Digital Electronics and Computer Organization

Digital Design

Lecture 24: Applications of Sequential Circuits
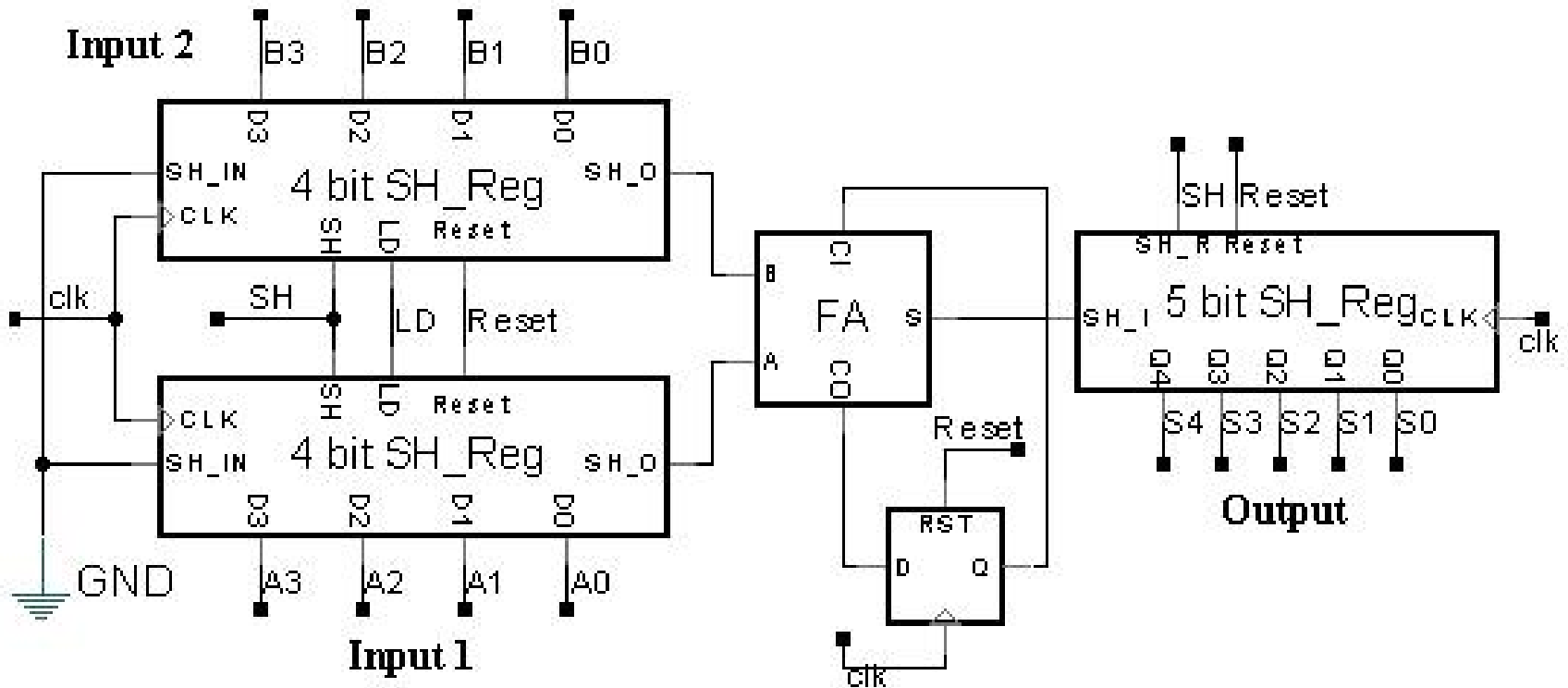
Birla Institute of Technology & Science, Pilani
