CAN Protocol

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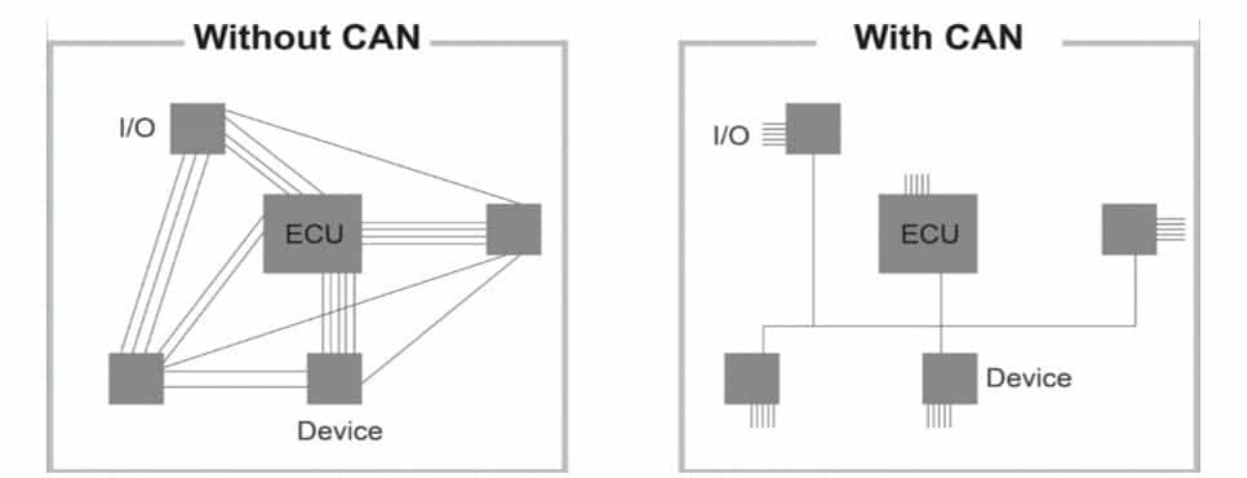
What is CAN and how it operates?

CAN stands for Controller Area Network protocol. The CAN protocol is a two-wire, bidirectional serial bus communication method which is used to connect electronic devices to each other allowing them to communicate. Devices on a CAN bus are called nodes and these consist of a CPU, CAN controller, and a transceiver. Nodes have to send data onto the network first to become accessible for other nodes to view and use. It is not possible for multiple nodes to send and receive data at the same time. Data is sent using frames which include data frames, remote frames, error frames and overload frames.



Typical applications of CAN

- Automobiles
- Embedded electronics
- Public transportation
- Elevator and escalators
- Building automation

- Industrial automation
- Aviation and navigation
- Medical electronics

Advantages and disadvantages of using CAN

Using CAN protocol has numerous upsides which explain why it is often used in these previous applications. CAN protocol is considered to be cheap as it only has small amounts of wiring and they are light as well. It easily identifies errors and finds way to prevent them like breaking the connection of nodes that transmit lots of errors since CAN protocol has multiple error detection methods. Moreover, it comes with decent transmission speeds. Nevertheless, there are a few downsides for using this protocol as well. The worst of these is that the maximum number of connected devices is 64 which could limit larger scale projects. Larger scale projects are also limited by the fact that the maximum cable length is 40m. Electric noise is often produced too as a result of difference in voltage levels.