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ASSIGNMENT -4(ASSEMBLY OF HARDWARE AND SOFTWARE)

Exercise 1 –To construct a circuit which will record and display the length of time taken by the throwing arm on the Mangonel to pass between the sensors mounted on the chassis. Implement the real hardware on the breadboard, at the input side of the Arduino. Demonstrate the hardware and software by attaching to a real Mangonel.

Hardware Required

- CD4027, CD4081, CD4543
- Arduino Uno
- Seven Segment Display
- Single core connecting wires
- Digital Trainer Kit

Theory

The circuit is required to:

- Accept the individual inputs from the two sensors on the Mangonel,
- Combine the two signals into one,
- Convert the two short pulses into one long pulse,
- Deliver this pulse to the relevant input on the Arduino Board,

The input signals:

The input signals received from the sensors on the Mangonel are shown in Figure 1 below:

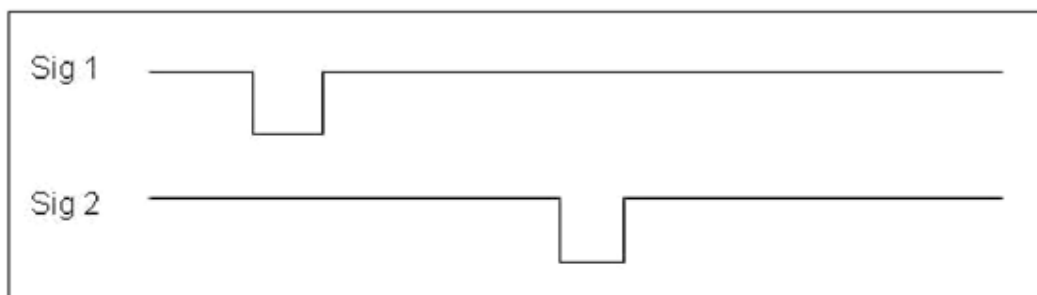


Figure 1: Mangonel sensors signals

Required signal:

The signal required for the Arduino program is shown in figure 2:

