# SNS COLLEGE OF TECHNOLOGY

**(An Autonomous Institution)**
**COIMBATORE-35**
**Accredited by NBA-AICTE and Accredited by NAAC – UGC with A++ Grade**
**Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

## 19EEE305 / EMBEDDED SYSTEMS
## III YEAR / VI SEMESTER

## UNIT-II: HARDWARE ARCHITECTURE OF EMBEDDED SYSTEM

# CAN BUS

# CAN BUS

- The Controller Area Network (CAN) is a serial bus communication protocol, which was originally developed for automotive applications by Bosch in 1980.
- A controller Area Network refers to a Network of Independent controllers. It is a Serial Communication protocol that efficiently supports distributed real time control with a very high level of security.
- CAN is a data link layer protocol internationally standardized as ISO-11898-1 and ISO-11519.
- The data on CAN bus is differential and can be in two states: dominant and recessive. The bus defines a logic bit 0 as a dominant bit and a logic bit 1 as a recessive bit.

# CAN BUS

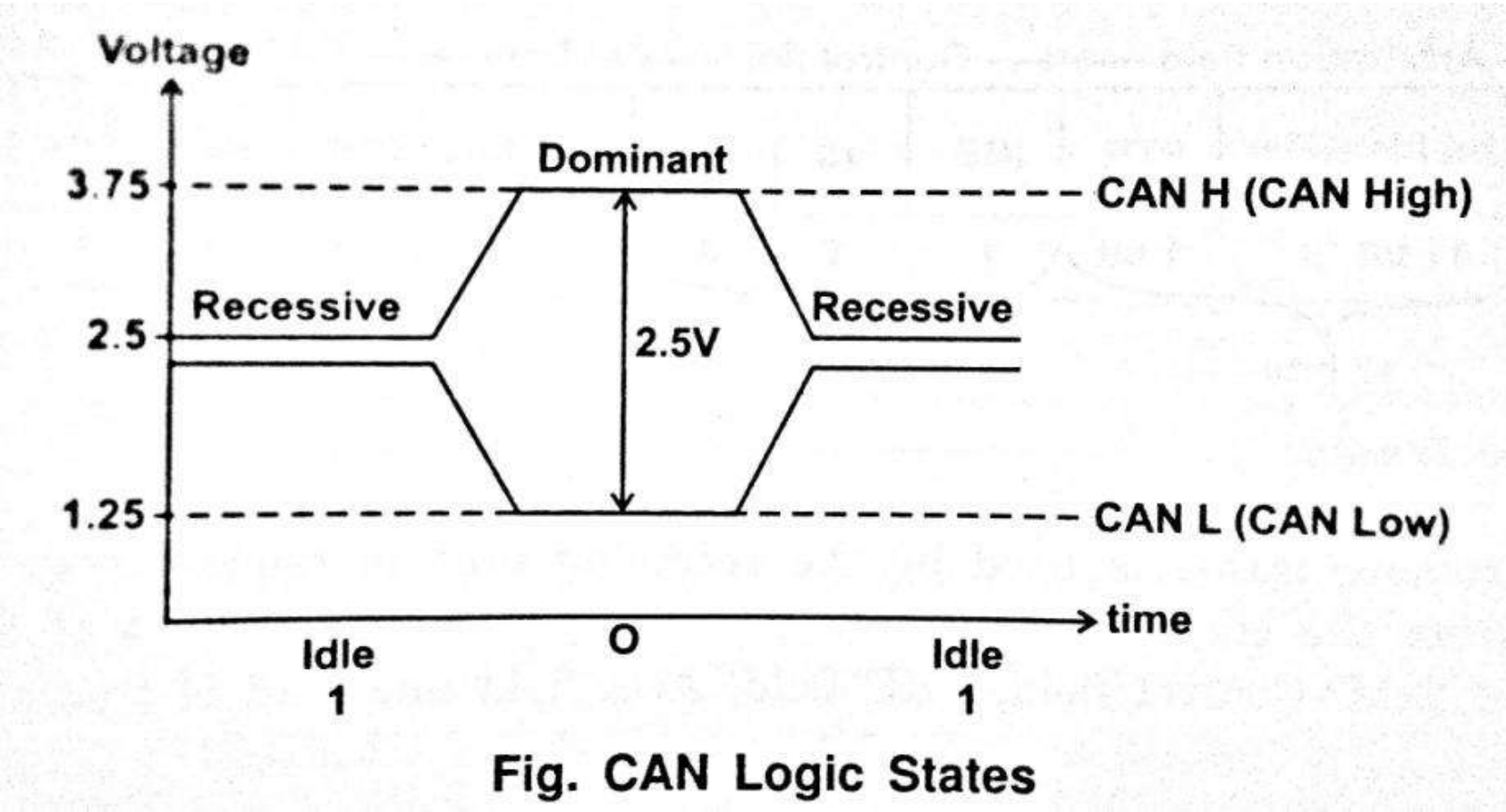



