FLAIR: A Virtual Assistant

INTRODUCTION

FLAIR is a virtual assistant which completes tasks by listening to your voice. It is a tool by the help of which you can controls your desktops or laptops. You can control many functions by just your voice. It opens notepad, calculator, it tells you jokes, it clicks your pictures, it shows a mirror for few seconds and it can even do beatboxing, and all this by just your voice command. It is a voice assistant for you which can help you. This project is to make things easier for old or blind people.

Code of the project

/* Bluetooth Voice Script */

```
functionob=bluetooth_voice

clc;

disp('Searching Bluetooth Devices');

r=instrhwinfo('bluetooth');

rn=r.RemoteNames;

[s,v] = listdlg('PromptString','Select a device:',...

        'SelectionMode','single',...

        'ListString',rn);

if(v)

sd=cell2mat(rn(s));

        b=instrhwinfo('bluetooth',sd);

ob=eval(cell2mat(b.ObjectConstructorName));

ob.Terminator='#' ;

end

end
```

/*Voice Scan Script*/

```
function op=voice_scan(ob)

while(1)

flushinput(ob)

b=fscanf(ob);
```

```
if(length(b)>4)

op=b(2:end-1);

break;

end

end
```

/*Voice To Text*/

```
clc;

clear;

delete(instrfind);

bt=bluetooth_voice;

fopen(bt);

NET.addAssembly('System.Speech');

obj=System.Speech.Synthesis.SpeechSynthesizer;

obj.Volume=100;

clc;

l=1;

Speak(obj,'hello i am flair your assistant . what can i do for you');

disp('What can i do for you?');

while(l>0)

st=voice_scan(bt);

disp(st);

if(strcmpi('notepad',st))%notepad

Speak(obj,'starting notepad');

system('start notepad');
```

```matlab
end

if(strcmpi('music',st))%music

speak(obj,'hindi or english');

system('start www.gaana.com');

end

if(strcmpi('internet',st))%chrome

Speak(obj,'name the website');

disp('name the website');

st=voice_scan(bt);

    m=st;

    m=m(find(~isspace(m)));

web(m);

end

if(strcmpi('railway',st))%railways

system('start www.indianrailways.gov.in');

end

if(strcmpi('who are you',st))

Speak(obj,'hello people ');

Speak(obj,'i am flair your assistant');

Speak(obj,'and i am here to help you');

Speak(obj,'what can i do for you');

end

if(strcmpi('weather',st) || strcmpi('how is the weather
today',st)||strcmpi('mausam',st))
```

```
system('start
https://www.google.co.in/search?q=weather&rlz=1C1CHBD_enIN751IN752&
oq=weather&aqs=chrome..69i57.992j0j7&sourceid=chrome&ie=UTF-8');

end

if(strcmpi('movies',st))

Speak(obj,'do you want to want to book tickets . or watch it online');

Speak(obj,'say book tickets . or say watch online');

elseif(strcmpi('book tickets',st))

system('start www.bookmyshow.com');

elseif(strcmpi('watch online',st))

Speak(obj,'where would you like to watch');

st=voice_scan(bt);

if(strcmpi('netflix',st))

Speak(obj,'opening netflix . enjoy');

system('start www.netflix.com');

elseif(strcmpi('amazon prime',st))

Speak(obj,'opening amazon prime videos . enjoy');

system('start www.primevideo.com');

end

end

if(strcmpi('calculator',st))%calculator

Speak(obj,'starting calculator');

system('start calc');

disp('What can i do for you?');

end
```

```matlab
if(strcmpi('who is your crush',st)||strcmpi('what is your favourite thing',st))

Speak(obj,'matlab');

disp('MATLAB');

end

if(strcmpi('what do you love',st)||strcmpi('who do you love',st))

Speak(obj,'my creators');

end

if(strcmpi('when is your birthday',st))

Speak(obj,'ask my creators . haha');

disp('ask my creators');

end

if(strcmpi('whats up',st)||strcmpi('hello',st))

Speak(obj,'hey ');

disp('hey');

end

if(strcmpi('can you beatbox',st)||strcmpi('beatbox',st))

disp('sure');