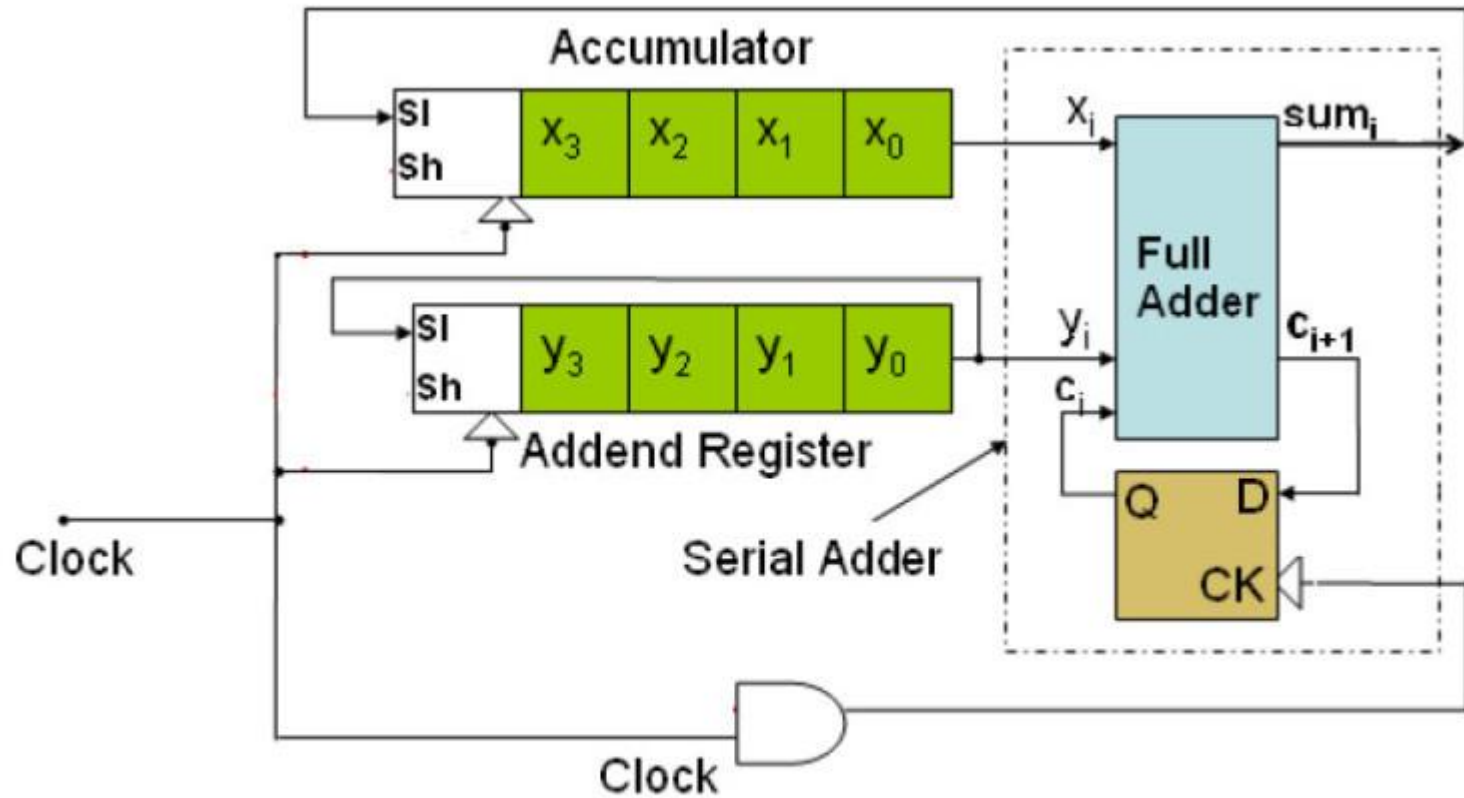Hyderabad Campus
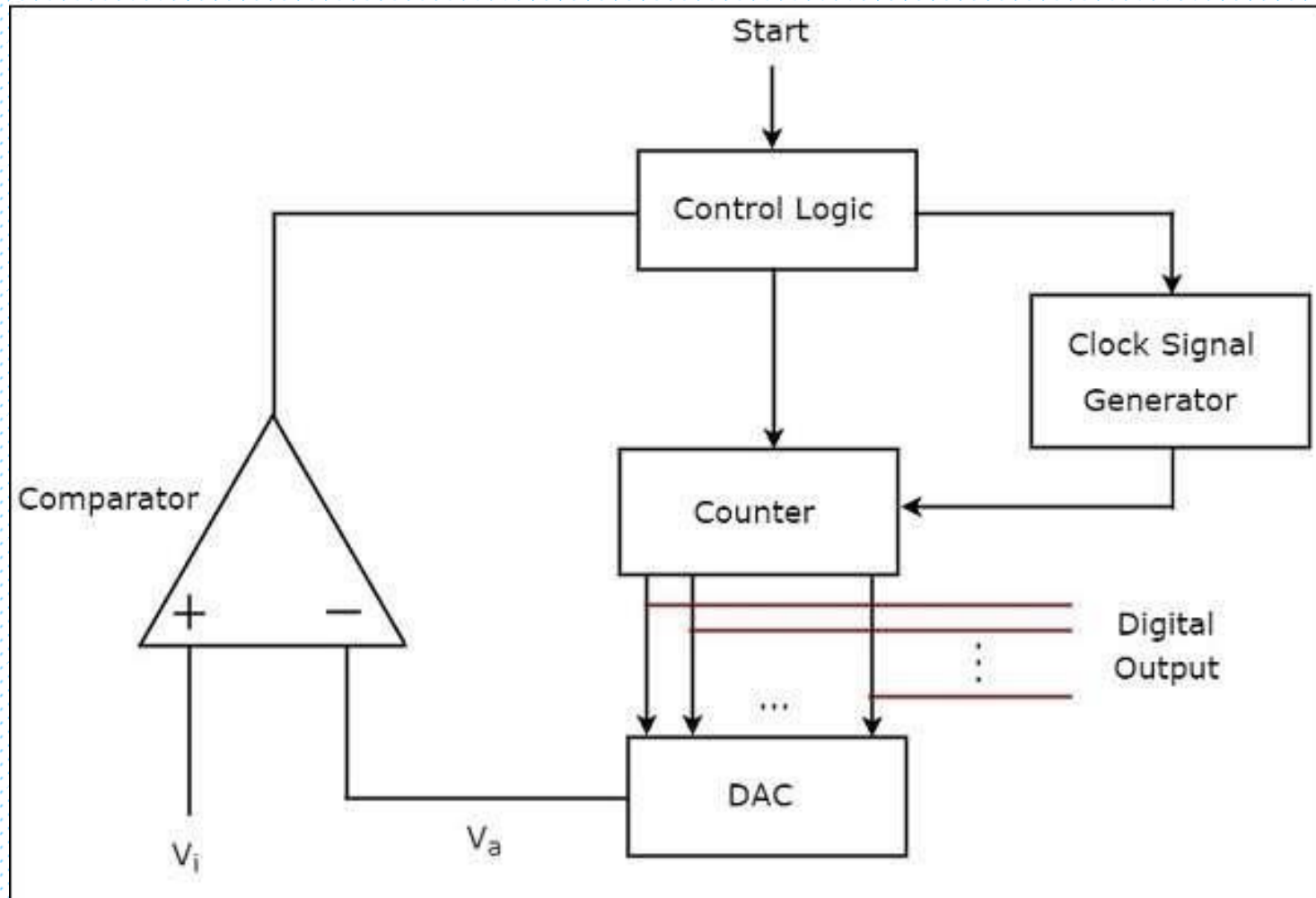
