

## EE2025 Independent Project (2019-20)

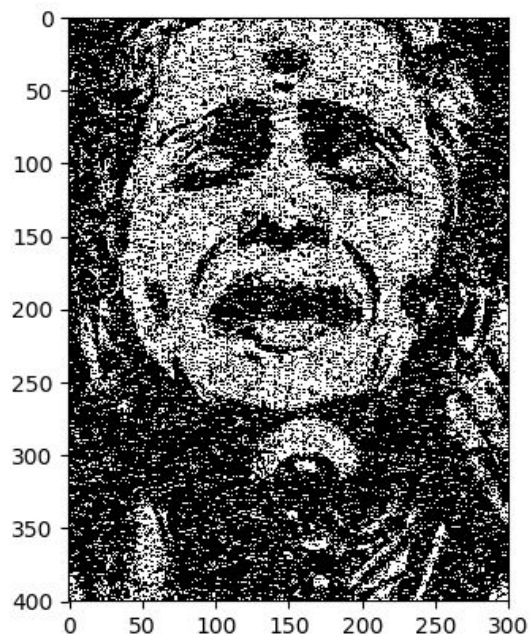
### Programming Assignment - 1

Team - details:

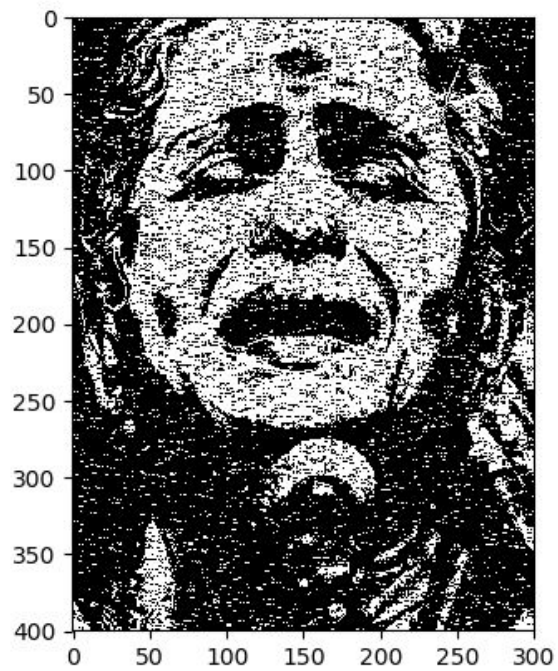
1	Bandi Sai Laxman	ee18btech11049
2	Varun Sankar Moparthy	Ee18btech11030

Semilogy plots were placed separately as .png files

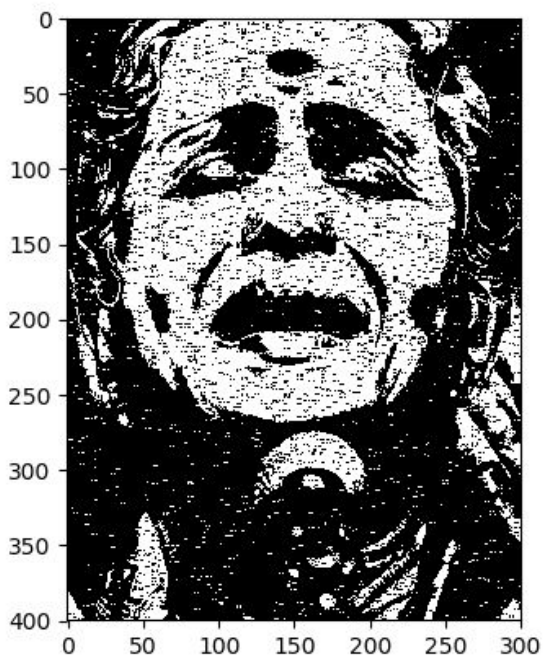
#### CHANNEL CODE - 1



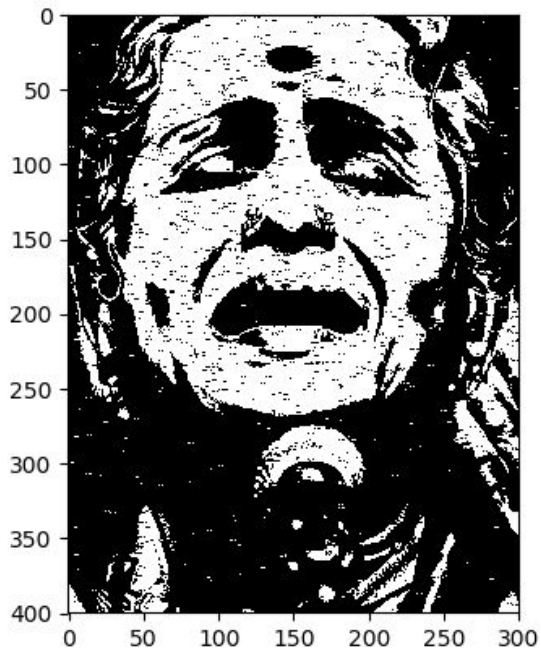
$E_b/N_0 = -2$  db  
Number of wrong pixels reported = 22956  
Bit rate obtained = 0.1913