Fig. CAN Logic States

# Contd.,

- CAN bus uses 2 dedicated wires for communication such as CAN H and CAN L.
- When the CAN bus is in idle mode, both the lines carry 2.5V. When data bits are transmitted. CAN high line goes to 3.75V and CAN low drops to 1.25V. There by generating a 2.5V differential between the lines.
- CAN protocol is a message based protocol, not an address based protocol. CAN provides two communication services, the sending of a message (Data Frame Transmission) and the requesting of a Message (Remote Transmission Request) RTR.
- Each node is able to send and receive messages, but not simultaneously. A message consists primarily of an ID (Identifier), which represents the priority of the message and up to 8 data bytes. Signal pattern is NRZ (Non - return to zero)
- Baud rate is 1 Mbps and it is a Multi-master broadcast serial bus standard.
- Priority based bus arbitration mechanism is employed here.

# CAN BUS INTERFACE

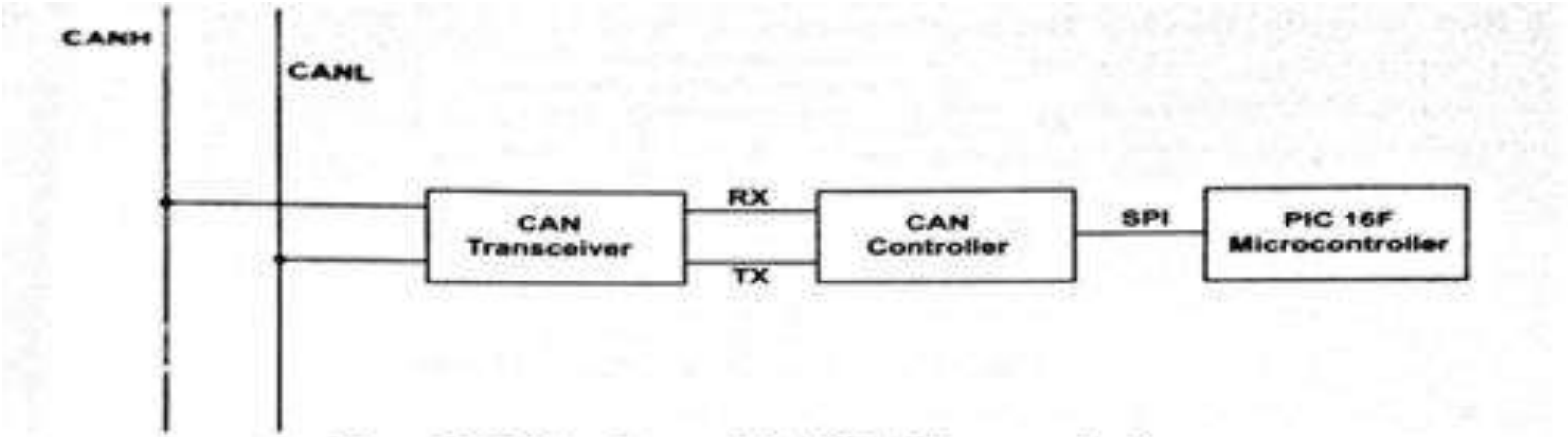



Fig. CAN Interface with PIC Microcontroller.

