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A Novel Method to Identify the Fault in Transmission Line Using Discrete Wavelet Transform (DWT)

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Abstract:-

Transmission of energy via overhead transmission lines is a common way for power distribution in this critical service. The location of the fault must be determined in order to recover from the failure. While there is some human error in defect identification, technology-assisted solutions can save time and costs. Some potential fault detection methodologies for effective detection failure in power transmission are proposed in this study. This project is about designing a discrete relay that detects when the input value exceeds the reference value set in the relay and sends a trip signal to the circuit breaker. The tripping action is mostly determined by the voltage and current waveforms obtained during the malfunction at the relay location. Wavelet analysis, a mathematical method for signal analysis, is used to detect and classify the type of transmission line fault. During a fault, the Discrete Wavelet Transform (DWT) is utilized to analyse the current waveform. Fault signals are generated using MATLAB/Simulation. The simulation results show that the suggested fault detection indicator performs well and is simple to implement for computer relaying applications.

Keyword: Discrete wavelet, Dual channel 5V Relay module, Temperature module 5V Adopter circuit

1. INTRODUCTION

In this study, we solve a big problem with our idea. These days, when three phase transmission line first wire touches second wire, that fault affects the substation and sometimes the substation transformer fused, so we make a system for transmission line all type of fault, for example, in transmission any fault Line to Line fault or Line to ground fault or fire fault then that time automatic transmission line electricity power cut so our substation safe by that faults The wavelet transform typically employs both analysis and synthesis in tandem. For waveform reconstruction, synthesis is utilized; the original signal is decomposed into its constituent wavelet sub-bands or levels.

Each of these levels reflects a portion of the original signal that was present at the time of detection of a fault-generated high frequency transient wave at one end of the line. The idea of Wavelet Entropy is applicable not only to transitory signal feature analysis, but also to fault-specific frequency bands. Individual frequency bands are spaced logarithmically rather than evenly as in Fourier analysis. The decomposed signals have a strong time-

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