SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

19ECB211 – MICROCONTROLLER PROGRAMMING & INTERFACING

II YEAR IV SEM

UNIT II– PIC TIMER,SERIAL PORT AND INTERUPT

TOPIC 1 – PIC I/O Ports and TRIS Register

PIC I/O PORTS

- **PIC 16F877** series normally has five input/output ports. They are used for the input/output interfacing with other devices/circuits.
- Most of these port pins are multiplexed for handling alternate function for peripheral features on the devices.
- All ports in a PIC chip are bi-directional. When the peripheral action is enabled in a pin, it may not be used as its general input/output functions.

PIC GPIO Registers

➢The basic and important feature of any controllers is the number of GPIO's available for connecting the peripherals.

➢PIC16F877A has 33-gpio's grouped into five ports namely PORTA-PORTE as shown in the below table.

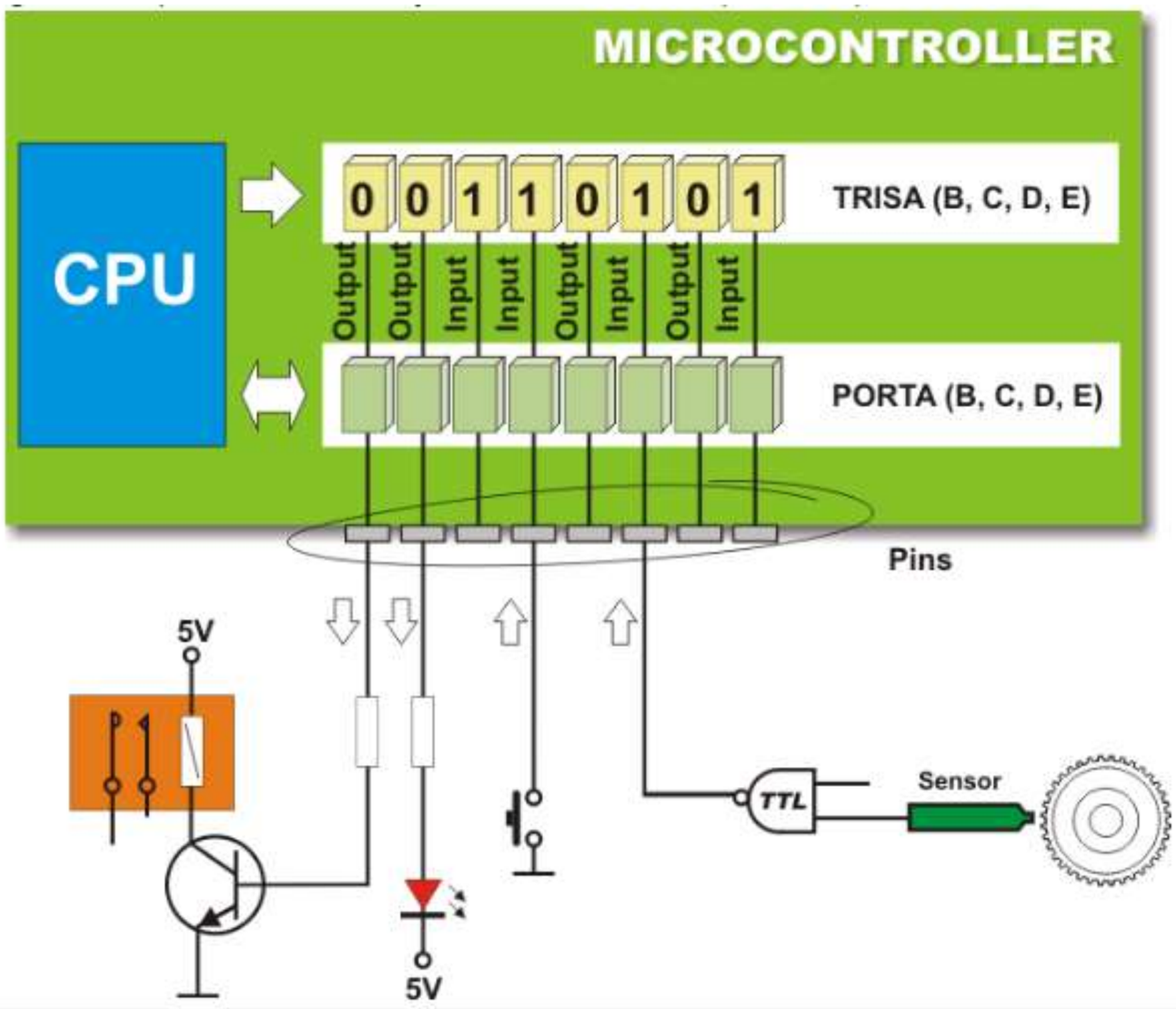
PORT	Direction Register	Number of Pins	Alternative Function
PORTA	TRISA	6 (PA0-PA5)	ADC
PORTB	TRISB	8 (PB0-PB7)	Interrupts
PORTC	TRISC	8 (PC0-PC7)	UART,I2C,PWM
PORTD	TRISD	8 (PD0-PD7)	Parallel Slave Port
PORTE	TRISE	3 (PE0-PB2)	ADC

PIC MICROCONTROLLER –TRIS Register

Register	Description
TRISx	Used to configure the respective PORT as output/input
PORTx	Used to Read/Write the data from/to the Port pins

- **TRISx:** TRI-State Register/ Data Direction Register.
- Before reading or writing the data from the ports, their direction needs to be set.
- Unless the PORT is configured as output, the data from the registers will not go to controller pins.

TRIS & PORT Registers



PIC MICROCONTROLLER –TRIS Register

- This register is used to configure the PORT pins as Input or Output.
- Writing 1's to TRISx will make the corresponding PORTx pins as Input.
- Similarly writing 0's to TRISx will make the corresponding PORTx pins as Output.

```
1.  TRISB = 0xff;  // Configure PORTB as Input.
2.
3.  TRISC = 0x00; // Configure PORTC as Output.
4.
5.  TRISD = 0x0F; // Configure lower nibble of PORTD as Input and higher nibble as Output
6.
7.  TRISD = (1<<0) | (1<<3) | (1<<6); // Configure PD0,PD3,PD6 as Input and others as Output
```