Speak(obj,'sure . boom boomchhakchaak boom chak boom boomchakchakboomsss');

disp('hope you enjoyed . because it was lit');

Speak(obj,'hope you enjoyed . because it was lit');

end

        if(strcmpi('who created you',st)||strcmpi('who is your creator',st)||strcmpi('who are your creators',st))
```

```
Speak(obj,'my creators are . snehilbehen . vipinbhai . rishabhbhai . and
utkarshbhai');

Speak(obj,'and i am proud of them for creating me . heehee');

end

if(strcmpi('social media',st))%social media

Speak(obj,'ok lets waste time . haha');

disp('what would you like to open?');

Speak(obj,' by the way . what would you like to open');

st=voice_scan(bt);

if(strcmpi('facebook',st))

Speak(obj,'opening facebook');

system('start www.facebook.com');

elseif(strcmpi('twitter',st))

Speak(obj,'opening twitter');

system('start www.twitter.com');

elseif(strcmpi('instagram',st))

Speak(obj,'opening instagram');

system('start www.instagram.com');

end

end

if(strcmpi('news',st))%news

disp('choose a language, say HINDI or ENGLISH');

Speak(obj,'choose a language, say HINDI or ENGLISH');

st=voice_scan(bt);

if(strcmpi('english',st))%english news
```

```
Speak(obj,'here is english news for you');

system('start https://news.google.com/news');

elseif(strcmpi('hindi',st))%hindi news

Speak(obj,'here is hindi news for you');

system('start https://khabar.ndtv.com/');

end

end

if(strcmpi('click picture',st))%to click picture

cam=webcam(1);

disp('SAY CHEESE');

Speak(obj,'say cheese');

pause(3);

disp('DONE');

Speak(obj,'done');

img=snapshot(cam);

clear cam;

imshow(img);

end

if(strcmpi('mirror',st))%live video preview/feed

cam=webcam(1);

preview(cam);

Speak(obj,'here is a mirror for you to look amazing');

pause(20);

clear cam;
```

```
end

if(strcmpi('tell me a joke',st))%joke

num=randi(4);

if(num==1)

Speak(obj,'how many programmers does it take to change a light bulb');

Speak(obj,'none . . its a hardware problem . . haha');

elseif(num==2)

Speak(obj,'what do computers eat for a snack');

Speak(obj,'microchips . yum yum');

elseif(num==3)

Speak(obj,'which computer sings the best');

Speak(obj,'a dell . haha');

elseif(num==4)

Speak(obj,'why did the programmer use, the entire bottle of shampoo in one
go');

Speak(obj,'because it said . lather, rinse, repeat . hastaag loops . lol');

end

end

if(strcmpi('sleep',st))%exiting the loop

Speak(obj,'ok bye bye . see you later');

break;

end

%img=imread(strcat('F:\DB\',st,'.jpg'));

    %imshow(img);

    l=l+1;end
```

Description of code of the project

1. bluetooth_voice script-

This script searches the available bluetooth devices and then connects to required device from the list for voice input through bluetooth from mobile.

```
functionob=bluetooth_voice
clc;
disp('Searching Bluetooth Devices');
r=instrhwinfo('bluetooth');
rn=r.RemoteNames;
[s,v] = listdlg('PromptString','Select a device:',...
            'SelectionMode','single',...
            'ListString',rn);
if(v)
sd=cell2mat(rn(s));
            b=instrhwinfo('bluetooth',sd);
ob=eval(cell2mat(b.ObjectConstructorName));
ob.Terminator='#' ;
end
end
```

Description for functions and keywords used:

- ***instrhwinfo('bluetooth')***:- Determine what Bluetoothdevices are accessible from your computer.
- ***RemoteNames***- View the device list using the RemoteNames property.
- ***Listdlg***-Create list selection dialog box to show Bluetoothdevices.
- ***cell2mat***-converts a cell array into an ordinary array. The elements of the cell array must all contain the same data type, and the resulting array is of that data type.
- ***Eval***- evaluates the MATLABcode represented by expression.

