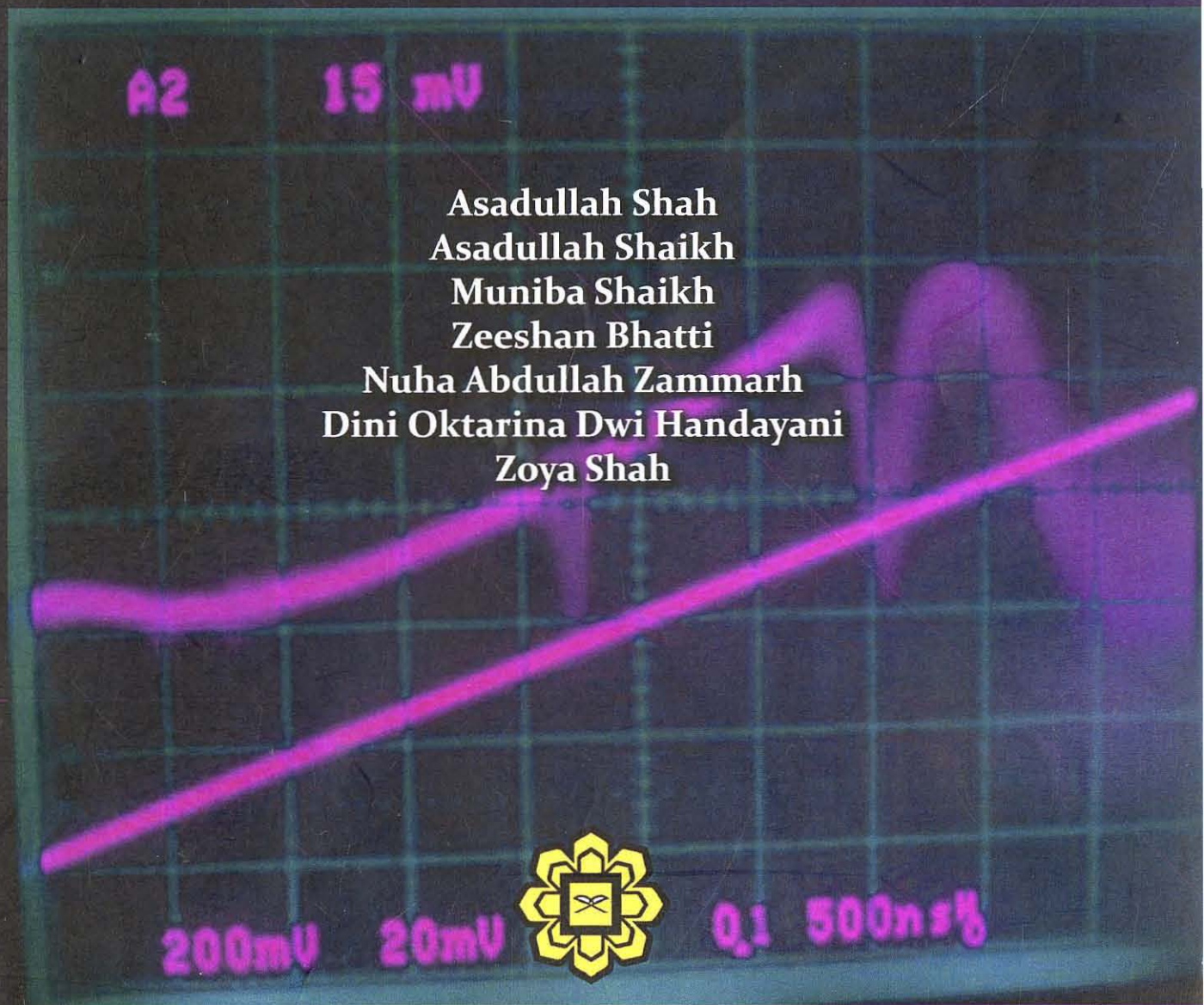
STATISTICAL TIME DIVISION MULTIPLEXING ARCHITECTURES AND DESIGN



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6. Codebook Excited Linear Predictive Coding

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6.0 Abstract

In standard Codebook Exited Linear Coding (CELP) the encoding method uses random values for excitation vectors. The excitation is modelled by the codebook. Each time a segment of speech is encoded and an excitation vector is matched to minimise the error between original and encoded signal to maintain quality of speech. This chapter narrates the CELP encoding algorithm. The conceptual block diagram of two time varying filters and a Gaussian codebook shown in figures, fc encoder and decoder respectively. This simplified block diagram mainly consists of three blocks, Short-Term Prediction, Long-Term Prediction and a random code-book. The parameters of these predictors STP, LTP and the codebook are optimised and estimated in many ways. If these estimated parameters are accurate, the synthesized speech will sound the same as original speech. Because of the limitations of the coding build blocks the estimated filter parameters case as the estimation errors in a result speech quality suffers degradations. The standard CELP algorithm explained gradually as follows and its block diagram shown in figure