General questions:

1. Write a brief summary about I2C protocol.

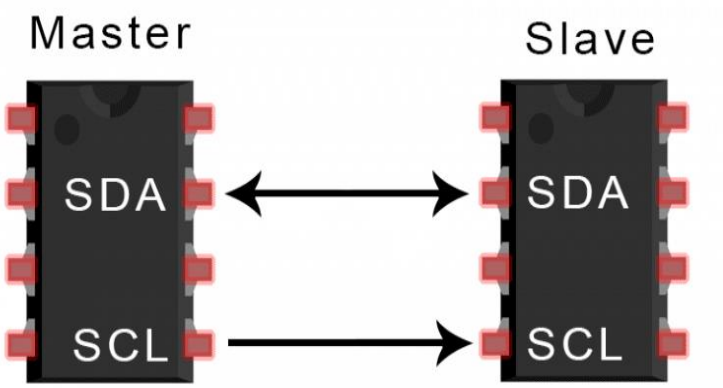
I2C stands for Inter-Integrated Circuit. It is a bus interface connection protocol incorporated into devices for serial communication. It was originally designed by Philips Semiconductor in 1982. Recently, it is a widely used protocol for short-distance communication. It is also known as Two Wired Interface(TWI).

Serial Data (SAD) – Transfer of data takes place through this pin.

Serial Clock (SCL) – It carries the clock signal.

I2C operates in 2 modes –

- Master mode
- Slave mode

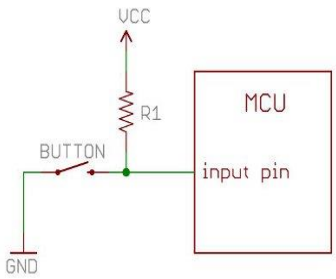


Wires Used	2
Maximum Speed	Standard mode= 100 kbps
	Fast mode= 400 kbps
	High speed mode= 3.4 Mbps
	Ultra fast mode= 5 Mbps
Synchronous or Asynchronous?	Synchronous
Serial or Parallel?	Serial
Max # of Masters	Unlimited
Max # of Slaves	1008

2. Write short text about, pull up resistor, pull down resistor, open drain, active low, active high.

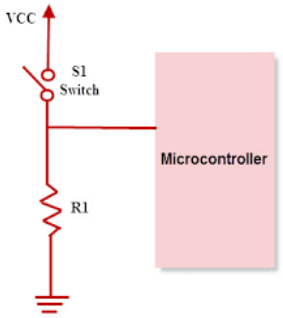
Pull up resistor :

A pull-up resistor connects unused input pins to the dc supply voltage, (Vcc) to keep the given input HIGH.



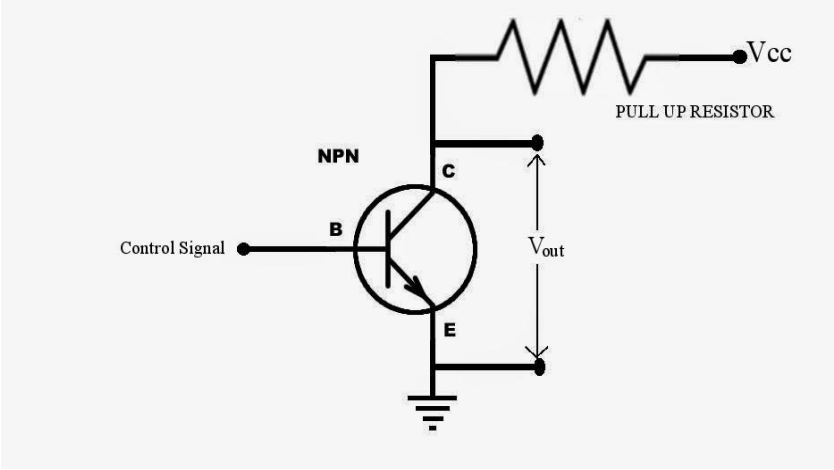
Pull down resistor :

A pull-down resistor connects unused input pins (OR and NOR gates) to ground, (0V) to keep the given input LOW.



Open drain:

An open-drain or open-collector output pin is driven by a single transistor, which pulls the pin to only one voltage (generally, to ground). When the output device is off, the pin is left floating (open, or hi-z).

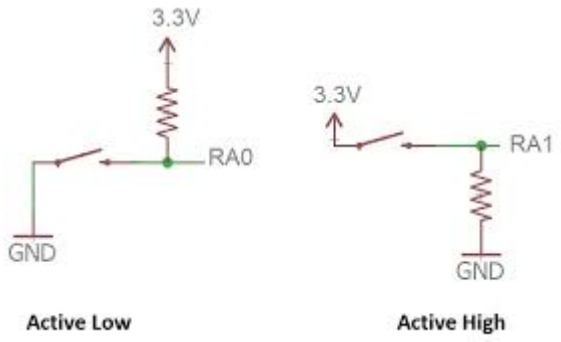


Active low :

If it's an active-low pin, you must "pull" that pin LOW by connecting it to ground.

Active high :

For an active high pin, you connect it to your HIGH voltage (usually 3.3V/5V).



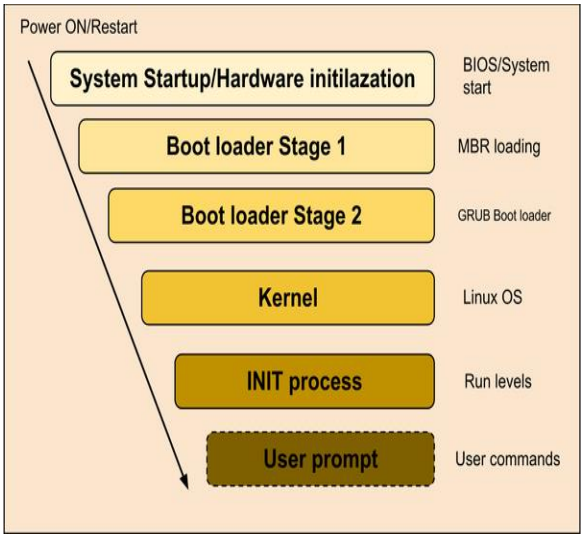
3. Short text about Linux booting process and the role of Kernel.

Linux booting process :

SIX STAGES OF LINUX BOOTING PROCESS:-

1.BIOS(Basic Input/Output System)
2.MBR(Master Boot Record)
3.LILO or GRUB
    LILO:-LInux LOader
    GRUB:-GRand Unified Bootloader
4.Kernel
5.init
6.Run Levels

The role of Kernel :



Once GRUB or LILO transfers the control to Kernel,the Kernels does the following tasks

- Intitialises devices and loads initrd module
- mounts root filesystem

4. Text about first impression on Zephyr RTOS.

The Zephyr Project is **a scalable real-time operating system (RTOS)** supporting multiple hardware architectures, optimized for resource constrained devices, and built with security in mind