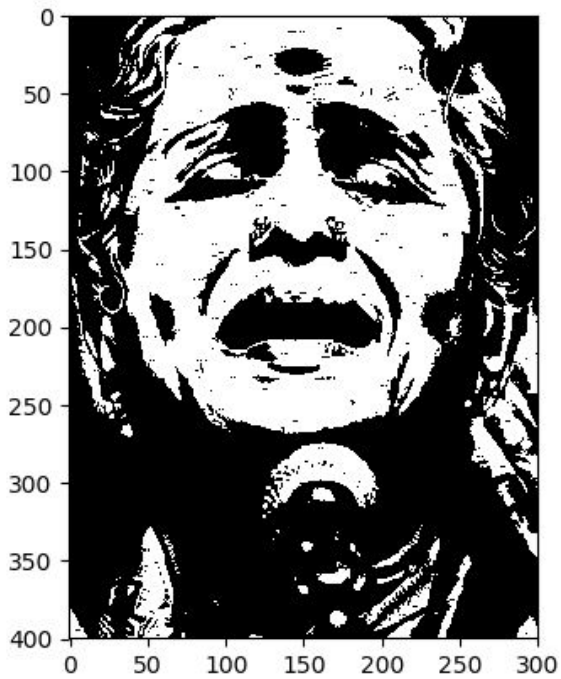
$E_b/N_0 = 0 \text{ db}$   
Number of wrong pixels reported = 14605  
Bit rate obtained = 0.1217



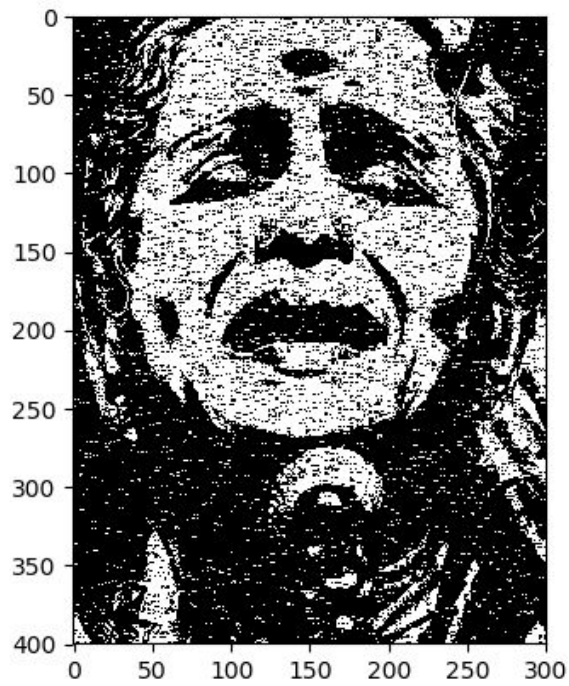
$E_b/N_0 = 2 \text{ db}$   
Number of wrong pixels reported = 6982  
Bit rate obtained = 0.0581



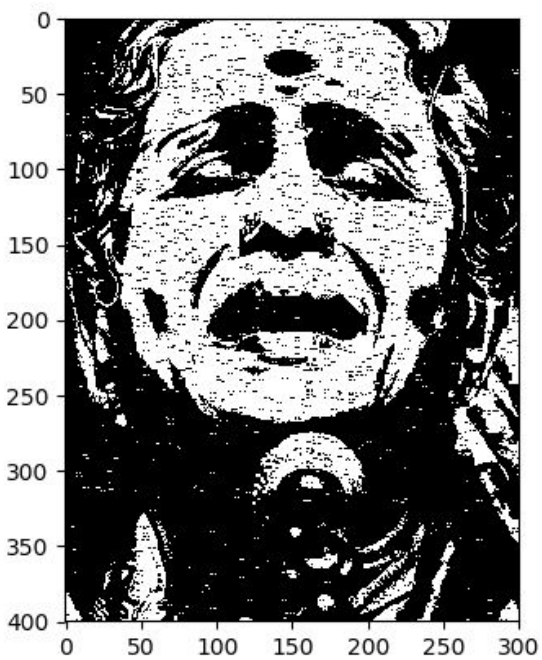
$E_b/N_0 = 4$  db  
Number of wrong pixels reported = 2393  
Bit rate obtained = 0.01994



