

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
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A Project Report on

“IMPLEMENTATION OF HARQ IN 4G LTE SIM”

Submitted in partial fulfillment of the requirements for the award of the degree of

**Bachelor of Engineering
In
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ABSTRACT

The 3GPP LTE (Long Term Evolution) project is one of the most important high technologies launched by 3GPP (Third Generation Partner Project) in recent years. The project was implemented in order to compete with WiMAX (Worldwide Interoperability for Microwave Access), Wi-Fi and other emerging wireless broadband technology and improve its competitiveness in the emerging 3G broadband wireless access market. It is long term evolution on the UMTS (Universal Mobile Telecommunications System) technology in order to achieve 3G technology to smooth the transition of B3G and 4G. 3GPP LTE is an improvement project on the UTRA and UTRAN (Universal Terrestrial Radio Access Network). Its goal is to higher data rates, lower latency, improved system capacity, broader coverage, and lower costs.

Hybrid ARQ technology is the most effective error control technology in order to ensure reliable data transmission. It is essential to the mobile broadband system which is featured as high speed data rate, high quality of service (QoS) guarantees and high reliability. In same, HARQ is one of the key technologies in 3GPP LTE system. Based on 3GPP LTE system and focusing on HARQ, the performance of HARQ and the achievement of the program are addresses and researched in depth along from basic research to explore innovative ideas. This project report preferred a comprehensive analysis on the technical characteristics of critical technologies in 3GPP LTE system. Around its core technology HARQ, the combination of decoding algorithm for packet retransmission is fully studied in depth.