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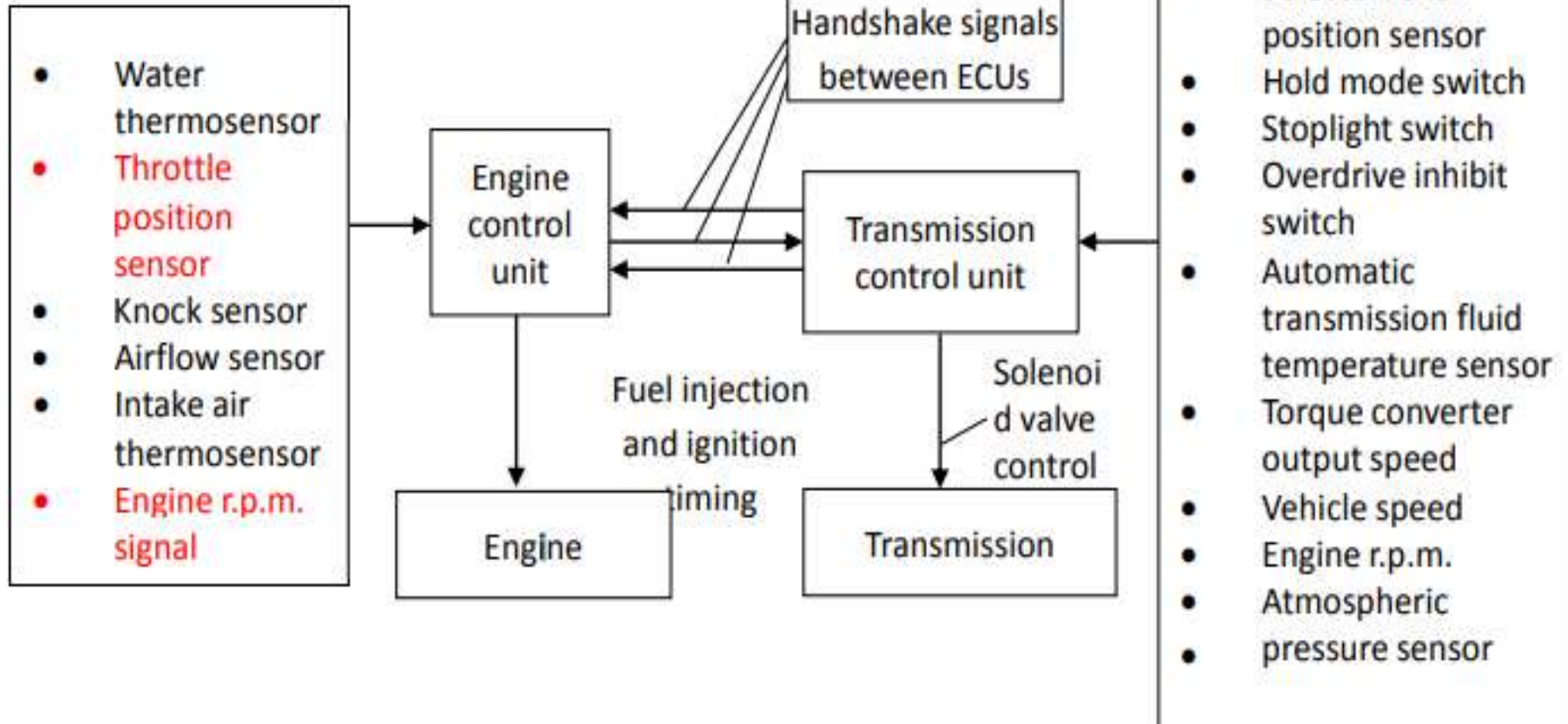
Input Output Control by Data Identifier (0x2F)

