles)

% hObject handle to togglebutton1 (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 togglebutton1

cam = ipcam('http://192.168.2.20/video/mjpg.cgi');

preview(cam);

while(1)

img = snapshot(cam);

imshow(img)

end

% --- Executes on key press with focus on figure1 and none of its controls.

function figure1\_KeyPressFcn(hObject, eventdata, handles)

% hObject handle to figure1 (see GCBO)

% eventdata structure with the following fields (see MATLAB.UI.FIGURE)

% Key: name of the key that was pressed, in lower case

% Character: character interpretation of the key(s) that was pressed

% Modifier: name(s) of the modifier key(s) (i.e., control, shift) pressed

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

pressedKey = eventdata.Key;

switch pressedKey

case 'w'

W\_Callback(hObject, eventdata, handles)

case 'a'

A\_Callback(hObject, eventdata, handles)

case 'd'

D\_Callback(hObject, eventdata, handles)

case 's'

S\_Callback(hObject, eventdata, handles)

case 'q'

Q\_Callback(hObject, eventdata, handles)

case 'e'

E\_Callback(hObject, eventdata, handles)

case 'x'

stop\_Callback(hObject, eventdata, handles)

otherwise

disp('Invalid key is pressed')

end

% --- Executes when user attempts to close figure1.

function figure1\_CloseRequestFcn(hObject, eventdata, handles)

% hObject handle to figure1 (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

% Hint: delete(hObject) closes the figure

global s;

s1 = s;

fclose(s1)

delete(s1)

delete(hObject);

% --- Executes on button press in pushbuttonSpeedUp.

function pushbuttonSpeedUp\_Callback(hObject, eventdata, handles)

% hObject handle to pushbuttonSpeedUp (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

global s;

s1 = s;

fwrite(s1,'r','uchar');

% --- Executes on button press in pushbuttonSpeedDown.

function pushbuttonSpeedDown\_Callback(hObject, eventdata, handles)

% hObject handle to pushbuttonSpeedDown (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

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

global s;

s1 = s;

fwrite(s1,'f','uchar');