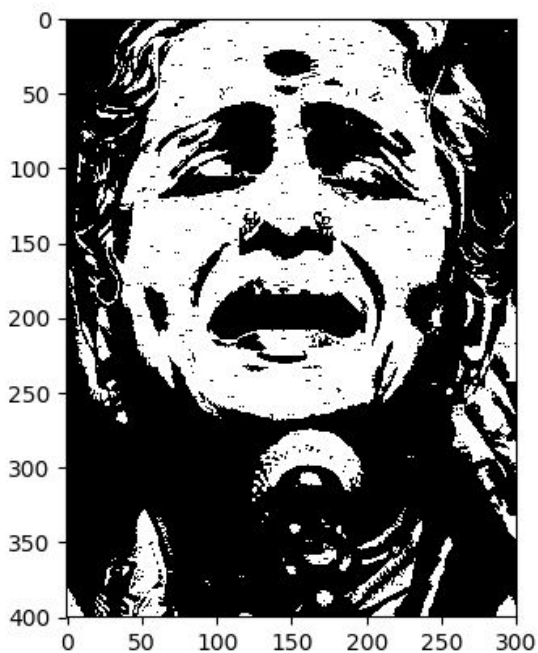
$E_b/N_0 = 6$  db  
Number of wrong pixels reported = 400  
  
Bit rate obtained = 0.0033



variance = 20  
Number of wrong pixels reported = 10895  
Bit rate obtained = 0.0907



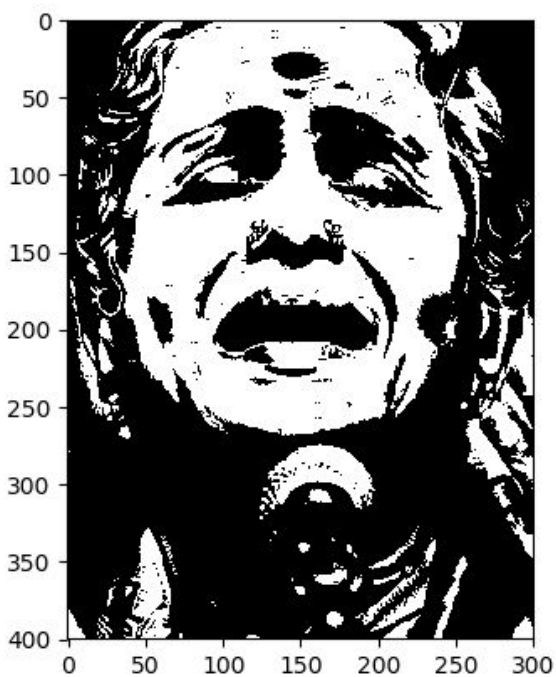
variance = 12  
Number of wrong pixels reported = 3937  
Bit rate obtained = 0.03280



