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High-Quality Audio Solutions for Conference Calls in Low Bandwidth Regions

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Abstract: *In today's globalized world, conference calls play a vital role in enabling effective communication and collaboration among individuals and organizations across geographical boundaries. However, in low bandwidth areas, such as remote locations or developing regions, the quality of audio during conference calls is often compromised due to limited network capacity. This issue leads to reduced intelligibility, distorted speech, and hindered comprehension, significantly impacting the productivity and overall experience of conference call participants. To address this problem, we propose a project focused on up-scaling audio resolution in conference calls for low bandwidth areas. Our goal is to enhance the audio quality and intelligibility of conference calls, thereby improving communication effectiveness even in challenging network conditions. The project will involve developing and implementing advanced audio processing techniques to compensate for the limitations imposed by low bandwidth. These techniques will aim to minimize audio artifacts, enhance speech clarity, and mitigate background noise. We will explore innovative algorithms such as noise reduction, speech enhancement, adaptive filtering, and bandwidth optimization to achieve optimal audio quality. To validate the effectiveness of our approach, we will conduct a series of experiments using real-world conference call scenarios under various network conditions. We will compare the audio quality metrics, such as signal-to-noise ratio, intelligibility, and overall user satisfaction, between the existing audio transmission methods and our proposed up-scaling solution. This evaluation will enable us to quantify the improvement achieved by our approach and validate its efficacy in low bandwidth areas. Additionally, we will consider the practical implementation aspects of our solution to ensure compatibility with existing conference call systems and platforms. This includes developing an efficient and lightweight software module that can be integrated seamlessly into widely used conferencing applications without requiring substantial hardware upgrades. The successful implementation of this project will have significant implications for individuals and organizations operating in low bandwidth areas. By improving audio resolution in conference calls, we can enhance communication clarity, promote more productive collaboration, and reduce the impact of unreliable network conditions on business operations.*

Keywords: conference calls, audio resolution, low bandwidth, audio processing, speech enhancement, noise reduction, bandwidth optimization, communication effectiveness

REFERENCES

[1] G. Di Baldassarre, A. Montanari, H. Lins, D. Koutsoyiannis, L. Brandimarte, and G. Blöschl, ‘‘Voice quality improvement by VOIP optimization,’’ Geophys. Res. Lett., vol. 37, no. 22, pp. 529–546, Nov. 2020.
[2] N. K. Karley, ‘‘Flash Improving Internet Telephony Call Quality Using Predictive Relay Selection ’’ Theor. Empirical Res. Urban Manage., vol. 4, no. 4, pp. 25–41, 2009.
[3] C. Kyei-Mensah, R. Kyerematen, and S. Adu- Acheampong, ‘‘To improve the voice quality over IP using channel coding,’’ Adv. Agricult., vol. 2019, May 2019, Art. no. 7930127.
[4] T. Kostas, M. Borella, I. Sidhu, G. Schuster, J. Grabiec and J. Mahler, "Real-time voice over packet- switched networks", IEEE Network, pp. 18-27, Jan./Feb. 2008.
[5] ITU-R, “Method for objective measurements of perceived audio quality,” Recommendation BS.1387, Nov. 2001.

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