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Image Slider Using MATLAB

Arshdeep Singh*
Student , CSE , P.T.U. Jalandhar
India

Abstract— In this project we are going to control the wallpapers with our hands motion. This is done with help of MATLAB tool by using some Algorithms. The aim of this project is to let the experiment with control the wallpapers with our hands motion in MATLAB. To complete the task, a number of functions have to be combined.

Keywords— Image slider , Image detection , Change detection , Hand detection ,Gesture Detection

I. INTRODUCTION

The aim of this project is to let the experiment with control the wallpapers with our hands motion in MATLAB. To complete the task, a number of functions have to be combined. Digital image processing allows one to enhance image features of interest while attenuating detail irrelevant to a given application, and then Perform the action according to the change in image.

OBJECTIVE: The sub-objective of this project are

- To implement this concept in Matlab.
- To detect change in an image.

II. PLATFORM (MATLAB)

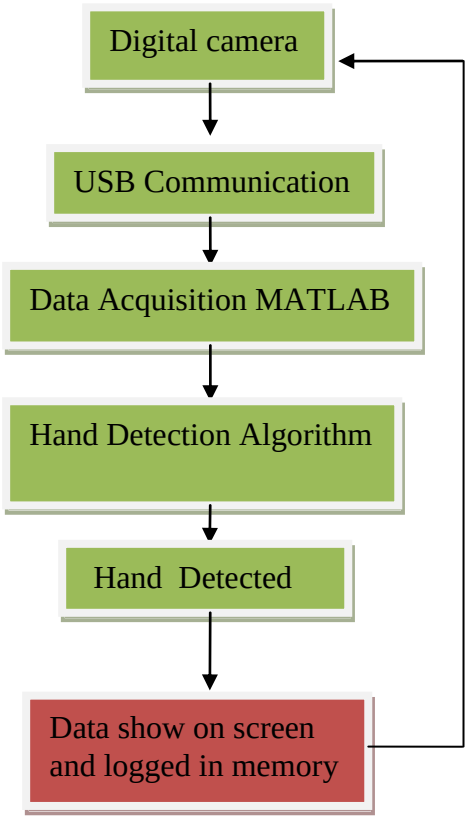
MATLAB = Matrix Laboratory

"MATLAB is a high-level language and interactive environment that enables you to perform computationally intensive tasks faster than with traditional programming languages such as C, C++ and Fortran."

MATLAB is an interactive, interpreted language that is designed for fast numerical matrix calculations.

III. PROPOSED STEPS

FLOW DIAGRAM :