variance = 7

Number of wrong pixels reported = 685

Bit rate obtained = 0.005483

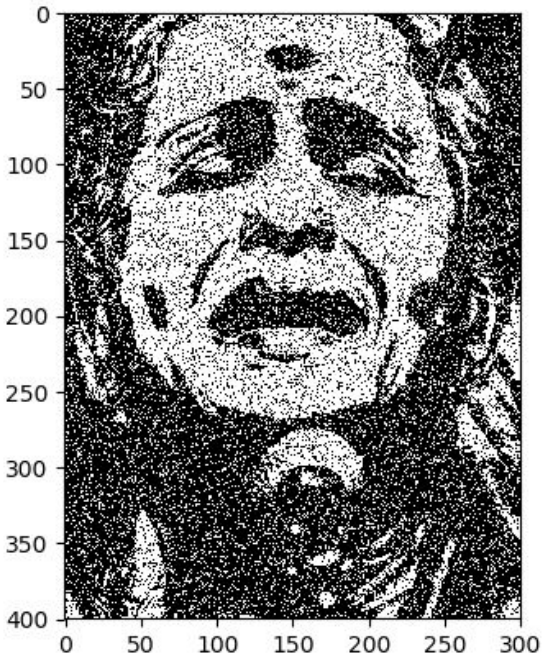


variance = 5

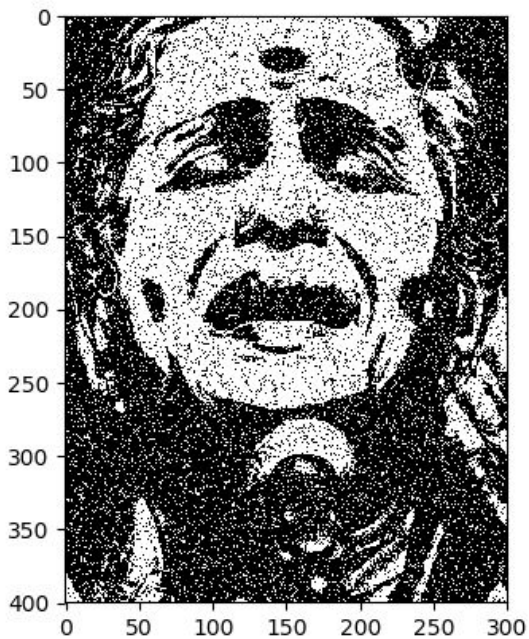
Number of wrong pixels reported = 130

Bit rate obtained = 0.0010833

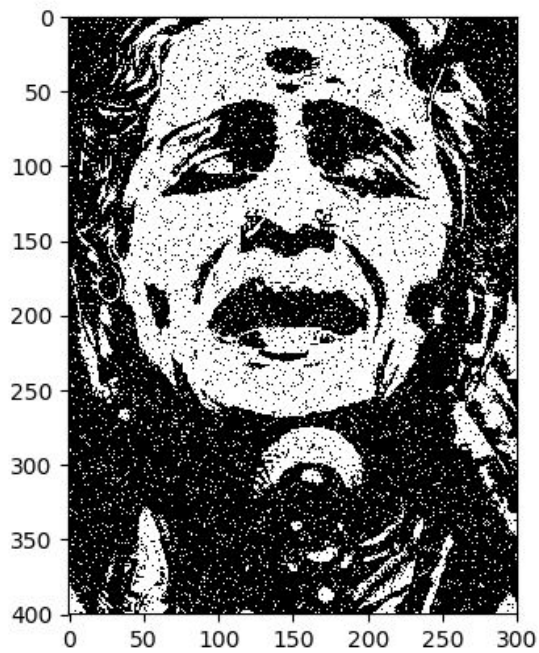
## CHANNEL CODE - 2



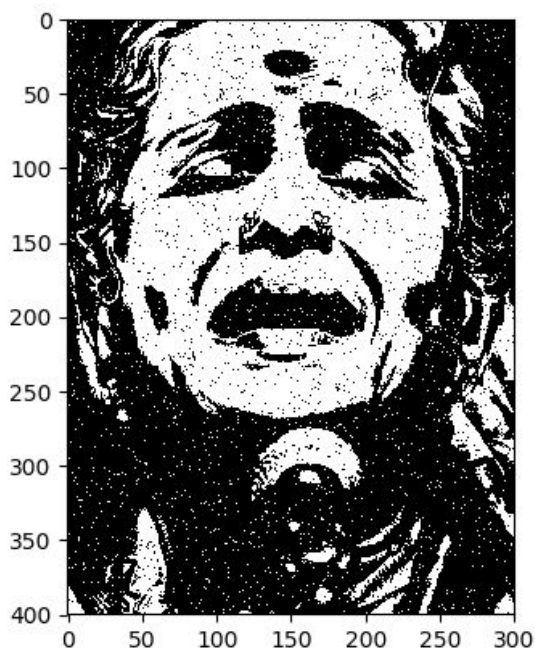
$E_b/N_0 = -2$  db  
Number of wrong pixels reported = 19905  
Bit rate obtained = 0.16587



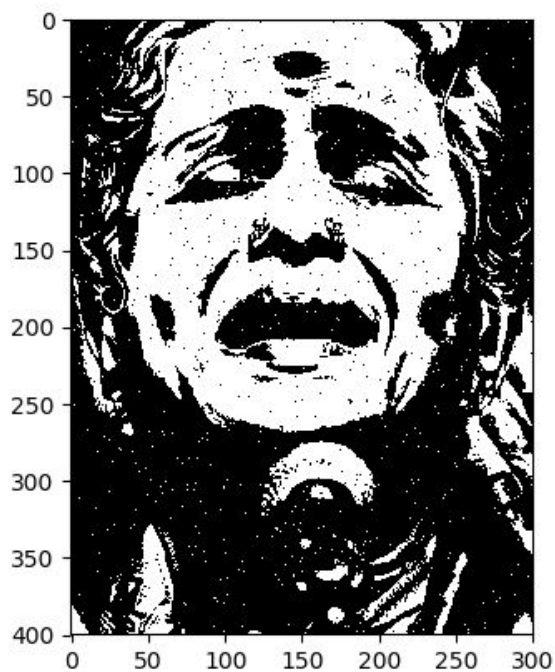
$E_b/N_0 = 0$  db  
Number of wrong pixels reported = 13335  
Bit rate obtained = 0.1111