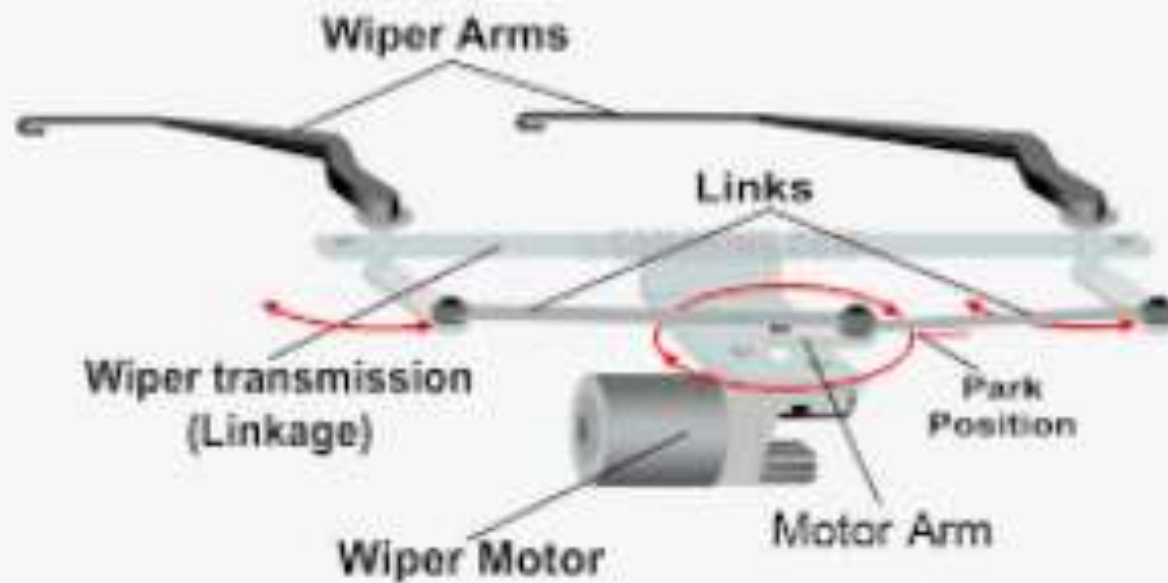
Purpose : To Control : I/O (Sensors/Actuators)

What is controlling the system/IO :

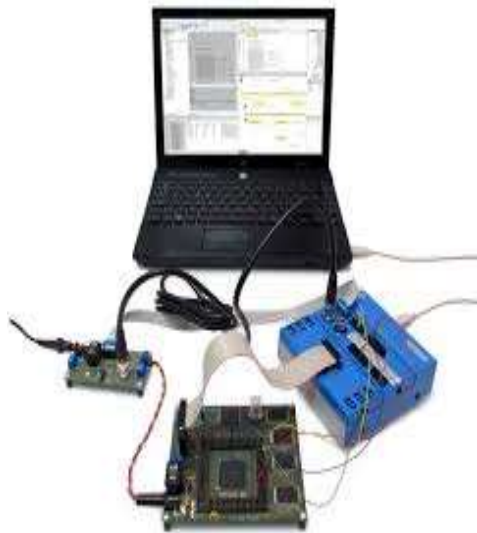
Purpose of controlling the system is to attain for desired result with the help of feedback system

ECU & TCU





Positive Response frame format 0x2F

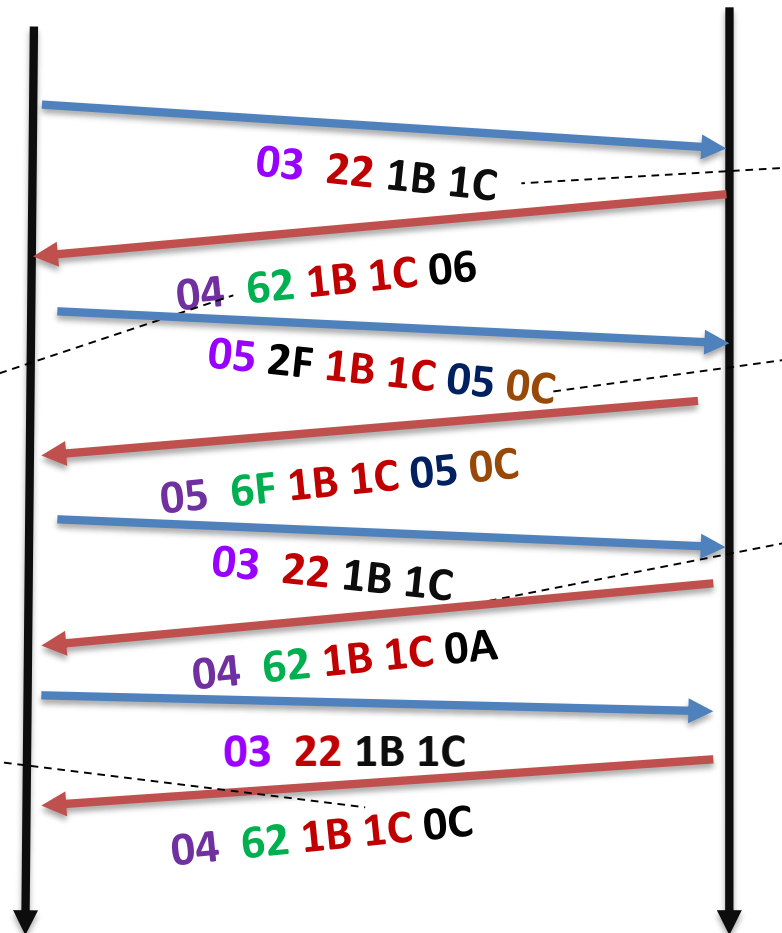


Request & Response (Positive Response)



Positive Response : **62**
Throttle Position
With data as 6%

Reading current
throttle position data
after 5 secs of requested
I/O



Reading current
throttle position data

05 - Short term
adjustment
0C - Control State (12%)

Reading current
throttle position data
Immediately after
requested I/O

Negative Response frame format 0x2F

Supported NRC for 0x2F

13 - Incorrect Message Length Or Invalid Format in PCI length

Declaration : If we requested a wrong/invalid then the it will give this negative response.