IV. CODING AND WORKING

```
%------------------ camera int commands ----------

hwInfo = imaqhwinfo('winvideo')
device1 = hwInfo.DeviceInfo(1)
device1.SupportedFormats
vid=videoinput('winvideo',1,'YUY2_320x240')
set(vid,'ReturnedColorSpace','rgb');
triggerconfig(vid,'manual');
   set(vid,'FramesPerTrigger',1);
   set(vid,'TriggerRepeat', 100000);
   start(vid);
%-----------------------------------------------
fs=8000;
signal1=wavread('d:\pic\click.wav')
%---------------- main loop----------------------
trigger(vid)
image1=getdata(vid,1);
figure(2),imshow('d:\pic\slide4.jpg')
j=4;
gothand2=0;
for i=1:300
trigger(vid)
image2=getdata(vid,1);
image3=image1-image2;
image4=image2-image1;
image3_r=image3(:,:,1);
image3_g=image3(:,:,2);
image3_b=image3(:,:,3);
image3_r=im2bw(image3_r,100/255);
image3_g=im2bw(image3_g,100/255);
image3_b=im2bw(image3_b,100/255);
image4_r=image4(:,:,1);
image4_g=image4(:,:,2);
image4_b=image4(:,:,3);
image4_r=im2bw(image4_r,100/255);
image4_g=im2bw(image4_g,100/255);
image4_b=im2bw(image4_b,100/255);
finalbw=image3_r + image3_g + image3_b + image4_r +image4_g+image4_b;
finalbw=uint8(finalbw);
finalbw=finalbw*255;
finalbw1=imfill(finalbw);
finalbw2=bwareaopen(finalbw1,300);
figure(1),imshow(finalbw2)
[labelimage number]=bwlabel(finalbw2);
if (number>=1)
        gothand=1;
        title('motion detected')
else
        gothand=0;
        gothand2=0;
        title('NO motion detected')
end
if(gothand==1 && gothand2==0)
        mean_x=0;
        mean_y=0;
                for i=1:number
                        [x1 y1]=find(labelimage==i);
                        center1_x=mean_x + mean(x1);
                        center1_y=mean_y + mean(y1);
                end
        gothand2=1;
```



```
end
if(gothand2==1)
        mean_x=0;
        mean_y=0;
                for i=1:number
                        [x1 y1]=find(labelimage==i);
                        center2_x=mean_x + mean(x1);
                        center2_y=mean_y + mean(y1);
                end
        diff_x=round(center1_x-center2_x);
        diff_y=round(center1_y-center2_y);
        xlabel(num2str(diff_x));
        ylabel(num2str(diff_y));
                if(diff_x > 30)
                        sound(signal1,fs);
                        j=j+1;
                        if(j==9)
                                j=1;
                        end
                        y=strcat('d:\pic\','slide',num2str(j),'.jpg')
                        figure(2),imshow(y)
                        pause(1)
                        gothand=0;
                        gothand2==0;
                end
                if(diff_x < -30)
                        sound(signal1,fs);
                        j=j-1;
                        if(j==0)
                                j=8;
                        end
                        y=strcat('d:\pic\','slide',num2str(j),'.jpg')
                        figure(2),imshow(y)
                        pause(1)
                        gothand=0;
                        gothand2==0;
                end

end
end
```