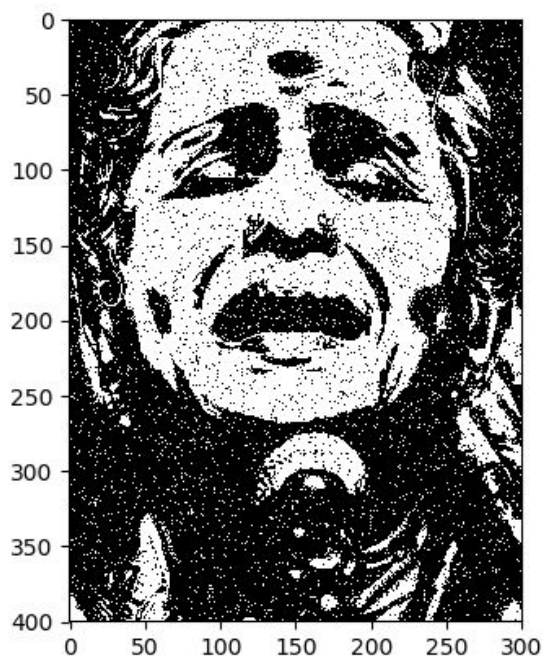
$E_b/N_0 = 2 \text{ db}$   
Number of wrong pixels reported = 7299  
Bit rate obtained = 0.0608



$E_b/N_0 = 4 \text{ db}$   
Number of wrong pixels reported = 3133  
Bit rate obtained = 0.0261

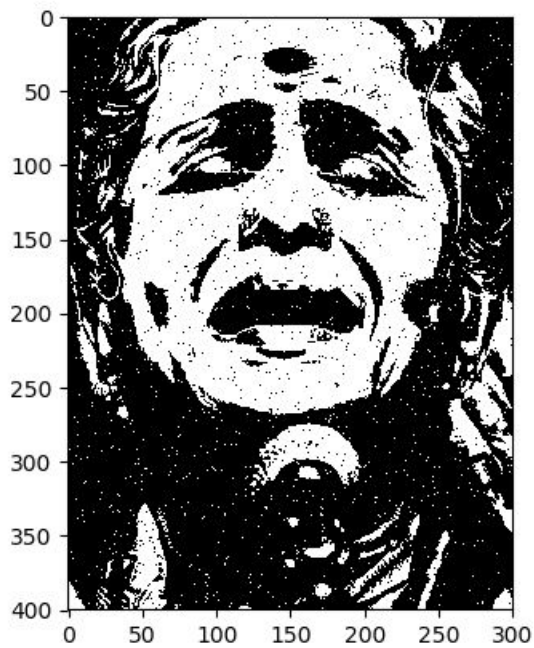


$E_b/N_0 = 6 \text{ db}$   
Number of wrong pixels reported = 959  
Bit rate obtained = 0.0079

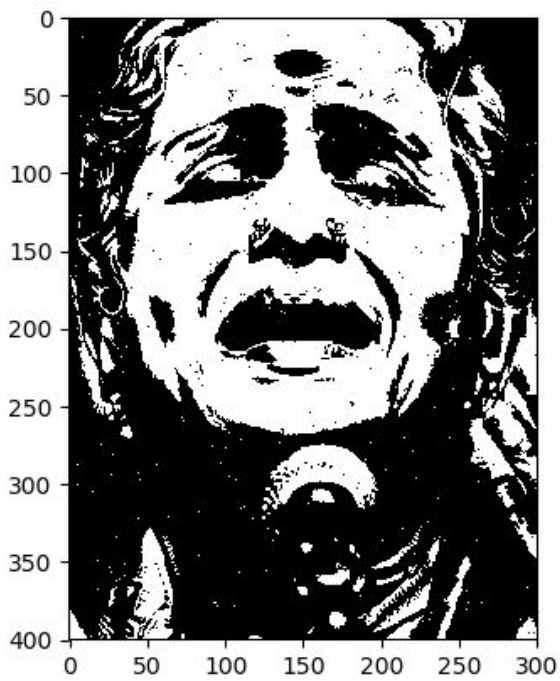


Variance = 20  
Number of wrong pixels reported = 5751  
Bit rate obtained = 0.047925