- ***ob.Terminator***-Specify terminator character. An integer value ranging from 0 to 127, the equivalent ASCII character, or empty (''). For serial port objects, CR/LF and LF/CR are also accepted values. You specify different read and write terminators as a 1-by-2 cell array.

2. voice_scan script-

This script scans the strings sent through voice input.

```
function op=voice_scan(ob)
while(1)
flushinput(ob)
b=fscanf(ob);
if(length(b)>4)
op=b(2:end-1);
break;
end

end
```

Description for functions used:

- *flushinput*-Removes data from input buffer.
- *fscanf*- Read data from text file. It reads the string inputted through voice from mobilebluetooth.

3. voice_to_text script-

- This script recieves the voice input as a string and then compares it to existing strings and executes the statements accordingly.
- First of all it searches for the bluetooth devices using the bluetooth_voice script and we have to connect our device from the list of available devices.
- Then it asks the user to speak something through the mic of mobile using a BT Voice Controller App.
- The voice is converted into string and then sent to Matlab where it is scanned using the voice_scan script.

- Then this string is compared with the strings already present in the database created. Each string is related to some action. If the input voice string matches with existing string in the database then it executes the action related to it accordingly.

```
clc;
clear;
delete(instrfind);
bt=bluetooth_voice;
fopen(bt);
NET.addAssembly('System.Speech');
obj=System.Speech.Synthesis.SpeechSynthesizer;
obj.Volume=100;
clc;
l=1;
Speak(obj,'hello i am flair your assistant . what can i do for you');
disp('What can i do for you?');
while(l>0)
st=voice_scan(bt);
disp(st);
if(strcmpi('notepad',st))%notepad
Speak(obj,'starting notepad');
system('start notepad');
end
if(strcmpi('music',st))%music
speak(obj,'hindi or english');
system('start www.gaana.com');
end
if(strcmpi('internet',st))%chrome
Speak(obj,'name the website');
disp('name the website');
st=voice_scan(bt);
    m=st;
    m=m(find(~isspace(m)));
web(m);
end
if(strcmpi('railway',st))%railways
system('start www.indianrailways.gov.in');
end
if(strcmpi('who are you',st))
Speak(obj,'hello people ');
Speak(obj,'i am flair your assistant');
Speak(obj,'and i am here to help you');
Speak(obj,'what can i do for you');
end
```

```
if(strcmpi('weather',st) || strcmpi('how is the weather today',st)||strcmpi('mausam',st))
system('start
https://www.google.co.in/search?q=weather&rlz=1C1CHBD_enIN751IN752&oq=weather&
aqs=chrome..69i57.992j0j7&sourceid=chrome&ie=UTF-8');
end
if(strcmpi('movies',st))
Speak(obj,'do you want to want to book tickets . or watch it online');
Speak(obj,'say book tickets . or say watch online');
elseif(strcmpi('book tickets',st))
system('start www.bookmyshow.com');
elseif(strcmpi('watch online',st))
Speak(obj,'where would you like to watch');
st=voice_scan(bt);
if(strcmpi('netflix',st))
Speak(obj,'opening netflix . enjoy');
system('start www.netflix.com');
elseif(strcmpi('amazon prime',st))
Speak(obj,'opening amazon prime videos . enjoy');
system('start www.primevideo.com');
end
end
if(strcmpi('calculator',st))%calculator
Speak(obj,'starting calculator');
system('start calc');
disp('What can i do for you?');
end
if(strcmpi('who is your crush',st)||strcmpi('what is your favourite thing',st))
Speak(obj,'matlab');
disp('MATLAB');
end
if(strcmpi('what do you love',st)||strcmpi('who do you love',st))
Speak(obj,'my creators');
end
if(strcmpi('when is your birthday',st))
Speak(obj,'ask my creators . haha');
disp('ask my creators');
end