V. TESTCASES

A. CASE 1.
Title: No motion
Input: Still background
Output: No motion detected
Result: Test Succeeded

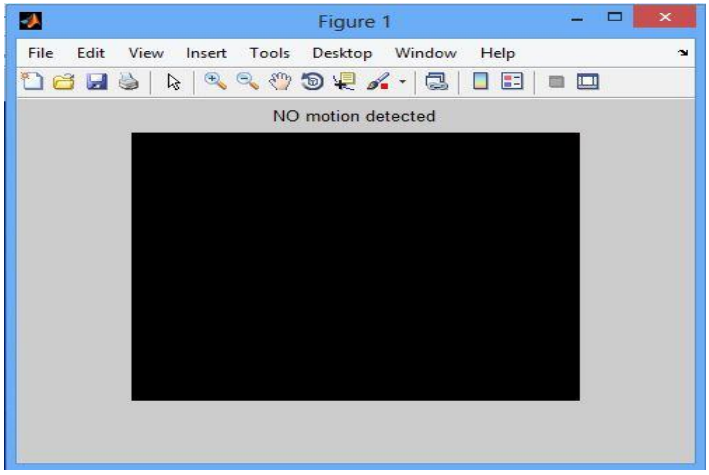


Fig. 1.1

B. CASE 2.
Title: On motion (left to right)
Input: Hand detected
Output: Next image
Result: Test Succeeded

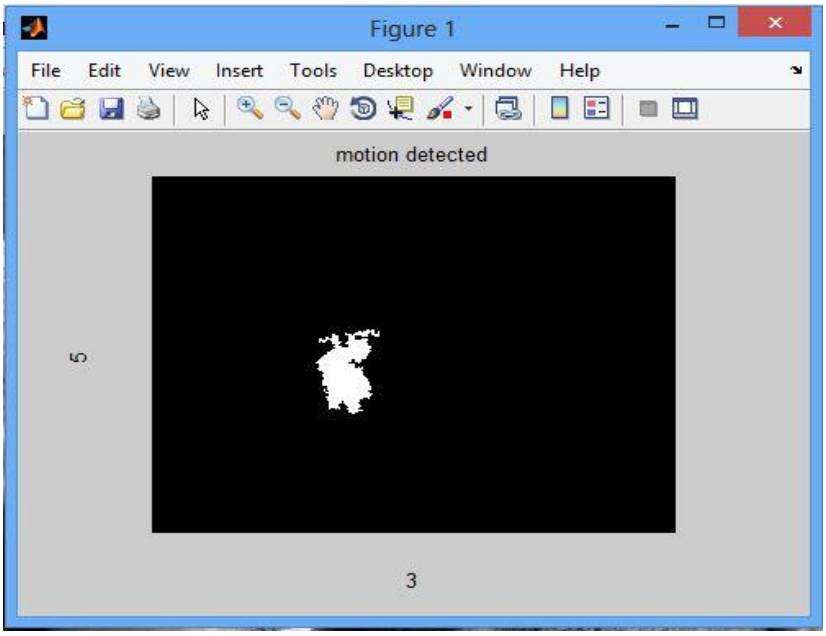


Fig. 1.2

C. CASE 3.
Title: On motion (right to left)
Input: Hand detected
Output: Previous image
Result: Test Succeeded

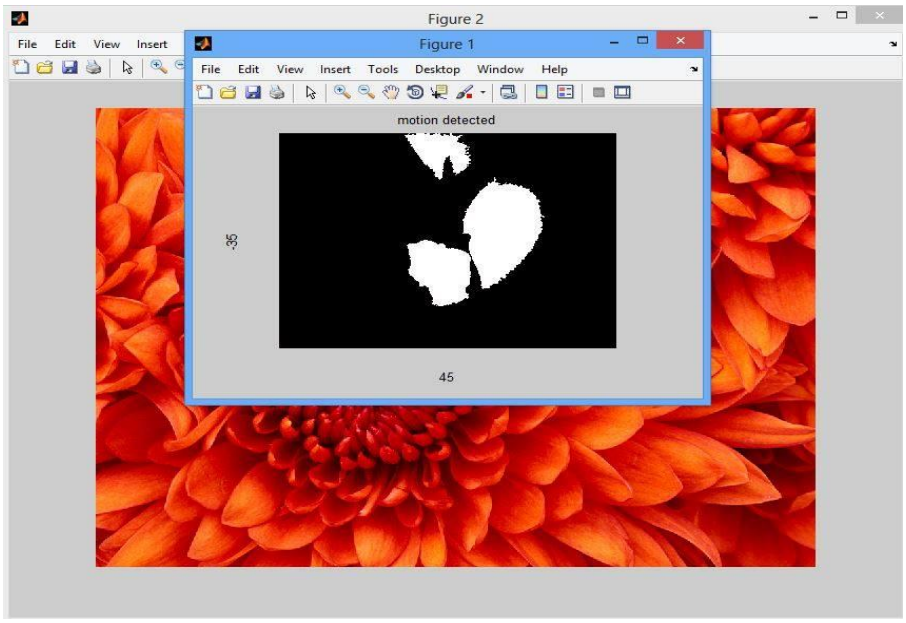


Fig. 1.3

VI. CONCLUSIONS AND FUTURE SCOPE

In this project, we have greatly experienced the use of MATLAB . We now understand a scenario, how to use different inbuilt Library functions for a model . My project deal with Motion detection through webcam . I have simulated many different scenarios of Digital Image Processing . In this project we deal with Webcam adapter to access live image frames and it Works on value of change in Image . If we have inconsistent background then this project will give false result .So we should always keep the background consistent while working on this project .

We can use this technology in Home appliances and Controlling home appliances with this technology will revolutionize our way of living.

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AUTHOR'S PROFILE

Arshdeep Singh is a graduate(B.tech.) in Computer Science Engineering from Rajasthan Technical university , kota Now Pursuing in Masters(M.tech.) in Computer Science Engineering from Punjab Technical university , Jalandhar

