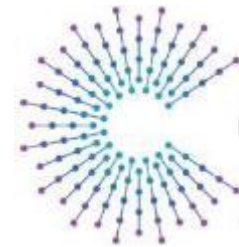


AOSP Data Use Case Ideas

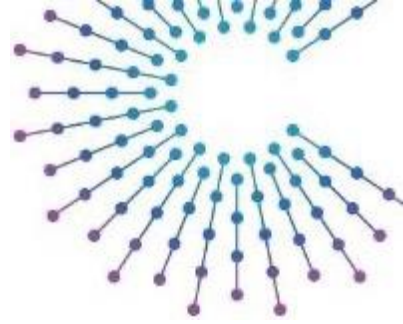
Andreas Klein, Robert Bosch



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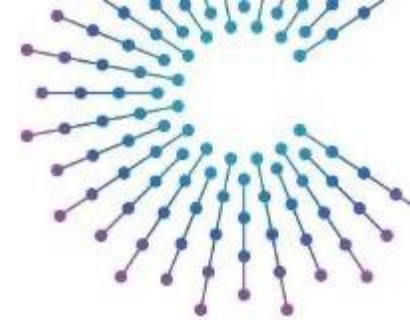
Accelerating the future of connected vehicles

Ideas: Use Cases – Fleet Management



- Customer target group Fleet Management
 - Several vehicle properties already available
 - Often fleets exist of recent vehicle (1-3 years old)
 - Almost all recent passenger cars are „connected“
- Fleet Manager
 - Keep customer satisfied with „roadworthy“ vehicle
 - Control costs for maintenance & repair
 - Sell vehicle with appropriate price

Ideas: Use Cases – Fleet Management



- UC1: Notification of service
 - GPS position (longitude & latitude)
 - Mileage/odometer
 - N/A: Next service distance
 - N/A: Next service date

Fleet manager gets **immediate information** about fleet vehicles which need service
Fleet manager can get in **contact** with fleet vehicle **driver**

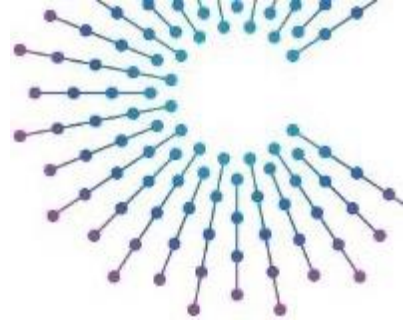
- UC2: Vehicle Health Status
 - Mileage/odometer
 - Energy level
 - Fuel
 - SoC
 - Tire pressure

Fleet manager gets additional **information** about the fleet vehicle health
Fleet manager can get in **contact** with fleet vehicle **driver**

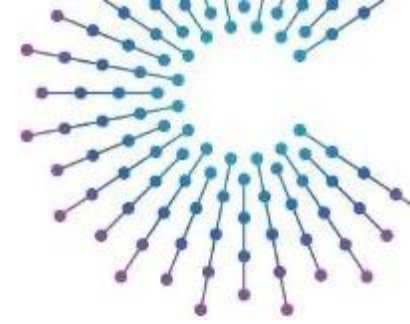
Ideas: Use Cases – Fleet Management

- UC3: Service Need Details
 - Oil service
 - Brake service
 - Engine coolant temperature
 - DTC (diagnostic trouble codes)
 - Battery voltage

Fleet manager gets **detailed information** about fleet vehicles what kind of service they need. Fleet manager can get in **contact** with fleet vehicle **driver**

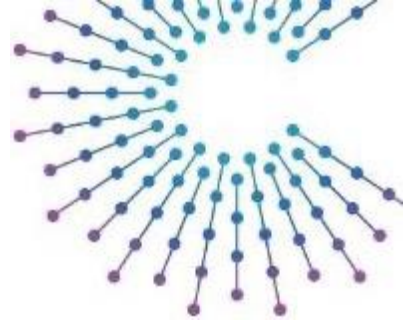


Ideas: Use Cases – Fleet Management



- android.location (AOSP GPS signals)
 - <https://developer.android.com/reference/android/location/LocationListener>
 - Latitude
 - Longitude
 - Speed
 - Altitude
 - Etc.
- android.car.VehiclePropertyIds (AAOS)
 - https://developer.android.com/reference/android/car/VehiclePropertyIds#PERF_ODOMETER
 - PERF_ODOMETER
 - Current odometer value of the vehicle in kilometers.
 - Signature | Privileged permission "android.car.permission.CAR_MILEAGE" to read property

Ideas: Use Cases – Fleet Management

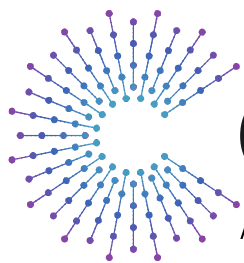


- android.car.VehiclePropertyIds
 - PERF_ODOMETER
 - Current odometer value of the vehicle in kilometers.
 - Signature | Privileged permission "android.car.permission.CAR_MILEAGE" to read property
 - TIRE_PRESSURE
 - Tire pressure in kilopascals.
 - Signature | Privileged permission "android.car.permission.CAR_TIRES" to read property.
 - EV Battery:
 - To calculate the battery percentage, use: $(EV_BATTERY_LEVEL/EV_CURRENT_BATTERY_CAPACITY)*100$
 - Dangerous permission Car#PERMISSION_ENERGY to read property.
 - EV_BATTERY_LEVEL
 - EV_CURRENT_BATTERY_CAPACITY
 - FUEL_LEVEL
 - Fuel remaining in the vehicle in milliliters.
 - Dangerous permission Car#PERMISSION_SPEED to read property.

Ideas: Use Cases – Fleet Management



Data Item	AAOS	AOSP	VSS
GPS		android.location LocationListener	Vehicle.CurrentLocation.{Timestamp, Latitude, Longitude, Altitude}
Next Service	N/A		Vehicle.Service.DistanceToService
Service Details	N/A (oil, brake, etc.)		Vehicle.TraveledDistance
Odometer	PERF_ODOMETER		Vehicle.TraveledDistance
Tire Pressure	TIRE_PRESSURE		Vehicle.Chassis.Axle.Row{n}.Wheel.{Left, Right}.Tire.Pressure
Battery Level	EV_BATTERY_LEVEL		Vehicle.Powertrain.TractionBattery.StateOfCharge.Current
	EV_CURRENT_BATTERY_CAPACITY		
Battery Voltage	N/A		Vehicle.LowVoltageBattery.CurrentVoltage
Fuel level %	FUEL_LEVEL		Vehicle.Powertrain.FuelSystem.Level
DTCs	OBD2_LIVE_FRAME OBD2_FREEZE_FRAME		Diagnostics.vspec Deprecating OBD-branch
MIL	N/A		Vehicle.OBD.Status.IsMILOn



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