1. CAN is Controller Area Network.
2. CAN – Standard Frame with 11 bit identifier
3. CAN – Extended Frame with 29 bit identifier
4. **CAN**is specified to the OSI model Physical and data link layer protocols.
5. CAN Frame (“Arbitration filed”- which is also called as message Identifier, “Control Field” – which defines user defined functions, Data – “Actual data”, CRC filed – ACK field, start of Frame bits, edit of frame bids)

SOF – Start of Frame (1 bit)

1. **Arbitration Field---ID (11bits)**
2. **Control Field---DLC(Data Length Code)(4bits)**
3. **Data Field----data is to be transmitted(8 Bytes)**
4. **CRC Field---Cyclic Redundancy Check(It is used for data corruption and detection)**
5. **End Frame**
6. Table

   Description automatically generated

**What is voltage Levels in CAN Protocol?**

Bus level according to ISO 11898.

* CANH voltage level is 3.3 Volt
* CANL Voltage Level is 1.5 Volt

<https://www.youtube.com/watch?v=EIVQzv6-LRo>

1. UDS - the tester (TST) sends a diagnostic service request to the ECU and receives the diagnostic service response from the ECU.

To do so, tester (TST) and vehicle (ECU) must be connected to each other by a Vehicle Communication Interface (VCI)

“UDS” is an OSI Model application layer protocol.

1. There are 29 Service ID’s

There are some service id’s are

**0\*10 ----Diagnostic Session Control**

UDS uses different operating sessions, which can be changed using the "Diagnostic Session Control".

**0\*11---ECU Reset**

The service "ECU reset" is used to restart the control unit (ECU). Depending on the control unit hardware and implementation, different forms of reset can be used:

* "Hard Reset" simulates a shutdown of the power supply.
* "key off on Reset" simulates the drain and turn on the ignition with the key.
* "Soft Reset" allows the initialization of certain program units and their storage structures.

**0\*27---Security Access**

Security check is available to enable the most security-critical services. For this purpose a "Seed" is generated and sent to the client by the control unit. From this "Seed" the client has to compute a "Key" and send it back to the control unit to unlock the security-critical services.

**0\*28---Communication Control**

With this service, both the sending and receiving of messages can be turned off in the control unit.

**0\*29---Authentication**

An update (2020) of the standard added this service to provide a standardized approach to more modern methods of authentication than are permitted by the Security Access (0x27) service, including bidirectional [authentication](https://en.wikipedia.org/wiki/Authentication) with [PKI](https://en.wikipedia.org/wiki/Public_key_infrastructure)-based Certificate Exchange.

**0\*3E---Tester Presentation**

**0\*83---Access Timing Parameters**

**0\*84---Secured Data Transmission**

**0\*85---Control DTC Settings**

**0\*86---Response On Event**

**0\*87---Link Control**

|  |  |  |
| --- | --- | --- |
| Request SID | Service | Response SID |
| 0x10 | session control | 0x50 |
| 0x22 | Read data by Identifier | 0x62 |
| 0x31 | Routine control | 0x71 |
| 0x85 | Control DTC Settings | 0xC5 |

If an ECU is not able to support a request, for example if it cannot deliver the requested data (0x22 = read data by identifier) or cannot process a requested action (0x11 = ECU reset) – for what reason ever – the ECU will send a negative response with the negative response SID 0x7F.

19 – DTC, issue occurred stored in 2F if the issue is resolved it will be moved to 28

14 – to clear e-form memory,

10 – purpose of this is ecu

31 – 01 is for action routine start stop,

1. ADAS - Advance Driver Assistance System (LIDER (Emergency Braking, Pedestrian Detection, Collision Avoidance), Cameras(Traffic Sign Recognition, Lane Departure Warning, Park Assist, Surround view), Long Range Radar(Adaptive Cruise Control), Short/Medium range Radar(Cross Traffic Alert, Rear Collusion Warning))
2. CCS – Telematics
3. Telematics is a technology that combines Tele-communication, infomatics  and wireless devices to send receive and store data connected with vehicles.
4. Telematics devices collect and transmit location using gps and other vehicle  specific  data through satellite communication  / cellular network to centralized server , these data will be stored in user friendly way and sends them to fleet owners.
5. Mainly used in Commercial vehicles to tracking Location, speed, hard breaking, fuel consumption, acceleration, temperature, route deviation, over speeding so that action can me be taken
6. Vehicle maintenance – when to change oil, break pads, or batteries,
7. Also help vehicle Insurance – distance coved daily etc.

Management:

What if you have done capacity planning, grooming and all other scrum meetings and let you got to know you cannot complete the work in schedule time time.

A – I’ll talk to team and will discuss the importance of the this release and will extend our hr to get to completed.

Management tools

1. RTC – for story and defects tracking on-site.
2. JIRA – for story and defects tracking on-site / offshore JIRA is been used.
3. TestRail – all the test plans and test suits are maintained on Testrail.
4. Confluence – all the documentations are maintained on confluence i.e. all the meeting updates, list of the h/w we have assigned,

1. Will receive latest Designs and requirement document.
2. As a agile team will have a grooming on the designs and requirements for any clarifications.
3. Will do a capacity planning and will assign the work to the team
4. As taking reference of Designs team will start writing the TC for the features.
5. As on agile process we are having 2 week sprint and daily stand up’s on the stand up will discuss the progress and any blockers team has.
6. Once we receive the Build we try to add the missed TC to the suite.
7. All the TC are sent for verification, to ensure no functionality  are missing
8. Once the testing is completed will log the time on JIRA  and report are linked to the story and will be closed, appropriate video, SS are linked to the story for PO reference.
9. If there any defects raised by client for already delivered functionality will be doing RCA if its QA miss will add a new test case, and will discuss with team to cover all the edge case too.

Introduction:

1. I Sanjeev has an experience of 9 years
2. Has an experience on Android, iOS projects web and Automotive too
3. From last 3+ years I am working with People tech group on Automotive modules
4. Has an experiacne on modules like camera, settings, Phone, SSP , Radio, Bluetooth, Climate, Trailer, VehicleInfo, Camera, etc
5. As a day to day activity, we have scrum call each day to discuss for any blockers
6. Work with team for the closer of stories.

What is the speed of CAN