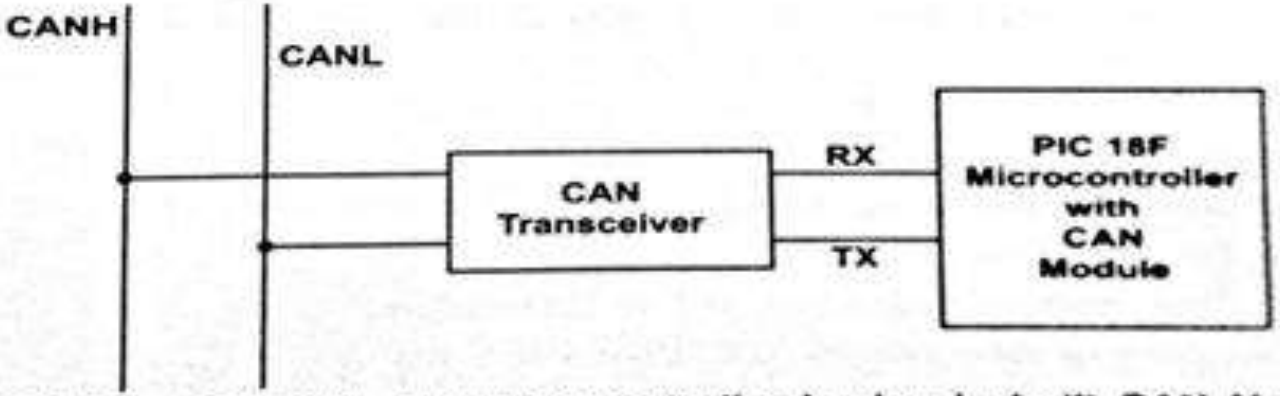
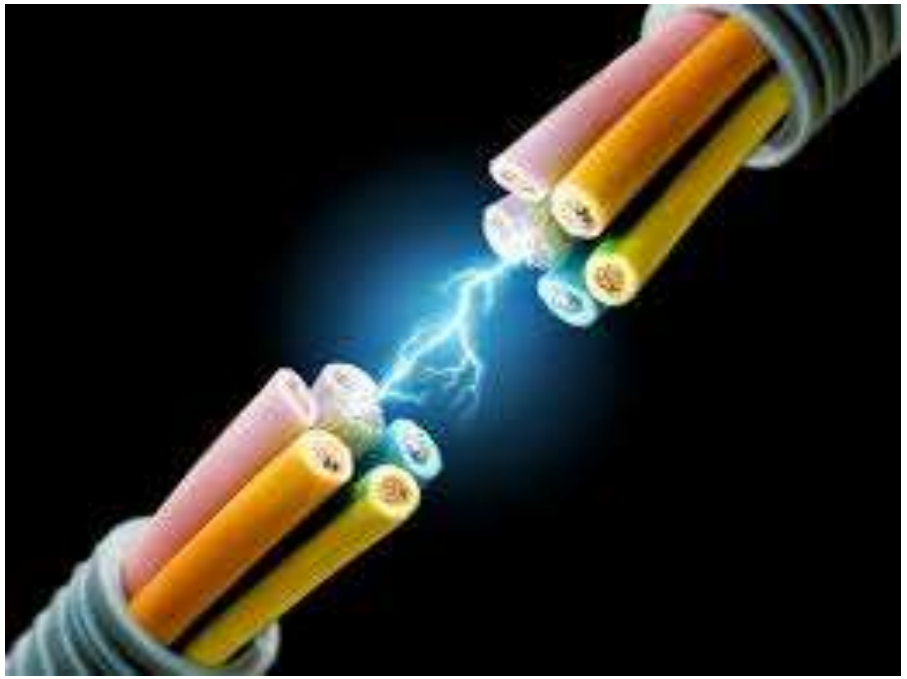



Fig. CAN Interface with PIC Microcontroller having in built CAN Module.

# RECAP….



# …THANK YOU