8051(MICRO-CONTROLLER) (Trainer: Dr. Jeevan K M)

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Learning Objective: Making patterns of LED blinking using an 8051 microcontroller.

Inputs and Outputs:

Inputs: None

☐ **Outputs:** LED states (ON/OFF)

Logic:

- The port has a hexadecimal value that is converted into binary by the microcontroller. Each of the binary representation's bits can regulate an individual LED; '1' will turn on an LED and '0' makes it off. For example, if P1=0x01, then only the first LED connected to the last bit would be on and all others would be off.

- ☐ The rest of the LEDs are connected to the ground which will give a simple circuit for controlling them using port value.

- ☐ This basic principle allows for different LED blinking patterns, . Two major techniques can be employed:

- Directly assigning hexadecimal values to ports.
- Creating blinking patterns using left shift of bits in loops.

```c
#include<reg51.h>
//sbit sw1 = P2^1;
//sbit sw2 = P2^2;
//void dealy(void);
void delay(unsigned int);
void main(void)
{
    unsigned char k = 0x01;
    unsigned int n;

    while(1)
    {
        for( n=0;n<=7;n++){
        P1 = k;
        delay(500);
            k=k<<1;
        }
        if(k==0){
            k=0x01;
        }

    }



    // sw1 =0;
    // sw2 = 0;
    /*while(1)
        {
        /* if(sw1==0 && sw2 ==0 )
            {
                P1 = 0x00;
```