## Error Detection

There are five types of CAN error can introduce on CAN-BUS by receiver and transmitter node-

1. Bit error
2. Stuff error
3. CRC error
4. Acknowledgment error
5. Form Error

Bit Error (Introduce By Transmitter)

Bit monitoring in CAN, every transmitter node reads back its transmitted bit from CAN line along with other MCUs But if it will not get read bit same as it transmitted then transmitted node stop the further transmission and introduce an error frame on CAN line. This error is known as "bit error".
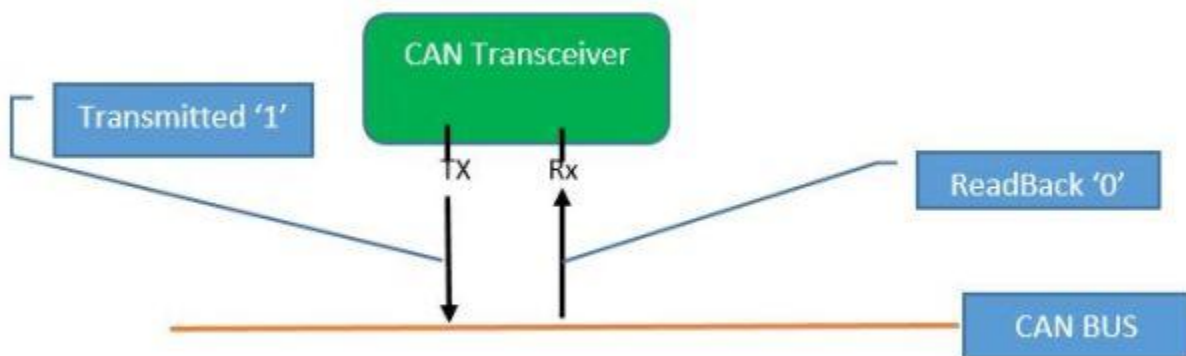
Stuff Error (Introduce By Receiver)

Bit stuffing in CAN, More than 5 consecutive bits of the same polarity in CAN frame between the start of Frame(SOF) to CRC field is considered as a faulty frame on CAN Bus and it signaled as "stuff error" on CAN line.

CRC Error (Introduce By Receiver)

The transmitter transmits CRC of transmitted data at CRC field of CAN frame and receivers also calculate CRC on received data. If the receiver found Calculated CRC is different from received CRC at CRC field then receiver signaled it as "CRC error" and introduce an error frame on CAN line.

ACK Error(Introduce By Transmitter)

After Transmission of CRC field of CAN frame Transmitter send ACK (a recessive bit) and receiver makes it dominant as a part of acknowledgment to the transmitter. During readback, transmitter found the dominant bit and consider it as
receiver acknowledgment and if it reads a recessive bit then transmitter signaled it as ACK error and introduce an error frame.

Form Error(Introduce By Receiver)

As per CAN Frame Format, there are some fields of fixed length and format like CRC Delimeter, ACK Delimeter, EOF ,InterFrame Spaceand if it is detected corrupted at receiver side then it signaled as Form Error and Node will introduce an error frame on CAN line.