· Code of the project.

```
cam2 = webcam(1);
preview(cam2);
img = snapshot(cam2);
imwrite(img,'C:\Users\Rahul Dev\Desktop\final project\1.png','png');
pause(1);
clear('cam2');
cam3 = webcam(3);
preview(cam3);
img = snapshot(cam3);
imwrite(img,'C:\Users\Rahul Dev\Desktop\final project\2.png','png');
pause(1);
clear('cam3');
cam4 = webcam(4);
preview(cam4);
img = snapshot(cam4);
imwrite(img,'C:\Users\Rahul Dev\Desktop\final project\3.png','png');
pause(1);
clear('cam4');
cam5 = webcam(5);
preview(cam5);
img = snapshot(cam5);
imwrite(img,'C:\Users\Rahul Dev\Desktop\final project\4.png','png');
pause(1);
clear('cam5');
hold on;
IE = imread('1.png');
IgrayE = rgb2gray(IE);
level = 0.45;
IthreshE = imbinarize(IgrayE,level);
IfilledE = imfill(IthreshE,'holes');
se = strel('square',13);
se1 = strel('line',15,0);
IopennedE = imopen(IfilledE,se);
IopennedE1=imfill(IopennedE,'holes');
IopennedE2=imerode(IopennedE1,se1);
IopennedE3=bwareaopen(IopennedE2,5000);
[labeled,a] = bwlabel(IopennedE3,4);
IW = imread('2.png');
IgrayW= rgb2gray(IW);
level = 0.60;
IthreshW = imbinarize(IgrayW,level);
IfilledW = imfill(IthreshW,'holes');
se = strel('square',10);
se1 = strel('line',15,0);
IopennedW = imopen(IfilledW,se);
IopennedW1=imfill(IopennedW,'holes');
IopennedW2=imerode(IopennedW1,se1);
```



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IopennedW3=bwareaopen(IopennedW2,5000);
[labeled,b] = bwlabel(IopennedW3,4);
IN = imread('3.png');
IgrayN = rgb2gray(IN);
level = 0.4;
IthreshN = imbinarize(IgrayN,level);
IfilledN = imfill(IthreshN,'holes');
se = strel('square',13);
se1 = strel('line',15,0);
IopennedN = imopen(IfilledN,se);
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IopennedN1=imfill(IopennedN,'holes');
IopennedN2=imerode(IopennedN1,se1);
IopennedN3=bwareaopen(IopennedN2,5000);
[labeled,c] = bwlabel(IopennedN3,4);
IS = imread('4.png');
IgrayS = rgb2gray(IS);
level = 0.55;
IthreshS = imbinarize(IgrayS,level);
IfilledS = imfill(IthreshS,'holes');
se = strel('square',13);
se1 = strel('line',15,0);
IopennedS = imopen(IfilledS,se);
IopennedS1=imfill(IopennedS,'holes');
IopennedS2=imerode(IopennedS1,se1);
IopennedS3=bwareaopen(IopennedS2,5000);
[labeled,d] = bwlabel(IopennedS3,4);
subplot(3,3,4),imshow(IE);
title([num2str(a),' objects in direction1']);
subplot(3,3,8),imshow(IW);
title([num2str(b),' objects in direction2']);
subplot(3,3,6),imshow(IN);
title([num2str(c),' objects in direction3']);
subplot(3,3,2),imshow(IS);
title([num2str(d),' objects in direction4']);
pause(10);
close all;
z=[a b c d];
x = sort(z);
for i=1:4
if a==x(i)
break
end
end
for j=1:4
if b==x(j)
break
end
end
for k=1:4
if c==x(k)
break
```

```
end
end
for l=1:4
if d==x(l)
break
end
end
stopwatch(i,j,k,l);
function stopwatch(i,j,k,l)
I1=imread('direction1.jpg');
imshow(I1);
T1 = clock;
STOPPED = 0;
TIME = 3*i+1;
% Figure Window
hfig = figure('Name','Stopwatch',...
'Numbertitle','off',...
'Position',[520 300 1 80],...
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```
'Menubar','none',...
'Resize','off');
% Stopwatch Time Display
DISPLAY = uicontrol(hfig,'Style','text',...
'Position',[3 25 130 55],...
'BackgroundColor',[0.8 0.8 0.8],...
'FontSize',20);
set(hfig,'HandleVisibility','off');
% Start the Timer
htimer = timer('TimerFcn',@timerFcn,'Period',1,'ExecutionMode','FixedRate');
start(htimer);
function timerFcn(varargin)
if ~STOPPED
time_elapsed = etime(clock,T1);
str = formatTimeFcn(TIME - time_elapsed);
if time_elapsed>3*i+1
close(hfig);
close all;
hello(j,k,l);
return
end
set(DISPLAY,'String',str);
end
end
function str = formatTimeFcn(float_time)
% Format the Time String
float_time = abs(float_time);
hrs = floor(float_time/3600);
mins = floor(float_time/60 - 60*hrs);
secs = floor(float_time - 60*(mins + 60*hrs));
h = sprintf('%1.0f:',hrs);
m = sprintf('%1.0f:',mins);
s = sprintf('%d',secs);
33
%{
if secs>3*i
close(hfig);
close all;
hello(j,k,l);
return
end
%}
if hrs < 10
h = sprintf('0%1.0f:',hrs);
end
if mins < 10
m = sprintf('0%1.0f:',mins);
end
if secs < 10
s = sprintf('0%d',secs);
end
str = [h m s];
end
end
function hello(j,k,l)
I1=imread('direction2.jpg');
imshow(I1);
T1 = clock;
STOPPED = 0;
TIME = 3*j+1;
```

