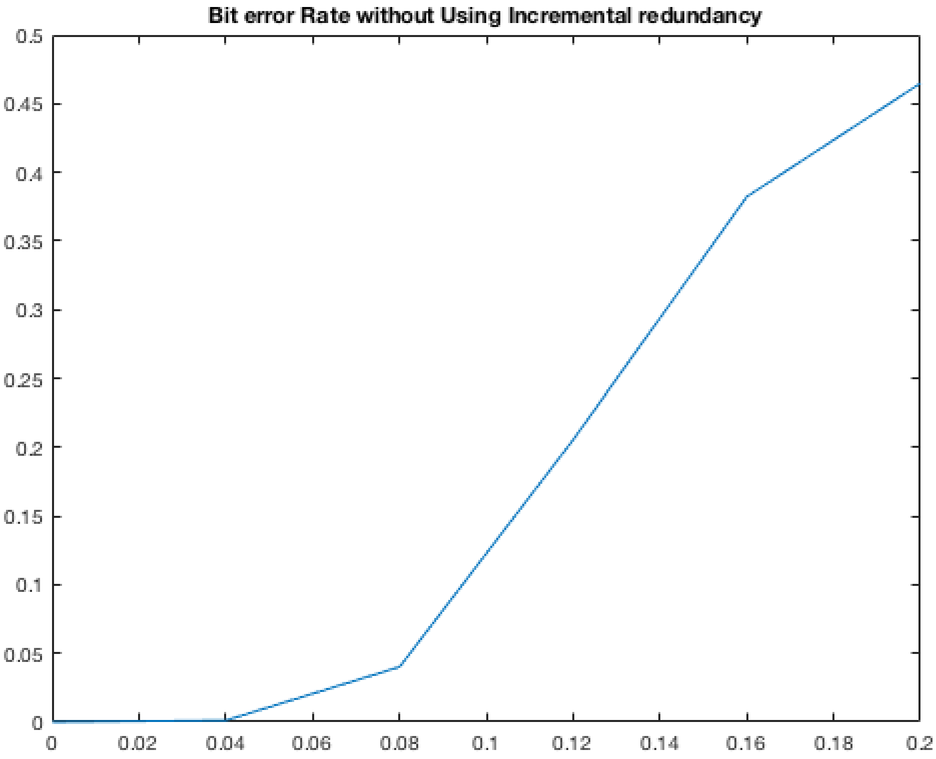
```
clc
clear all
% Read Highway Video
obj = VideoReader('highway.avi');
a= read(obj);
frames=get(obj,'NumberOfFrames');

% extracting Frames
for i=1:frames
     I(i).cdata=a(:,:,:,i);
end

s=size(I(1).cdata);
mov(1:frames) =struct('cdata', zeros(s(1),s(2),
 3, 'uint8'),'colormap', []);
% Trellis Generate rate half
t = poly2trellis(7,[171 133]);

% Probability vector with 6 elements
probvector=[0.0001:0.03998:0.2];
errorBitswithinc=zeros(1,length(probvector));

for idx = 1:length(probvector)

      errornumber=0;

    for Frame=1:frames
% Red Components of the Frame
R=I(Frame).cdata(:,:,1);
% Green Components of the Frame
G=I(Frame).cdata(:,:,2);
% Blue Components of the Frame
B=I(Frame).cdata(:,:,3);

% Reshaping Red Bits
[sz1,sz2]=size(R);
redBits=reshape(R,1,sz1*sz2);
% Reshaping Green Bits
[sz1,sz2]=size(G);
greenBits=reshape(G,1,sz1*sz2);
% Reshaping Blue Bits
[sz1,sz2]=size(B);
blueBits=reshape(B,1,sz1*sz2);

redBits=double(redBits);
redBits=de2bi(redBits);
redBits=reshape(redBits,1,[]);

greenBits=double(greenBits);
greenBits=de2bi(greenBits);
greenBits=reshape(greenBits,1,[]);
```

```
blueBits=double(blueBits);
blueBits=de2bi(blueBits);
blueBits=reshape(blueBits,1,[]);
% Concatinating bit final stream
totalBits=horzcat(redBits,greenBits,blueBits);

length(totalBits);
length(totalBits)/1024;
% Packets to be encoded
pkts=reshape(totalBits,594,1024);
% matrix to recieve decoded data
decoded=zeros(594,1024);

% loop on all packets and recieve the packet even with error
for i=1:594
        code = convenc(pkts(i,:),t);
        p = probvector(idx);
        recieved = bsc(code,p);
        decoded(i,:) = vitdec(recieved,t,35,'trunc','hard');
        locs = pkts(i,:)~=decoded(i,:);
        errornumber = errornumber+sum(locs);
end

% Reshaping decoded data into red, green, blue and writing video
% we know the limits of the red green and blue by the dimensions
%144*176*8=202752
%increment once again to get green then blue
totalBitsRecived=reshape(decoded,1,[]);
redBitsRecived=totalBitsRecived(1,1:202752);
greenBitsRecived=totalBitsRecived(1,202753:405504);
blueBitsRecived=totalBitsRecived(1,405505:608256);

redBitsRecived=reshape(redBitsRecived,25344,8);
redBitsRecived=bi2de(redBitsRecived);
redBitsRecived=uint8(redBitsRecived);
redBitsRecived=reshape(redBitsRecived,144,176);

greenBitsRecived=reshape(greenBitsRecived,25344,8);
greenBitsRecived=bi2de(greenBitsRecived);
greenBitsRecived=uint8(greenBitsRecived);
greenBitsRecived=reshape(greenBitsRecived,144,176);

blueBitsRecived=reshape(blueBitsRecived,25344,8);
blueBitsRecived=bi2de(blueBitsRecived);
blueBitsRecived=uint8(blueBitsRecived);
blueBitsRecived=reshape(blueBitsRecived,144,176);

mov(1,Frame).cdata(:,:,1) = redBitsRecived;
mov(1,Frame).cdata(:,:,2) = greenBitsRecived;
mov(1,Frame).cdata(:,:,3) = blueBitsRecived;
    end
  errorBitswithinc(idx)=errornumber;
end
figure(1)
```

```
errorBitswithinc = errorBitswithinc./(608256*30);
plot(probvector,errorBitswithinc)
title('Bit error Rate without Using Incremental redundancy')

% writer = VideoWriter('Video.avi','Uncompressed AVI');
% writer.FrameRate=obj.FrameRate;
% open(writer);
% writeVideo(writer,mov);
% close(writer);
```



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