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A PROJECT REPORT ON

"IMPLEMENTATION OF ITU G.722 STANDARD (SB-ADPCM)"

Submitted in partial fulfillment of the requirement for the award of Degree of Bachelor of Engineering

Submitted by

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ABSTRACT

The technological developments in digital communication systems increase the usable bandwidth of sound signals which results in increased intelligibility and naturalness of the signal. The emerging digital communication systems enable the use of wideband speech codec in a wide area of applications. Recognizing the need of high quality wide band speech codec, several standardization activities have been recently conducted. G.722 is one of the first wideband speech codec standards implemented in the telecommunication systems.

ITU-T G.722 describes the characteristics of an audio (50 to 7 000 Hz) coding system which may be used for a variety of higher quality speech applications. The coding system uses sub-band adaptive differential pulse code modulation (SB-ADPCM) within a bit rate of 64 kbit/s. The system is henceforth referred to as 64 kbit/s (7 kHz) audio coding. In the SB-ADPCM technique used, the frequency band is split into two sub-bands (higher and lower) and the signals in each sub-band are encoded using ADPCM. The system has three basic modes of operation corresponding to the bit rates used for 7 kHz audio coding: 64, 56 and 48 kbit/s. The latter two modes allow an auxiliary data channel of 8 and 16 kbit/s respectively to be provided within the 64 kbit/s by making use of bits from the lower sub-band. Since the G.722 wideband speech codec offers higher quality and naturalness than G.711, is low in complexity, has low delay, and tandems well with other codecs, it is an attractive codec for voice over IP and voice over wireless LANs.