**APPENDIX A: Main GUI functions for Speech Recognition system.**

functionSpeechRecognition

% -----------------------------------------------------------------------

% Name: Main GUI function.

% Author: Hussein M. Mohammed.

% Description: GUI window function for Speech Recognition system that the

% user deal with it to recognize a spoken word.

% -----------------------------------------------------------------------

f = figure('Visible','on','Position',[60,150,800,585]);

choose\_method = uicontrol('Style','text','String','Choose the method of

recognizing','Position',[520,520,240,20],

'BackgroundColor',[0.8,0.8,0.8],

'FontSize',12,'ForegroundColor','k');

method = uicontrol('Style','popupmenu','String',{'Select one','LPC&

 ANN','MFCC &ANN','Spectrogram& ANN'},

'Position',[550,410,200,100],'BackgroundColor',

 [0.9,0.9,0.9],'FontSize',12,'ForegroundColor','k',

'Callback',{@method\_Callback});

trnng = uicontrol('Style','pushbutton','FontSize',12,'String','Train the

Network','Position',[550,340,200,70],

'Callback',{@train\_Callback});

test = uicontrol('Style','pushbutton','FontSize',12,'String','Test the

Network','Position',[550,220,200,70],

'Callback',{@test\_Callback});

qquit = uicontrol('Style','pushbutton','String','Quit','FontSize',12,

'Position',[550,100,200,70],'Callback',{@quit\_Callback});

noise = uicontrol('Visible','off','Style','text','String','S/N Ratio = ',

'Position',[90,525,160,20],'BackgroundColor',[0.8,0.8,0.8],

'FontSize',12,'ForegroundColor','k');

noise\_ratio = uicontrol('Visible','off','Style','popupmenu','Position',

 [220,530,90,20],'String',{'No Noise','30 dB',

'25dB','20 dB','15 dB','10 dB','5 dB'},

 'BackgroundColor',[0.9,0.9,0.9],'ForegroundColor',

'k','FontSize',12,'Callback',

 {@comput\_noise\_Callback});

OK = uicontrol('Visible','off','Style','pushbutton','String','Ok',

'FontSize',12,'Position',[320,523,40,25],

'Callback',{@ok\_Callback});

fig = axes('Units','points','Position',[50,50,320,300]);

 set([choose\_method,method,trnng,test,qquit,fig,noise,noise\_ratio,OK],'Units','normalized');

% Assign the GUI a name to appear in the window title.

set(f,'Name','Speech Recognition program')

% Move the GUI to the center of the screen.

movegui(f,'center')

current\_method = 0;

sum = 0;

temp = 0;

end

functionmethod\_Callback(source,~)

current\_method = 0;

str = get(source, 'String');

val = get(source,'Value');

% current method.

switchstr{val};

case'Select one'

 current\_method = 0;

sum = -1;

case'LPC & ANN'

 current\_method = 1;

sum = 1;

case'MFCC & ANN'

 current\_method = 2;

sum = 2;

case'Spectrogram & ANN'

 current\_method = 3;

sum = 3;

end

end