SPEECH RECOGNITION SECURITY SYSTEM USING MATLAB

PROJECT REPORT

Submitted for the course: Signals and Systems (ECE1004)

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Slot: C2

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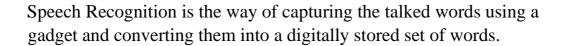
ACKNOWLEDGEMENTS

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ABSTRACT



In the current world, there is a continually expanding need to confirm and recognize the voice of individuals automatically.

Speech recognition is basically and widely used concept for providing the security to the applications.

We have come up with a Security System using speech recognition.

INTRODUCTION

Depending on limitations of other models, the technique called cross correlation for recognition of speech is used and simulated in MATLAB.

Correlation compares the two signals, considering the samples and comparing them with the test sample gives us the result.

To recognize the words from the sound the concept Mel frequency cepstral coefficients (MFCCs) is used.

We have used Arduino and a servo motor for the demonstration of the hardware of the door lock security system.

CROSS-CORRELATION TECHNIQUE

Cross - correlation is a measure of similarity of two series as a function of the displacement of one relative to the other.

Syntax for Correlation in MATLAB is derived as r = x corr(x,y).

r = xcorr(x,y) returns the cross-correlation of two discrete-time sequences, x and y.

Cross-correlation measures the closeness amongst x and moved (slacked) duplicates of y as a component of the slack.

CODE

```
rec=audiorecorder;
disp('Start1');
recordblocking(rec,3);
disp('End1');
test=getaudiodata(rec); test=test';
test=test(1,:); test=test';
pause(2); y2=audioread('MANASA(1).wav');
y2=y2'; y2=y2(1,:); y2=y2';
z2=xcorr(test,y2); m2=max(z2);
12=length(z2);
                            t2 = -
((121)/2):1:((12-1)/2);
                          t2=t2';
y3=audioread('tanvi(1).wav');
y3=y3'; y3=y3(1,:); y3=y3';
z3=xcorr(test,y3); m3=max(z3);
13 = length(z3);
                            t3 = -
((131)/2):1:((13-1)/2);
                         t3=t3':
y4=audioread('aarathy.wav'); y4=y4';
      y4=y4(1,:); y4=y4';
z4=xcorr(test,y4); m4=max(z4);
14=length(z4); t4=-((141)/2):1:((14-1)/2);
t4=t4';
y5=audioread('dakshayani.wav');
y5=y5'; y5=y5(1,:); y5=y5';
z5=xcorr(test,y5);
m5=max(z5); 15=length(z5); t5=-((15-1)/2): 1:((15-1)/2);
```

```
t5=t5':
v6=audioread('mounika.wav');
y6=y6';
           y6=y6(1,:);
                          y6=y6';
z6=xcorr(test,y6);
                    m6=max(z6);
16=length(z6); t6=-((161)/2):1:((16-
1)/2; t6=t6';
v7=audioread('aditya.wav'); y7=y7';
y7=y7(1,:);
                            y7=y7';
z7=xcorr(test,y7);
                      m7=max(z7);
17 = length(z7);
t7=-((17-1)/2):1:((17-1)/2); t7=t7';
m8=30; a=[m2 m3 m4 m5 m6 m7
m8]; maxima=max(a);
h=audioread('Matchfound.wav'); if
maxima<=m3
                soundsc(h,50000)
ab=arduino('COM12','Uno','Libraries','Servo');
s = servo(ab, 'D8');
                     writePosition(s,1) elseif
                  soundsc(h,50000)
maxima<=m2
ab=arduino('COM12','Uno','Libraries','Servo');
s = servo(ab, 'D8');
writePosition(s,1) elseif maxima<=m4
soundsc(h,50000)
  ab=arduino('COM12','Uno','Libraries','Servo');
s = servo(ab, 'D8');
  writePosition(s,1) elseif maxima<=m5</pre>
soundsc(h,50000)
  ab=arduino('COM12','Uno','Libraries','Servo');
servo(ab, 'D8');
                  writePosition(s,1) elseif maxima<=m6</pre>
soundsc(h,50000)
  ab=arduino('COM12','Uno','Libraries','Servo');
                                                   s = servo(ab, 'D8'):
writePosition(s,1) elseif maxima<=m7
                                         soundsc(h,50000)
ab=arduino('COM12','Uno','Libraries','Servo');
s = servo(ab, 'D8');
                         writePosition(s,1) else
soundsc(audioread('Nomatch.wav'),50000) end
```

RESULTS AND CONCLUSIONS

At the end of this project have gained working knowledge with the concept of correlation and also have good theoretical knowledge about the same.

codes.	
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	REFERRENCE
1. www.wikipedia.com	
2. www.ijcter.com	
3. www.practicalcryptography.com	