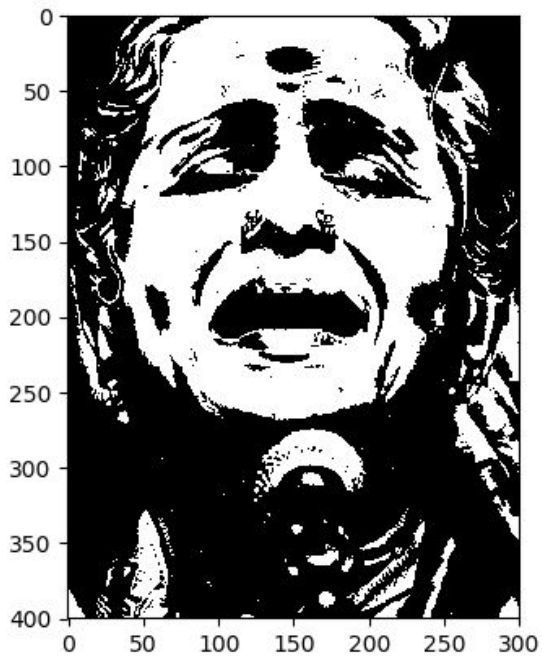




Variance = 12  
Number of wrong pixels reported = 1865  
Bit rate obtained = 0.01554

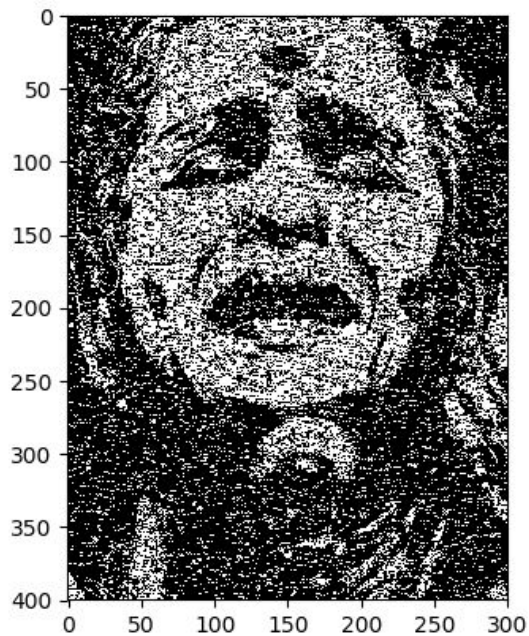


Variance = 7  
Number of wrong pixels reported = 286  
Bit rate obtained = 0.00238

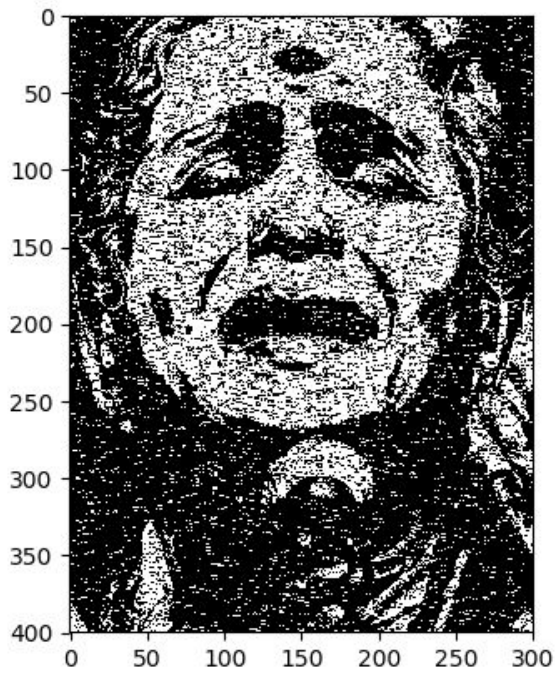


Variance = 5  
Number of wrong pixels reported = 52  
Bit rate obtained = 0.000433

