



Please read our FAQs to get a better understanding of MECH5's unique features and benefits:

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## What is MECH5?

It is a fully cloud based vehicle data retrieval and diagnostics platform, based on 20 years' worth of automotive know how. MECH5 can remotely access an **entire vehicles data network** to retrieve any diagnostic or data related information required by any partner company. It can do it remotely from anywhere in the world with an internet connection. It can retrieve **error codes (DTCs), live data, use bi-directional activation of components or even program ECUs remotely**. All of this is achieved under OEM protocols reverse engineered over 20 years.

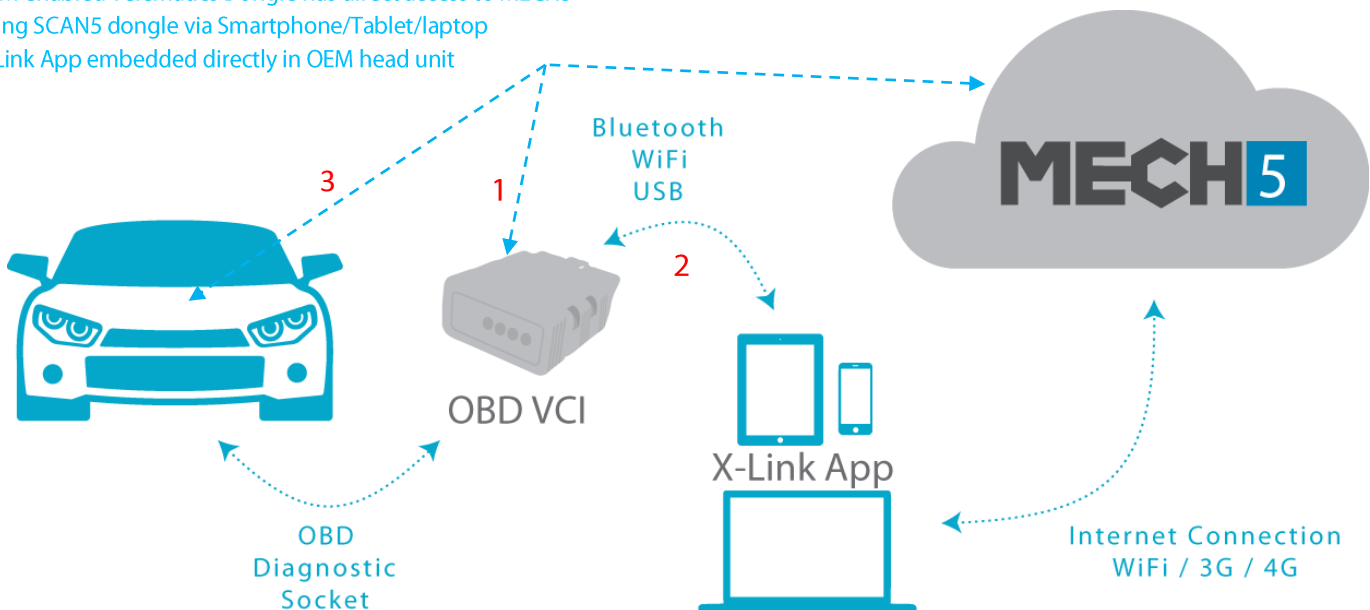
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## How does it work?

**MECH5** works via a small Vehicle Communication Interface (VCI) which plugs into the vehicle's diagnostic socket, and then connects securely to the cloud via our X-Link comms app, using either GSM (**1**:when using a telematic dongle) or through a Smartphone via Bluetooth (**2**:when using our own SCAN5 VCI or another providers hardware)

Alternatively, X-Link can be embedded directly into an OEM infotainment head unit ECU (**3**)

- 1: GSM enabled Telematics Dongle has direct access to MECH5
- 2: Using SCAN5 dongle via Smartphone/Tablet/laptop
- 3: X-Link App embedded directly in OEM head unit



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## What Operating systems can MECH5 work with?

As MECH5 is built as a web service in HTML, it can be used on any web browser on any operating systems: Windows, Android, Apple iOS etc.

The X-Link App is designed to work on Windows, Android, Apple iOS or can be embedded directly into a telematic OBD dongles firmware or an OEM Infotainment head unit

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## What hardware is required that MECH5 works with?

**Mech5** can work through the following types of popular vehicle communication interfaces (VCIs):

- Other telematic hardware with our firmware upgrades
- OBD Bluetooth and Wi-Fi devices – e.g. ELM327 compatible, OBDLink etc.
- J2534 Pass Thru – e.g. Drew Technologies CarDaq & Mongoose devices, Diagnostic Associates DA J2534 dongle, Actia XS etc.
- Our own legacy DEC Superscan 2 & 3 aftermarket scantool VCIs
- SCAN5/6 – Our fully multiplexed Super Dongle that is in development now
- Or we can embed our X-Link app directly into a vehicles head unit when working in collaboration with an OEM or TIER 1 Supplier

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## Why is MECH5 different from other OBD diagnostic offerings in the Telematic market?

In the B2B telematics market, there are dozens of “OBD telematic dongle” manufacturers, some selling just the hardware, others bundling it with different services like: smart driving, geo-fencing, engine diagnostics, etc.

