



# ADC Using 8051 (Trainer: Dr. Jeevan K M)

AVVA PRAVEEN BABU

BU21EECE01000527

## Learning Objective:

- Using the ADC 0808, you will be able to comprehend the transformation of an analog signal into a digital one.
- This chapter will focus on incorporating the ADC 0808 with the 8051 microcontroller.

## Inputs and Outputs:

- ☐ **Input:** A potentiometer (1k or 10k ohms).
- ☐ **Outputs:** LEDs.

## Logic:

- The ADC 0808 uses one of its input channels for the analog output of the potentiometer.
- The microcontroller Port 1 has connected digital output pins (D0-D7) from the ADC0808.
- On the other hand, to select an input channel, the ADC selection lines (A, B, C) are all attached to the port 2 of 8051.
- Moreover, additional control lines such as End of Conversion (EOC), Start etc. are also connected to this port.
- Port 3 of 8051 houses LEDs which displays digital value read out by a potentiometer.
- Thus, depending on variation in resistance caused by a potentiometer, the state of LEDs at port three will change drastically hence effecting transformation in D.V.O outputted by the ADC

## Results:-

```
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Target 1
Project: ADC_Data_Conversion.c
1 #include <reg51.h>
2 #define ALE = P2^4;
3 #define CE = P2^5;
4 #define BC = P2^6;
5 //Declaring the input selection pin
6 #define ADDR_A = P2^0;
7 #define ADDR_B = P2^1;
8 #define ADDR_C = P2^2;
9 //void delay(unsigned int);
10 void delay(unsigned int delay)
11 {
12     unsigned int i,j;
13     for(i=0;i<delay;i++)
14         for(j=0;j<1275;j++);
15 }
16
17 void main()
18 {
19     unsigned char ADC_Value = 0;
20     P1 = 0xFF;
21     ZEN = 1;
22     ALE = 0;
23     CE = 0;
24     BC = 0;
25     while(1)
26     {
27         ADDR_C = 0;
28         ADDR_B = 0;
29         ADDR_A = 0;
30         delay(100);
31         ALE = 1;
32         delay(100);
33         BC = 1;
34         delay(100);
35         ALE = 0;
36         BC = 0;
37         while(!BC);
38         //while(!BC==0);
39         CE=1;
40         delay(100);
41         ADC_Value= P1;
42         P1 = ADC_Value;
43         CE = 0;
44     }
45 }
```

