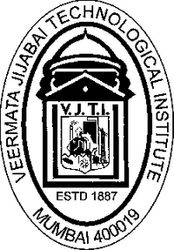
Project Report on

Wireless Transmission

using LDPC codes



Under Guidance of

Dr. D. P. Rathod

By

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**DECLARATION**

We declare that this written submission represents our ideas in our own words andwhere other’s ideas or words have been included, we have adequately cited andreferenced the original sources.We also declare that we have adhered to all principles of academic honesty andintegrity and have not misrepresented or fabricated or falsified anyidea/data/fact/source in our submission.

We understand that any violate on of the above will be cause for disciplinary actionby the Institute and can also evoke penal action from the sources which have thusnot been properly cited or from whom proper permission has not been taken whenneeded.

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**CERTIFICATE OF APPROVAL**

This is to certify that Ankit Panchal (151090005), Bhushan Mhatre (151090036), students of Bachelor of Technology (Electronics and Telecommunication), Veermata Jijabai Technological Institute, Mumbai have successfully completed the report entitled, “Wireless Transmission using LDPC Codes” to our satisfaction.

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**CERTIFICATE**

The report, “Wireless Transmission using LDPC Codes” performed by Ankit Panchal (151090005), Bhushan Mhatre (151090036), is found to be satisfactory and is approved for the Degree of Bachelors of Technology (Electronics and Telecommunication).

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Project Guide

Date: Place:

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**ABSTRACT**

In today’s accelerating world, knowledge or rather information about myriad things is power. It is what makes us stand out in the ever-changing world; our ability to adapt. Data at our finger tips is what enables us to adapt so quickly. But we must bear in mind, it’s not just data, but it is correct and error free information. This is where our topic of interest comes into picture. LDPC are error correcting codes.

In the field of communication, forward error correcting codes have been extensively used to eliminate data errors caused during transmission. Low Density Parity Check (LDPC) is a powerful FEC coding scheme which can achieve good error performance under very low signal-to-noise ratios.

LDPC are capacity approaching codes, which means that practical constructions exist allow the noise threshold to be set very close to the theoretical maximum limit i.e. the Shannon limit for a symmetric memoryless channel. The noise threshold defines an upper bound for the channel noise, up to which the probability of lost information can be made as small as desired. Using iterative belief propagation techniques, LDPC codes can be decoded in time linear to their block length. LDPC codes are finding increasing application use in applications requiring reliable and highly efficient information transfer over bandwidth or return channel-constrained links in the presence of corrupting noise. The major advantage that makes LDPC codes so popular is reduce complexity of Decoder at High data rates and no error floor problems.

Innovation in technology is basically aimed towards making day to day life of people easier and faster. The main objective of proposed system is to provide a technology oriented, low-cost, easily handled, and efficient system for encoding and decoding LDPC Codes.

A communications system utilizing LDPC code is able to get very close to the channel capacity limit established by Claude Shannon in the 1940’s. In addition, LDPC codes have lower complexity in the decoding process compared to other FEC codes. With advances in computing power, LDPC codes have been adopted in many high-speed communication standards such as digital video broadcasting, WiMAX,4G wireless systems, among others. The main facility that the proposed model provides is its simplicity. The encoding of LDPC codes comprises of constructing a sparse parity-check matrix, and generating codewords with the matrix.

Different techniques of constructing LDPC codes are proposed and implemented. We try to implement various methods of performing encoding and decoding by using Keil generate eight-bit codeword simultaneously. Decoder plays crucial role in decoding of received data. We try to implement decoder for using Bit Flipping Algorithm.

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