
```
function str = dtmfdecode(s, fs)
%   Mathias Berglund
%   Engr 451 Spring 2018
%
%   DTMFDECODE Decode DTMF tones
%   str = decodedtmf(s, fs)
%   Accepts a array, s, which corresponds to the DTMF tones
%   sampled at fs
%   Produces a string transcript that decodes the tones.

f = 0.025*fs;
nf = floor(length(s)/f);
b = 1;
k = 1;
indx = 1;
indx2 = 1;

while k <= nf
    frame = s(b:b+f);
    E = sum(frame.^2);

    if E > 10
        first(indx) = b;

        while E > 10
            b = b+f;
            k = k+1;
            if b+f < length(s)
                frame = s(b:b+f);
                E = sum(frame.^2);
            else
                break
            end
        end
        last(indx2) = b;
    else
        b = b+f;
        k = k+1;
    end

    indx = indx + 1;
    indx2 = indx2 + 1;
end

first = first(find(first));
last = last(find(last));

for i = 1:length(first)
    x = first(i);
    l = last(i);
    w = (l-x)*2;
```

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y = s(x:1);
Y = fft(y, w);
Y = Y(25:length(Y)/2);
[m n] = max(Y); % This finds the max freq
Y(n) = 0;
[m2 n2] = max(Y); % This finds the 2nd max freq

f1 = fs*(n+25)/w;
f2 = fs*(n2+25)/w;
freq = f1 + f2;

if freq > 941+1477
    str(i) = '#';
elseif freq > 852+1477
    str(i) = '9';
elseif freq > 941+1336
    str(i) = '0';
elseif freq > 770+1477
    str(i) = '6';
elseif freq > 852+1340
    str(i) = '8';
elseif freq > 697+1477
    str(i) = '3';
elseif freq > 941+1209
    str(i) = '*';
elseif freq > 770+1336
    str(i) = '5';
elseif freq > 852+1209
    str(i) = '7';
elseif freq > 697+1336
    str(i) = '2';
elseif freq > 770+1209
    str(i) = '4';
elseif freq > 697+1209
    str(i) = '1';
end
end
end

```

Not enough input arguments.

Error in dtmfdecode (line 12)
*f = 0.025*fs;*

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