```
% Figure Window
hfig = figure('Name','Stopwatch',...
'Numbertitle','off',...
'Position',[520 300 1 80],...
'Menubar','none',...
'Resize','off');
% Stopwatch Time Display
DISPLAY = uicontrol(hfig,'Style','text',...
'Position',[3 25 130 55],...
'BackgroundColor',[0.8 0.8 0.8],...
'FontSize',20);
set(hfig,'HandleVisibility','off');
% Start the Timer
htimer = timer('TimerFcn',@timerFcn,'Period',1,'ExecutionMode','FixedRate');
start(htimer);
function timerFcn(varargin)
if ~STOPPED
time_elapsed = etime(clock,T1);
str = formatTimeFcn(TIME - time_elapsed);
if time_elapsed>3*j+1
close(hfig);
close all;
hi(k,l);
return
end
set(DISPLAY,'String',str);
34
end
end
function str = formatTimeFcn(float_time)
% Format the Time String
float_time = abs(float_time);
hrs = floor(float_time/3600);
mins = floor(float_time/60 - 60*hrs);
secs = floor(float_time - 60*(mins + 60*hrs));
h = sprintf('%1.0f:',hrs);
m = sprintf('%1.0f:',mins);
s = sprintf('%d',secs);
%{
if secs>3*j
close(hfig);
close all;
hi(k,l);
return
end
%}
if hrs < 10
h = sprintf('0%1.0f:',hrs);
end
if mins < 10
m = sprintf('0%1.0f:',mins);
end
if secs < 10
s = sprintf('0%d',secs);
end
str = [h m s];
end
end
function hi(k,l)
I1=imread('direction3.jpg');
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```
imshow(I1);
T1 = clock;
STOPPED = 0;
TIME = 3*k+1;
% Figure Window
hfig = figure('Name','Stopwatch',...
'Numbertitle','off',...
'Position',[520 300 1 80],...
'Menubar','none',...
'Resize','off');
% Stopwatch Time Display
DISPLAY = uicontrol(hfig,'Style','text',...
'Position',[3 25 130 55],...
'BackgroundColor',[0.8 0.8 0.8],...
'FontSize',20);
set(hfig,'HandleVisibility','off');
% Start the Timer
htimer = timer('TimerFcn',@timerFcn,'Period',1,'ExecutionMode','FixedRate');
start(htimer);
35
function timerFcn(varargin)
if ~STOPPED
time_elapsed = etime(clock,T1);
str = formatTimeFcn(TIME - time_elapsed);
if time_elapsed>3*k+1
close(hfig);
close all;
bye(l);
return
end
set(DISPLAY,'String',str);
end
end
function str = formatTimeFcn(float_time)
% Format the Time String
float_time = abs(float_time);
hrs = floor(float_time/3600);
mins = floor(float_time/60 - 60*hrs);
secs = floor(float_time - 60*(mins + 60*hrs));
h = sprintf('%1.0f:',hrs);
m = sprintf('%1.0f:',mins);
s = sprintf('%d',secs);
%{
if secs>3*k
close(hfig);
close all;
bye(l);
return
end
%}
if hrs < 10
h = sprintf('0%1.0f:',hrs);
end
if mins < 10
m = sprintf('0%1.0f:',mins);
end
if secs < 10
s = sprintf('0%d',secs);
end
str = [h m s];
```

```
end
end
function bye(l)
I1=imread('direction4.jpg');
imshow(I1);
T1 = clock;
STOPPED = 0;
TIME = 3*l+1;
% Figure Window
hfig = figure('Name','Stopwatch',...
'Numbertitle','off',...
```

```
'Position',[520 300 1 80],...
'Menubar','none',...
'Resize','off');
% Stopwatch Time Display
DISPLAY = uicontrol(hfig,'Style','text',...
'Position',[3 25 130 55],...
'BackgroundColor',[0.8 0.8 0.8],...
'FontSize',20);
set(hfig,'HandleVisibility','off');
% Start the Timer
htimer = timer('TimerFcn',@timerFcn,'Period',1,'ExecutionMode','FixedRate');
start(htimer)'
function timerFcn(varargin)
if ~STOPPED
time_elapsed = etime(clock,T1);
str = formatTimeFcn(TIME - time_elapsed);
if time_elapsed>3*l+1
close(hfig);
close all;
return
end
set(DISPLAY,'String',str);
end
end
function str = formatTimeFcn(float_time)
% Format the Time String
float_time = abs(float_time);
hrs = floor(float_time/3600);
mins = floor(float_time/60 - 60*hrs);
secs = floor(float_time - 60*(mins + 60*hrs));
h = sprintf('%1.0f:',hrs);
m = sprintf('%1.0f:',mins);
s = sprintf('%d',secs);
%{
if secs>3*l
close(hfig);
close all;
return
end
%}
if hrs < 10
h = sprintf('0%1.0f:',hrs);
end
if mins < 10
m = sprintf('0%1.0f:',mins);
end
if secs < 10
s = sprintf('0%d',secs);
```

```
end
str = [h m s];
end
end
```