if(strcmpi('whats up',st)||strcmpi('hello',st))
Speak(obj,'hey ');
disp('hey');
end
if(strcmpi('can you beatbox',st)||strcmpi('beatbox',st))
disp('sure');
Speak(obj,'sure . boom boomchhakchaak boom chak boom boomchakchakboomsss');
```

```
disp('hope you enjoyed . because it was lit');
Speak(obj,'hope you enjoyed . because it was lit');
end
    if(strcmpi('who created you',st)||strcmpi('who is your creator',st)||strcmpi('who are your
creators',st))
Speak(obj,'my creators are . snehilbehen . vipinbhai . rishabhbhai . and utkarshbhai');
Speak(obj,'and i am proud of them for creating me . heehee');
end
if(strcmpi('social media',st))%social media
Speak(obj,'ok lets waste time . haha');
disp('what would you like to open?');
Speak(obj,' by the way . what would you like to open');
st=voice_scan(bt);
if(strcmpi('facebook',st))
Speak(obj,'opening facebook');
system('start www.facebook.com');
elseif(strcmpi('twitter',st))
Speak(obj,'opening twitter');
system('start www.twitter.com');
elseif(strcmpi('instagram',st))
Speak(obj,'opening instagram');
system('start www.instagram.com');
end
end
if(strcmpi('news',st))%news
disp('choose a language, say HINDI or ENGLISH');
Speak(obj,'choose a language, say HINDI or ENGLISH');
st=voice_scan(bt);
if(strcmpi('english',st))%english news
Speak(obj,'here is english news for you');
system('start https://news.google.com/news');
elseif(strcmpi('hindi',st))%hindi news
Speak(obj,'here is hindi news for you');
system('start https://khabar.ndtv.com/');
end
end
if(strcmpi('click picture',st))%to click picture
cam=webcam(1);
disp('SAY CHEESE');
Speak(obj,'say cheese');
pause(3);
disp('DONE');
Speak(obj,'done');
img=snapshot(cam);
```

```
clear cam;
imshow(img);
end
if(strcmpi('mirror',st))%live video preview/feed
cam=webcam(1);
preview(cam);
Speak(obj,'here is a mirror for you to look amazing');
pause(20);
clear cam;
end
if(strcmpi('tell me a joke',st))%joke
num=randi(4);
if(num==1)
Speak(obj,'how many programmers does it take to change a light bulb');
Speak(obj,'none . . its a hardware problem . . haha');
elseif(num==2)
Speak(obj,'what do computers eat for a snack');
Speak(obj,'microchips . yum yum');
elseif(num==3)
Speak(obj,'which computer sings the best');
Speak(obj,'a dell . haha');
elseif(num==4)
Speak(obj,'why did the programmer use, the entire bottle of shampoo in one go');
Speak(obj,'because it said . lather, rinse, repeat . hastaag loops . lol');
end
end
if(strcmpi('sleep',st))%exiting the loop
Speak(obj,'ok bye bye . see you later');
break;
end
   %img=imread(strcat('F:\DB\',st,'.jpg'));
   %imshow(img);
   l=l+1;
end
```

Description for functions used:

- ***instrfind*** - Read serial port objects from memory to MATLAB workspace
- ***fopen*** - opens the file, filename, for binary read access, and returns an integer file identifierequal to or greater than 3.
- ***strcmpi*** - compares s1 and s2 ignoring the case
- ***Imread*** -Read image from graphics file
- ***Imshow*** - displays image in a figure, where I is a grayscale, RGB (truecolor), or

binary image

- ***preview(obj)-***It creates a Video Preview window that displays live video data for video input object obj. The window also displays the timestamp and video resolution of each frame, and the current status of obj.
- ***pause(n)-***It pauses execution for n seconds before continuing. Pausing must be enabled for this call to take effect.
- ***NET.addAssembly('System.Speech')***- It loads theGlobal.Net assembly
- ***System.Speech.Synthesis.SpeechSynthesizer***- It is used for text to speech synthesing
- ***find(~isspace(m))-***To determine which characters are space characters
- ***web(m)-*** To open webpage