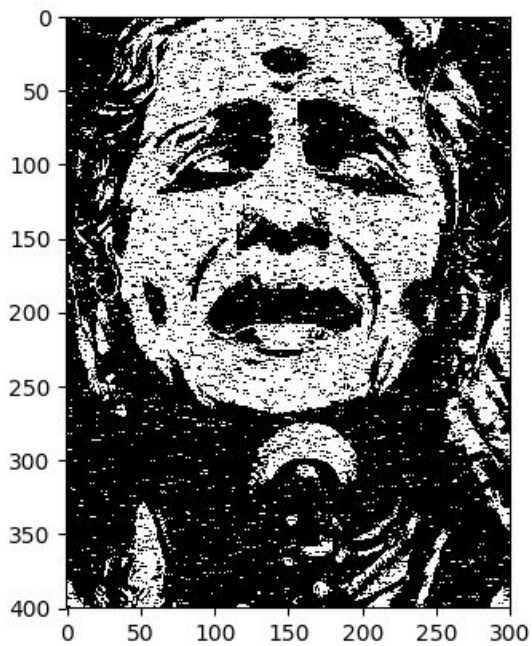
### CHANNEL CODE - 3



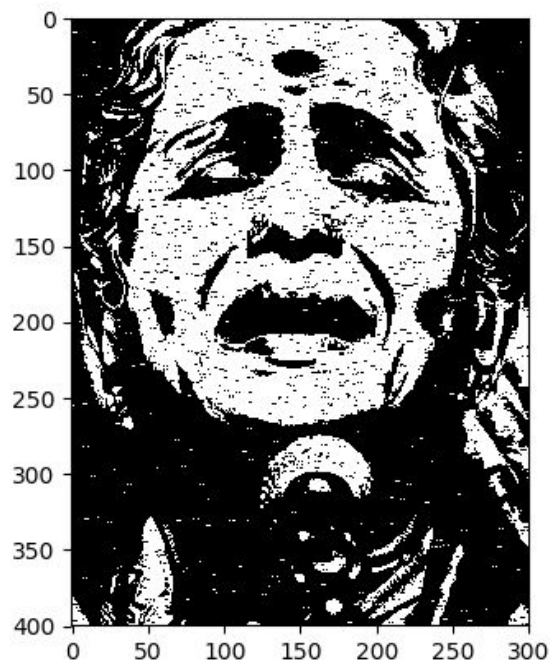
$E_b/N_0$  = -2 db  
Number of wrong pixels reported = 19905  
Bit rate obtained = 0.16587



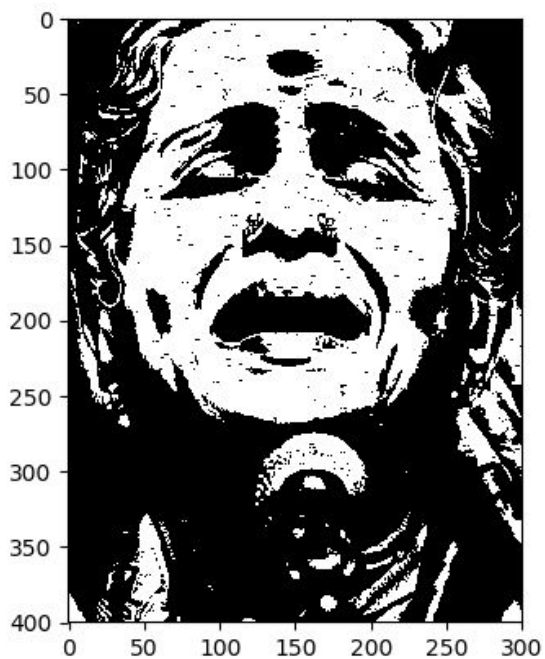
$E_b/N_0 = 0 \text{ db}$   
Number of wrong pixels reported = 13335  
Bit rate obtained = 0.1111



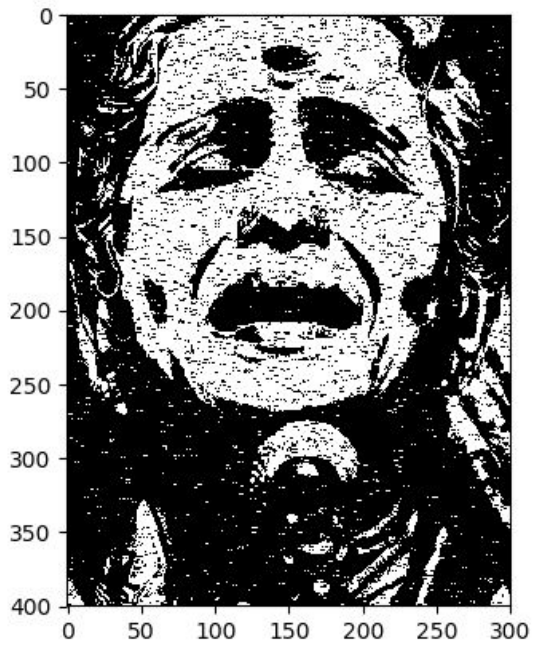
$E_b/N_0 = 2 \text{ db}$   
Number of wrong pixels reported = 7299  
Bit rate obtained = 0.0608



