Towards a Radio Acoustical Virtual Environment

**PROBLEM:** CURRENT METHODS OF COMMUNICATION IN NOISE

1. Remove the HPD:
   - Removing an HPD to communicate is problematic as the effectiveness of HPDs is greatly reduced with non-continuous use.

2. Use passively filtered HPD:
   - Flat attenuation HPDs could be beneficial for speech communication. However, they do not provide sufficient attenuation in very loud environments (>100dB). In quiet, they decrease speech intelligibility, compelling the wearer to remove the HPD for communication.

3. Use of a communication headset:
   - Although they are the best alternative, they are difficult to wear with other personal protection equipment such as helmets. Also using any kind of radio transmitter does not distinguish a receiver and all communication is sent to everyone on the same radio channel. This can be annoying and contributes to the noise dose.

**SOLUTION:** RADIO ACOUSTICAL VIRTUAL ENVIRONMENT (RAVE)

- **Low noise level**
  - 20m
  - Not transmitted

- **Moderate noise level**
  - 15m
  - 10m
  - 5m

- **High noise level**
  - Extreme noise level
  - Transmitted

- **Wireless link:**
  - External microphone
  - Inflatable earpiece
  - Electronics and DSP not shown

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