22 - Conditions Not Correct : If the criteria for the request Security Access are not met.

31 - Request out of range : If user request Invalid DID

33 - Security Access Denied : If user requests without unlocking the ECU

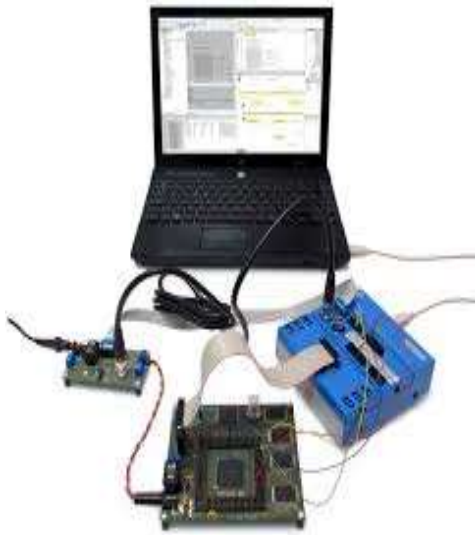
35 - Invalid Key : If the key value not match with stored value in server then tester will get NRC.

36 - Exceed number of Attempts : If the number of attempts exceeds maximum invalid attempts

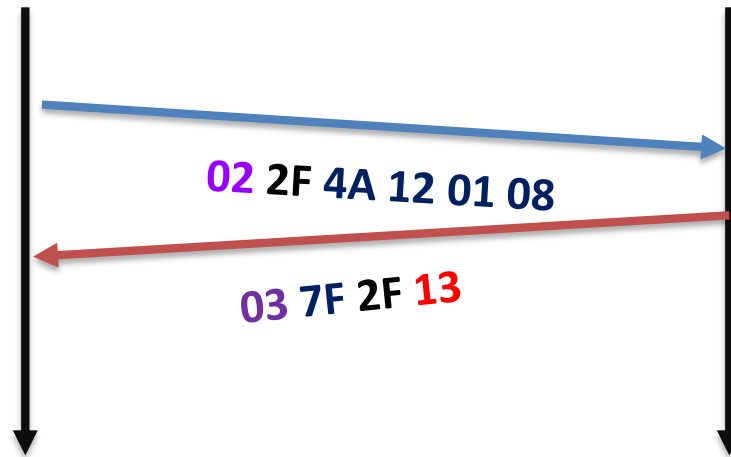
37 – Required Time Delay not Expired : If the delay timer is active and request is sent