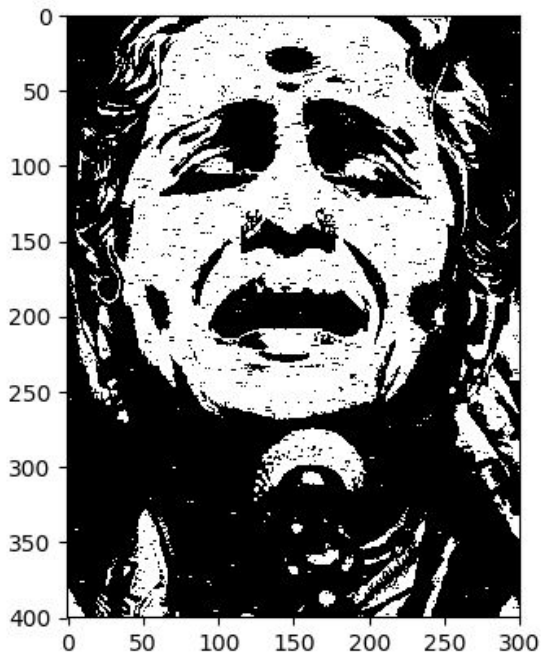
$E_b/N_0 = 4$  db  
Number of wrong pixels reported = 3133  
Bit rate obtained = 0.0261



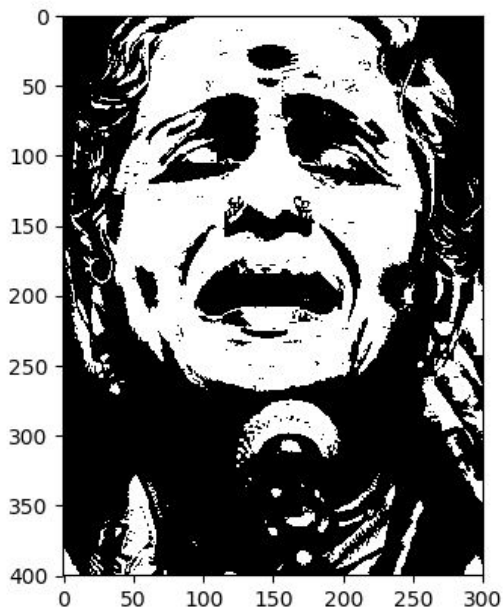
$E_b/N_0 = 6$  db  
Number of wrong pixels reported = 959  
Bit rate obtained = 0.0079



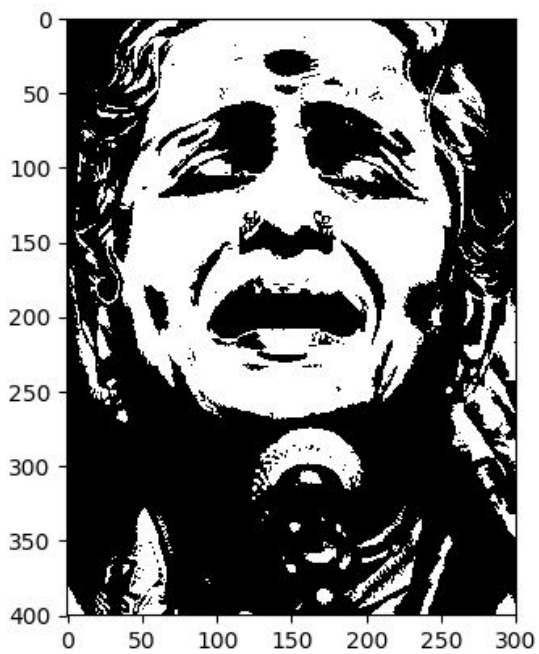
Variance = 20  
Number of wrong pixels reported = 5917  
Bit rate obtained = 0.049308



Variance = 12  
Number of wrong pixels reported = 1439  
Bit rate obtained = 0.011991



Variance = 7  
 Number of wrong pixels reported = 125  
 $Q(\sqrt{2Eb/No}) = 0.0010416$



Variance = 5  
 Number of wrong pixels reported = 14  
 Bit rate obtained = 0.0001166

