Project Title:

CMOS digital phase and frequency difference detector.

Description:

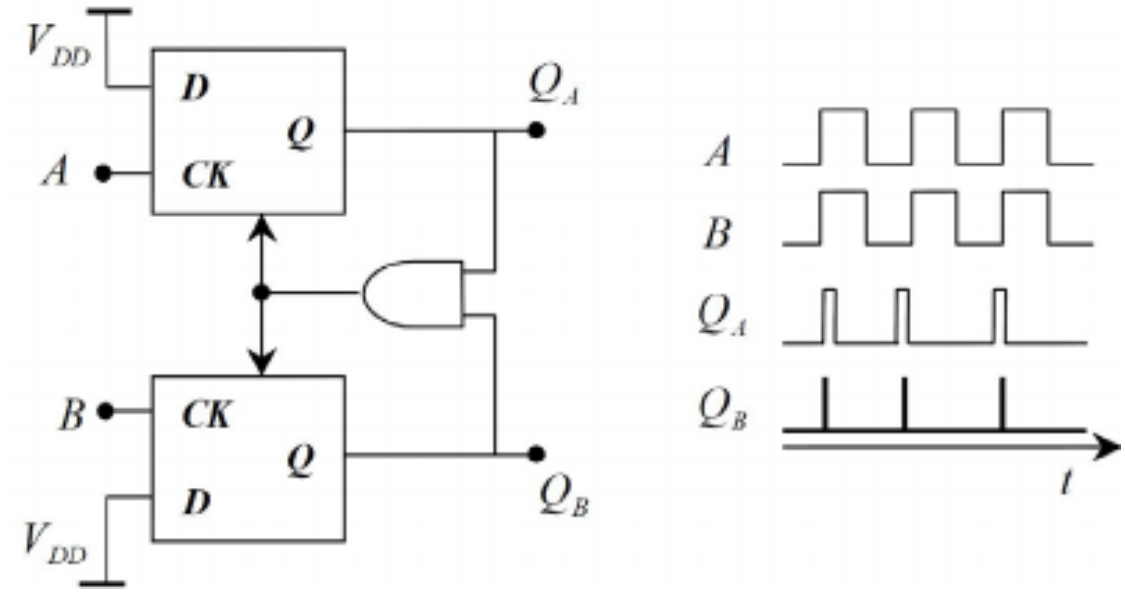
A phase frequency detector works on the logic which compares the phase of two input signals. It is an asynchronous circuit which is made up of four flip-flops.

It not only produces output when the input signals have phase difference but also produces the output when the signals have frequency difference.

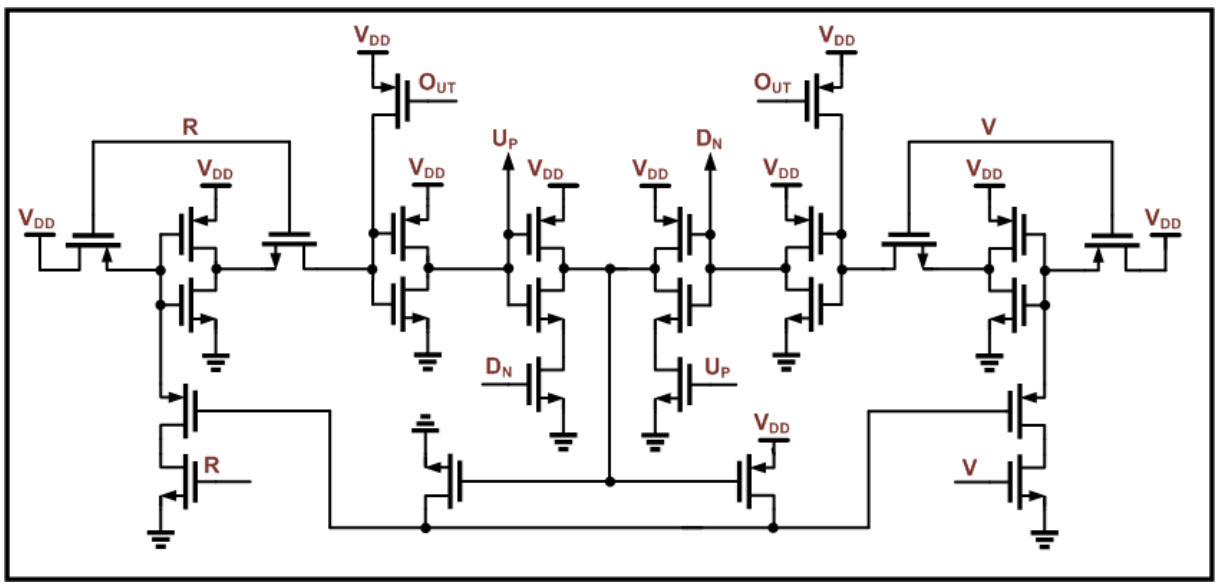
Design Goals:

- *To design a phase and frequency detector for two different signals.*
- *To determine whether there is any phase or frequency error in between input and output signals.*
- *Therefore, by detecting the error we came to know what is the change that the circuit* ***or*** *channel where the input signal is given was altering the phase or frequency of input signal.*

Block diagram of design:



Schematic Diagram:



References:

1. https://en.wikipedia.org/wiki/Phase_detector#References

2. https://analog.intgckts.com/phase-locked-loop/phase-frequency-detector/

3. Electronic Circuits: Linear/Analog Louis E. Frenzel Jr., in Electronics Explained (Second Edition), 2018.

4. CMOS phase frequency detector for high-speed applications.

   https://ieeexplore.ieee.org/document/5418651

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