

ESE-3014 Lab 5 - The receiver of a PCM system

Theory

GNU Octave is a high-level language, primarily intended for numerical computations. It provides a convenient command line interface for solving linear and nonlinear problems numerically, and for performing other numerical experiments using a language that is mostly compatible with Matlab. It may also be used as a batch-oriented language.

Octave has extensive tools for solving common numerical linear algebra problems, finding the roots of nonlinear equations, integrating ordinary functions, manipulating polynomials, and integrating ordinary differential and differential-algebraic equations. It is easily extensible and customizable via user-defined functions written in Octave's own language, or using dynamically loaded modules written in C++, C, Fortran, or other languages.

Task

1. Simulate the operations performed in the regeneration circuit of the PCM system receiver (like the figure below) include input, amplifier equalizer (optional), timing circuit, decision making device, and output. You should add appropriate noise in distorted signal (in your input), and calculate the bit error rate at the end of receiver.

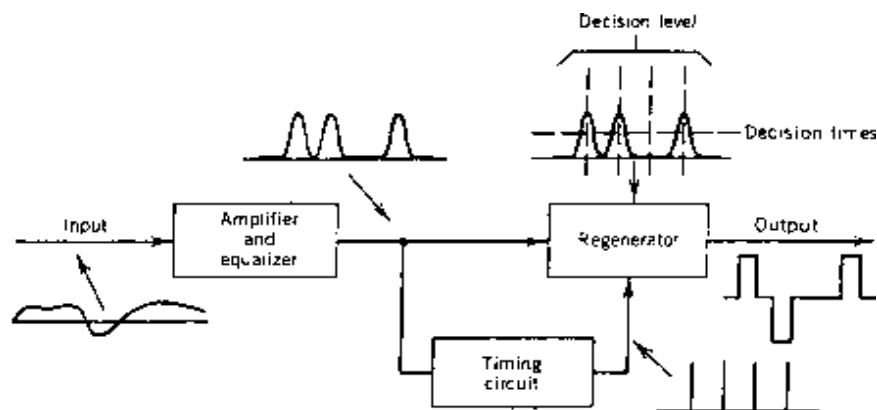


Figure 1: Pulse-code modulation regeneration circuit (with using BRZ in Output coding)