Innovate   achieve   lead
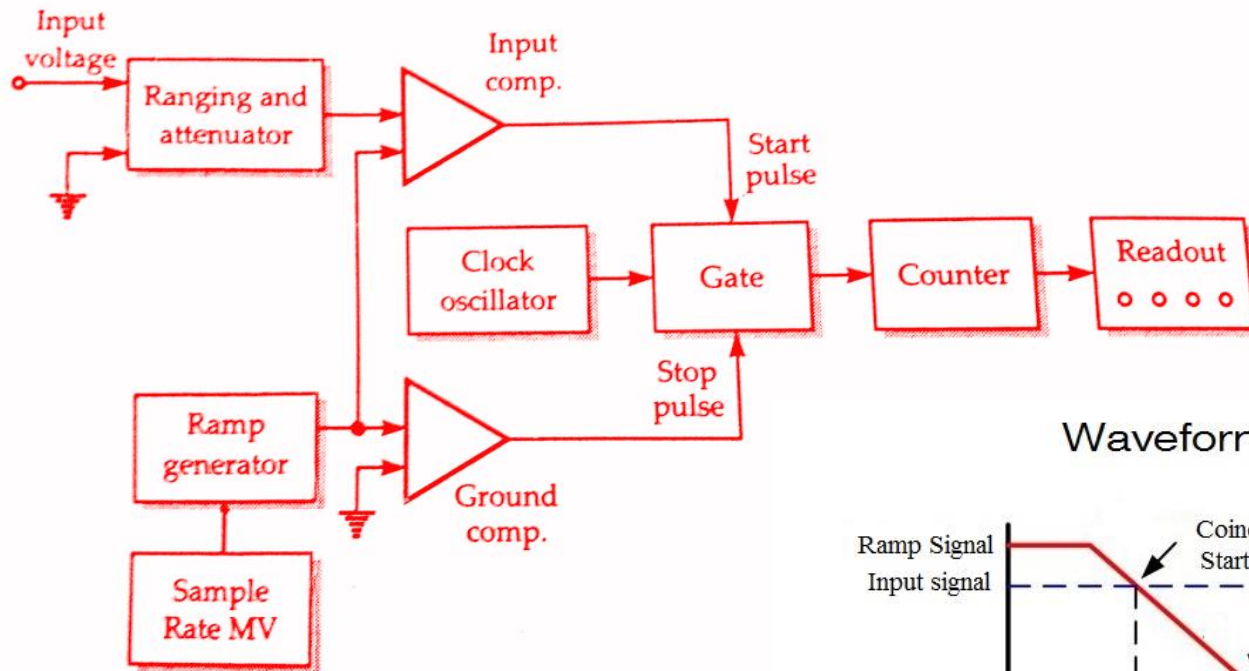
Serial Adder

