Dan Otieno.

Table of Contents

CPE 381-01.

Homework 2 - Q2.

02/18/2023.

==
%%

MULTIPATH IN WIRELESS COMMUNICATION.

==
%%

```
Fs = 11025;%<-------------------------Sampling Frequency----------------->
Ts = 1/Fs;%<-------------------------Sampling Interval------------------->
t = 0:Ts:3;%<------------------------Time------------------------------->
x = exp(-2*t).*sin(2*pi*400.*t);%<-----Original signal------------------->
N = length(t);%<---------------------Vector Length---------------------->
```

==
%%

```
td1 = 0.2*Fs;%<----------------------Time delay----------------------->
i1 = round(td1);%<-------------------Integer delay--------------------->
i2 = round(0.5*Fs);%<----------------Integer delay--------------------->
y1 = [zeros(1,i1) x(1:N-i1)];%<-------Delayed signal-------------------->
```
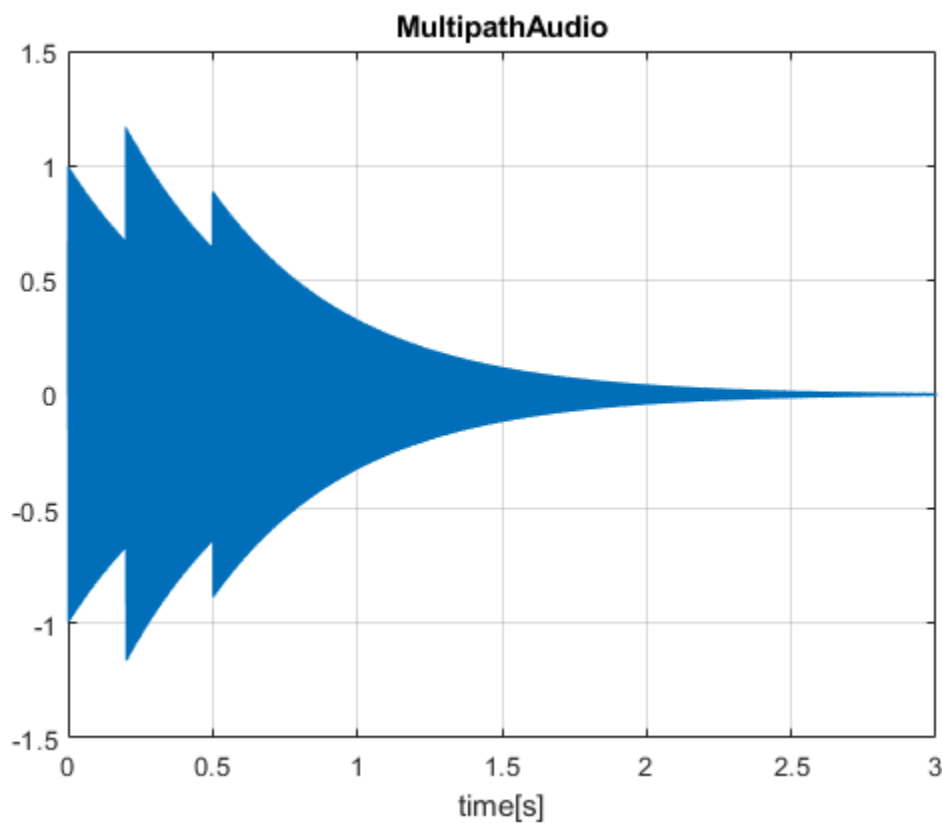
```
y2 = [zeros(1,i2) x(1:N-i2)];%<--------Delayed signal-------------------->
y = x+0.5*y1+0.25*y2;%<---------------Received signal-------------------->
```

%%

```
%<----------------------Plot function------------------------------------>
plot(t,y),title('y = x + 0.5x(y1) + 0.25(y2)'),xlabel('time[s]'), grid on;
%<----------------------Save audio file---------------------------------->
audiowrite('hw2q2.wav',y,Fs),title('MultipathAudio');
sound(y,Fs);%<-----------Listen to audio file--------------------------->
```

Warning: Data clipped when writing file.

%%

Published with MATLAB® R2022a