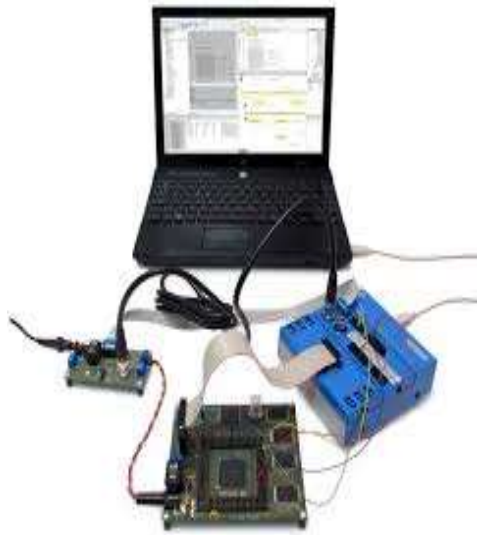
NRC Flow for Service 0x2F

0x13 → 0x31 → 0x33 → 0x22 → 0xFF

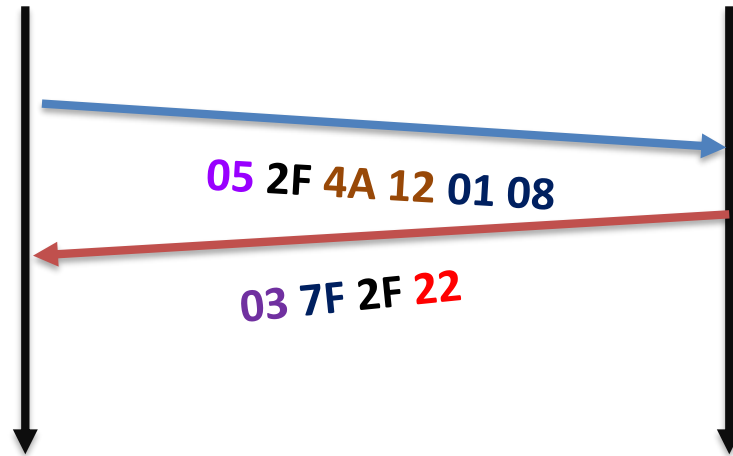


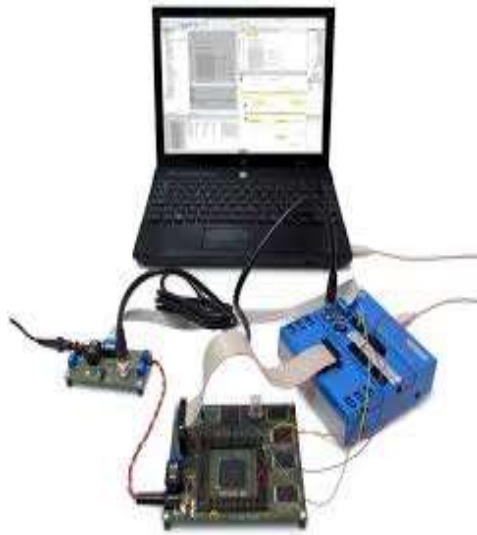
Incorrect Length



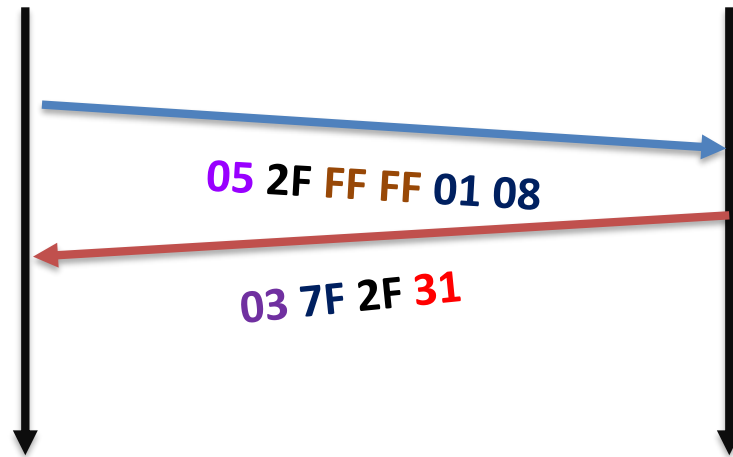


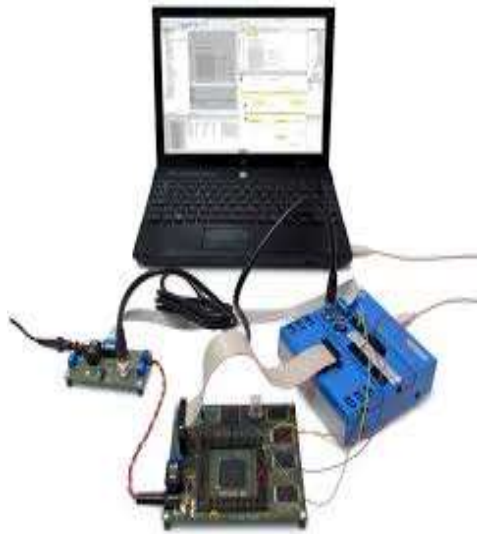
Conditions Not Correct



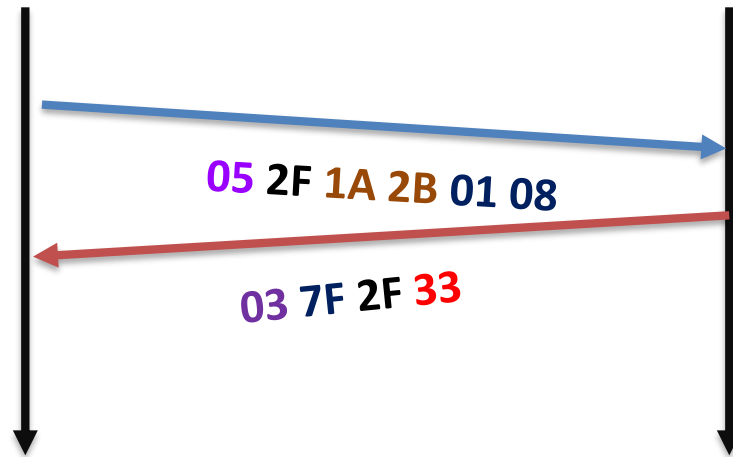


Request out of Range





Security Access Denied



End of the Tutorial !!