**GENERATION OF TRIANGULAR WAVE USING PROTEUS**

**AIM:**

To write an assembly language program to generate triangular wave using 8051.

**SOFTWARE REQUIRED:**

* Proteus 8 software.

**PROGRAM**

ORG 00H ; Start of the program

MOV P2.0, #00H ; Clear Port 1 (connected to DAC0808)

MOV A, #00H ; Initialize accumulator to 0 (starting value)

MOV R0, #00H ; Initialize R0 for increment step

UPWARD:

INC A ; Increment the value in the accumulator (rising edge of triangle)

MOV P1, A ; Send the incremented value to Port 1 (connected to DAC)

ACALL DELAY ; Call delay for waveform frequency control

CJNE A, #0FFH, UPWARD ; Continue incrementing until the maximum value (0xFF)

DOWNWARD:

DEC A ; Decrement the value in the accumulator (falling edge of triangle)

MOV P1, A ; Send the decremented value to Port 1

ACALL DELAY ; Delay for waveform frequency control

CJNE A, #00H, DOWNWARD ; Continue decrementing until it reaches 0

SJMP UPWARD ; Repeat the process indefinitely to generate a continuous waveform

; Delay Subroutine

DELAY:

MOV R1, #255 ; Outer loop for delay

DELAY\_LOOP1:

MOV R2, #255 ; Inner loop for delay

DELAY\_LOOP2:

DJNZ R2, DELAY\_LOOP2 ; Decrement inner loop

DJNZ R1, DELAY\_LOOP1 ; Decrement outer loop

RET ; Return from delay

END

**CIRCUIT DIAGRAM:**