Serial Adder

Block Diagram of a 4-bit Serial Adder with Accumulator

Counter based ADC

Counter based Voltmeter

Input voltage → Ranging and attenuator → Input comp.

Start pulse

Clock oscillator → Gate → Counter → Readout

Stop pulse

Ramp generator → Ground comp.

Sample Rate MV

Waveform Analysis

Ramp Signal
Input signal

Coincidence
Start of count

Zero-crossing
detection
(end of count)

Time

Δt

Total time of counting

Clock pulses to the counter during time $\underline{\Delta t}$
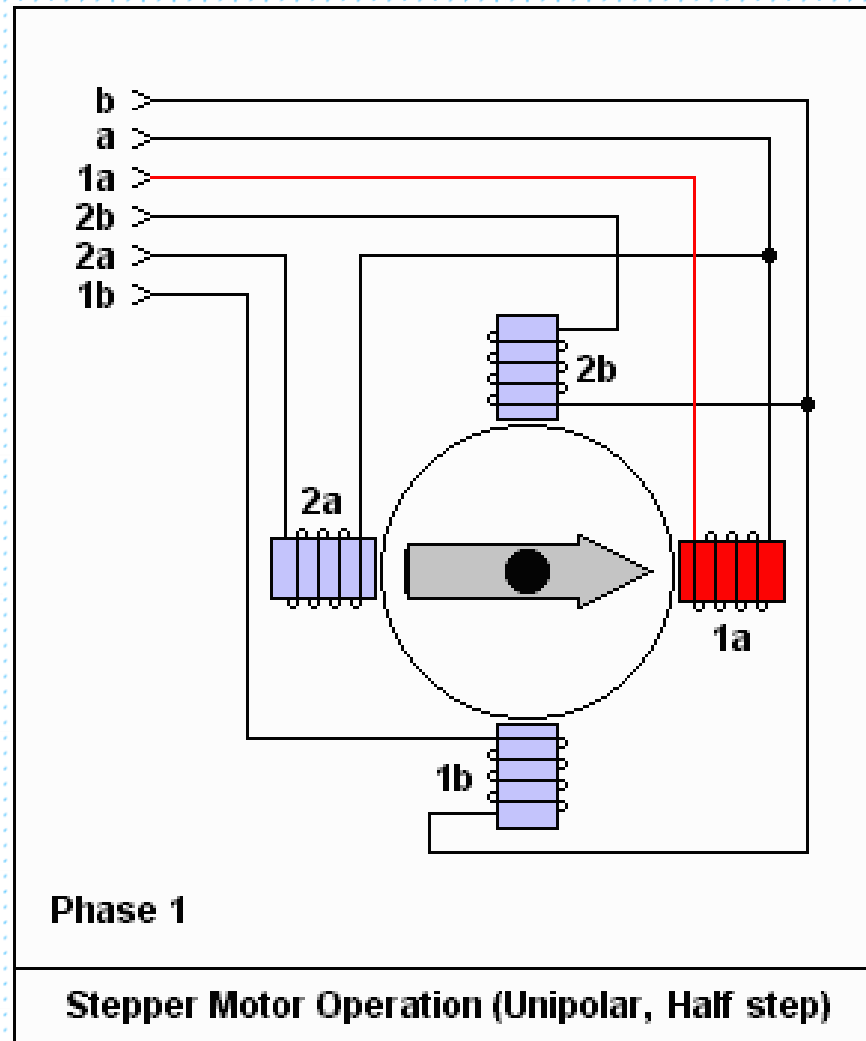
n pulse
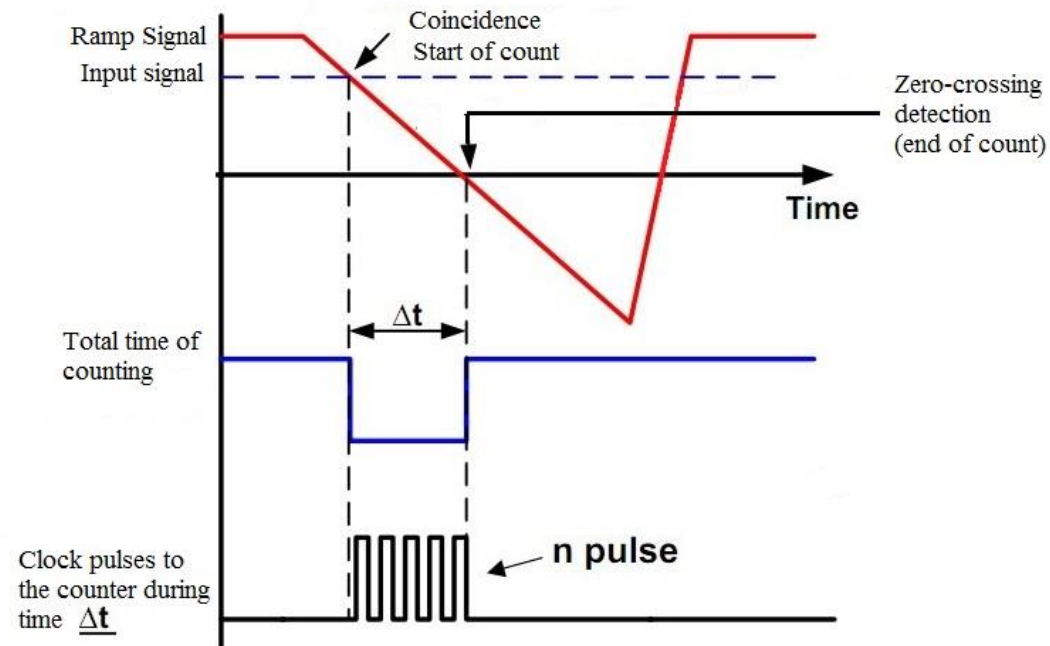
Counter based Voltmeter
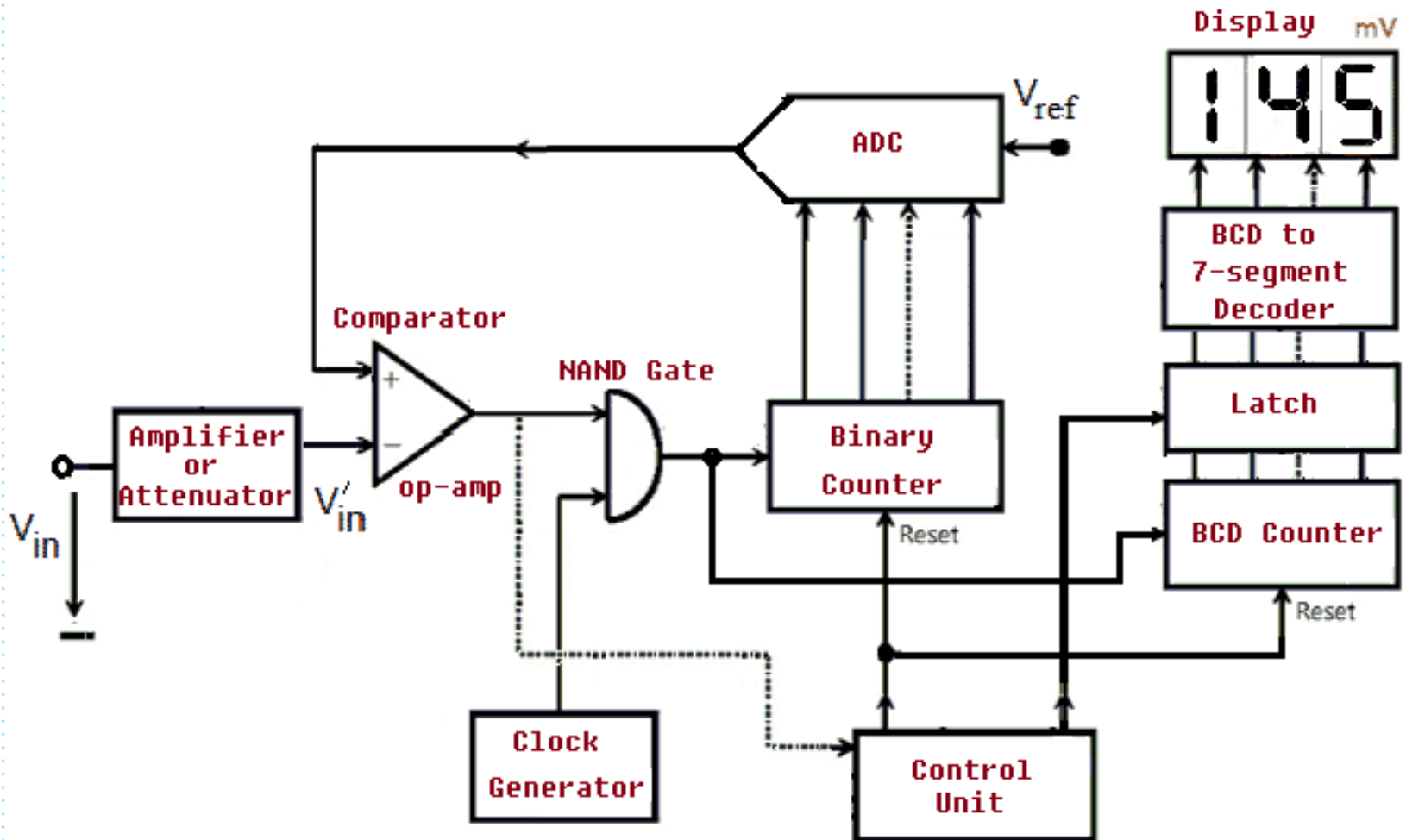
Counter based Frequency meter

Stepper Motor

Phase 1

Stepper Motor Operation (Unipolar, Half step)

Stepper Motor Control