PROJECT REPORT: (12EE10058)

Main code: run the file Digital_comm_proj.m

Steps followed and functions employed:

1. Source Encoding: Both the text and the image files are read into uint8 format (encoded into a vector with values for each character between 0-255) followed by which compression is done by the implementation of huffmann coding. (generate_huffmann_code.m)

2. Conversion to binary data (of fixed bit length 8), followed by grouping according to the mod. scheme

3. Modulator: 16 QAM modulation of the input vector (QAM_modulation.m)

4. Channel : AWGN is added

5. Demodulator: QAM demodulation is implemented (QAM_demodulation.m)

6. Regrouping of the data after binarisation(depending on the mod. scheme) followed by source decoding (huffmann_decode.m)

7. Source decoder: After decoding the recovered huffmann sequence, the files are converted into original uint8/char format

8. Error calculation: Error for the SNR is calculated and displayed on screen, output files generated are stored.

Default values: snr in the code is 10db

Output files:
Text: exp_5.txt,exp_10.txt,exp_15.txt