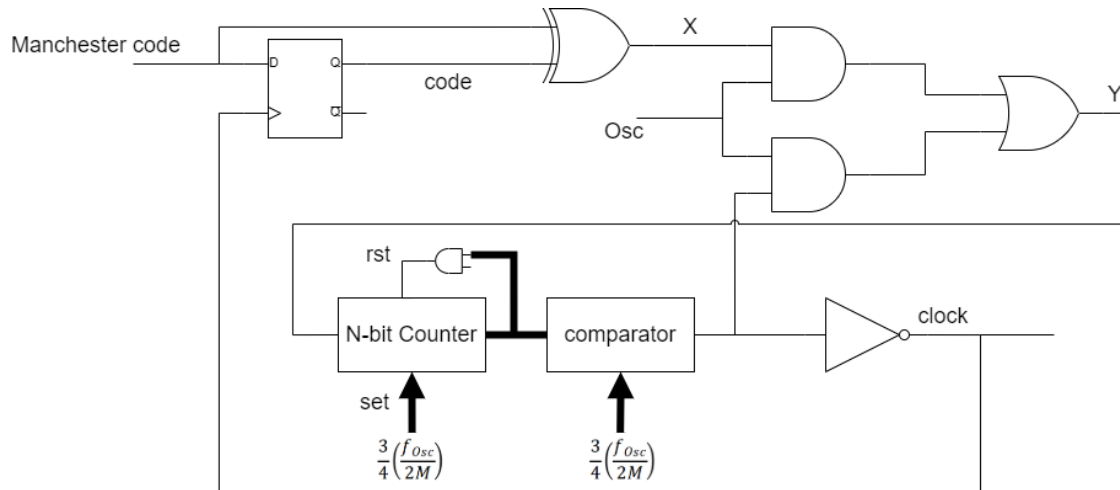


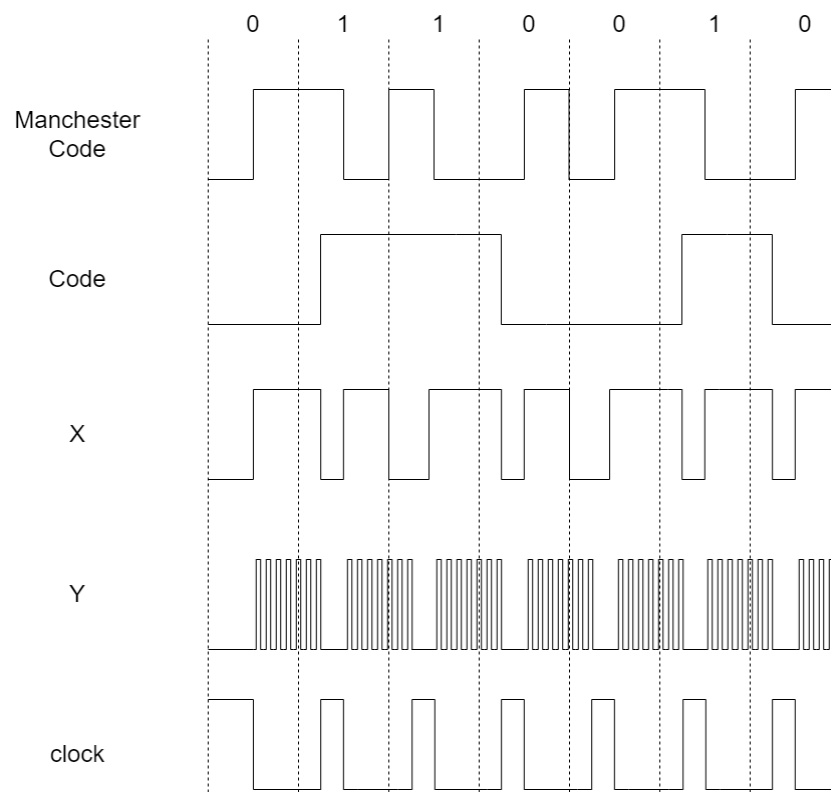
Manchester Decoder and Encoder

Manchester Code Decoder

The schematic of the Manchester Code Decoder is shown as bellowed:



The waveform of the Manchester Code Decoder is shown as bellowed:



The Manchester bit value is presented in the first half of each bit time. Here we can generate a clock to capture the value at 1/4 bit time.

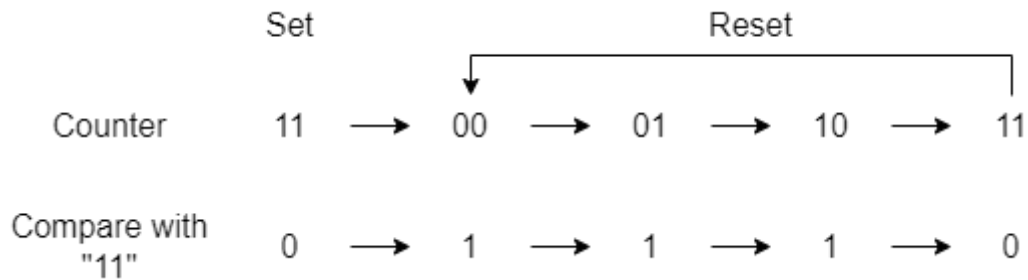
Function of XOR gate: Provide the start time for the counter.

Function of two AND gate and OR gate: Ensure 1/4 bit time pulse width.

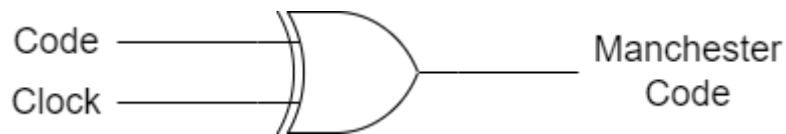
Function of inverter: Flip the signal so that the rising edge appears in 1/4 bit time.

Function of counter and comparator:

- fosc = 8MHz, Initial number = 3, binary number = 11



The schematic of the Manchester Code Encoder is shown as bellowed:



The diagram illustrates the timing relationship between three signals: Code, Clock, and Manchester Code. The time axis is divided into segments by vertical dashed lines, with binary values 0, 1, 1, 0, 0, 1, 0 labeled above the segments. The Code signal is a high-level signal that is high for '1' and low for '0'. The Clock signal is a periodic square wave. The Manchester Code signal is a square wave that transitions from low to high for '1' and from high to low for '0'.