COMMNET

PROBLEM STATEMENT

ROUND 2

Consider two devices, one of which transmits information to the other using audio signals i.e. one device acts as a microphone and the other device acts as the receiver. Your goal is to design an acoustics based (audio signals used for transmission) communication stack: PHY and basic MAC for sending and receiving information between these two devices. You are free to use any modulation techniques, and also use frequencies above 16kHz in the inaudible band to avoid collisions with ambient sounds. The devices can send and receive until 21-22 kHz. Tweak with the modulation techniques, or introduce other compression algorithms to lower the bit error rate and latency.

Scoring:

- Submissions will be ranked by their speed of transmission and accuracy. More specifically,
  1/BER (in 10 dB noise) + 1/transmission time (ms)
- In case of ties, earlier submission will be given more priority.
- Top performers will get a chance for an internship interview with Silence Laboratories.

Files needed:

http://bit.ly/comment2021

The drive has all the files which you need to complete. Open the main.m file for all instructions.

- Send your answers via email at the email listed below. The following should be attached:
  - All code files (MATLAB scripts or any other supplementary code you used). Put them into a single folder and attach the .zip file.
- Submission email: dhhasmukhbhai.ece18@itbhu.ac.in
- Deadline: *17th April, 2021* at *5:30 PM*