- All of these companies provide very limited information from within the vehicle, generally it’s only **OBD emission related engine data**. The reason for this, is they lack the know-how to interact with the vehicle electronics as we do

Using OEM protocols reverse engineered over 20 years, we offer full vehicle health information, or as we say “Bumper 2 Bumper” diagnostics. MECH5 can connect and get information from ANY electronic ECU within a vehicle: **Airbag, Transmission, Climate Control, Dashboard, Infotainment, Brakes, Body Control etc.etc.**

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### What in-vehicle systems (ECUs) can it connect to?

Our system penetrates the entire vehicles data bus under OEM protocols, not just the engine under generic OBD2 protocols as nearly every other telematic offering does. So the answer is: ALL ECUs on a vehicles CAN BUS as long as we have developed for that vehicle i.e. **Drivetrain, Body Control, Infotainment, Airbags, Transmission, Climate Control, Dashboard, ABS**, etc. This could be as many as 70 different ECUs on a modern high end car.

**We call this “Bumper 2 Bumper” capability**

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### What functions and data can MECH5 perform or retrieve?

- **Health Check** – Vehicle wide snapshot of ECU DTCs and Live Data in one go.
- **Diagnostic Fault Codes (DTCs)** - OEM Manufacturer fault codes from ECUs throughout the car. P1/2xxx engine codes, Body codes (Bxxxx), Chassis codes (Cxxxx) and CAN codes (Uxxxx)
- **Live Data Snapshots** - record all the live data from all an ECU’s sensors at one moment in time
- **Dynamic Live Data** – Live waveform graphing of several sensors data at the same time
- **Activation of components** – control windows, doors, gauges, wipers, lights, throttle motors etc.
- **Advanced Functions** - Perform Service related functions e.g.:
  - Service & Oil reset - Brake bleeding - Tyre Pressure Monitoring Adjustments
  - Summer/Winter tyre setup – Immobiliser/Key functions – Steering Angle sensor reset

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### What Data can MECH5 retrieve?

Data acquisition: Many companies are looking to leverage car data via the cloud. Our offering, apart from OEM systems, is the only one that can supply any data stream from any part of the car.....

- Data is where we specialize. Nearly all OBD telematics devices do not have the right hardware or firmware, and the companies’ don ´t have the right commands to query the ECUs.
- MECH5 is capable of accessing **up to 100 times more data** than current competitors OBD systems

Here is a tiny sample list of the kind of parameters partner companies are interested in retrieving from vehicles. You can see that most of them cannot be retrieved from the vehicle using OBDII PIDs:

ACCELERATOR POSITION PEDAL	Percentage
AMBIENT LIGHT (SOLAR) SENSOR	W/m <sup>2</sup>
BATTERY LEVEL (ELECTRIC VEHICLE)	Percentage
BATTERY VOLTAGE	Volts
BRAKE FLUID LEVEL	Ok / Below Minimum

BRAKE PAD WEAR SENSOR - FRONT	Ok / Worn Out
BRAKE PAD WEAR SENSOR - REAR	Ok / Worn Out
BRAKE PEDAL STATUS	Pressed / Released
DISTANCE UNTIL NEXT SERVICE	Km/Miles
ENGINE COOLANT LEVEL	Ok / Below Minimum
ENGINE COOLANT TEMPERATURE	Celsius
ENGINE OIL TEMPERATURE	Celsius
ENGINE SPEED	RPM
ENGINE TORQUE	Nm
FOG LIGHTS	On / Off
FRONT WIPERS	Off / Intermittent / Low / High
FUEL LEVEL	Liters
FUEL LEVEL	Percentage
HAZARD LIGHTS	On / Off
HEADLAMPS STATUS	Off / Close Range / Long Range
INFOTAINMENT - CURRENT TUNED FREQUENCY	KHz
INFOTAINMENT - TELEPHONE MUTE	On / Off
LANE DEPARTURE SIGNAL	Ok / Off Lane Warning
ODOMETER	Km/Miles
OUTSIDE TEMPERATURE	Celsius
PARKING BRAKE STATUS	PRESSED / NOT PRESSED
SEAT BELT BUCKLE STATUS - DRIVER	Buckled / Unbuckled
SEAT BELT BUCKLE STATUS - PASSENGER	Buckled / Unbuckled
SEAT OCCUPANT SENSOR - PASSENGER	Occupied / Empty
SEAT OCCUPANT SENSOR - REAR CENTER	Occupied / Empty
SELECTED GEAR	Park/D/R/N/
STEERING WHEEL ANGLE	Degrees
TIME UNTIL NEXT SERVICE	Days
TURN SIGNAL LEFT or RIGT	On / Off
VEHICLE INTERIOR TEMPERATURE	Celsius
VEHICLE SPEED	Km/h - M/h
WASHER FLUID LEVER	Ok / Below Minimum
WHEEL SETPOINT (PLACARD) PRESSURE - FRONT	kPa
WHEEL SETPOINT (PLACARD) PRESSURE - REAR	kPa
WHEEL TIRE PRESSURE - LEFT REAR	kPa
WHEEL TIRE PRESSURE - RIGHT REAR	kPa
WHEEL TIRE PRESSURE - LEFT FRONT	kPa
WHEEL TIRE PRESSURE - RIGHT FRONT	kPa

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## How can MECH5 save my Fleet money?

**Fuel usage control** – most current telematic providers calculate fuel use via an algorithm based on generic OBD parameters and/or GPS data (see <http://www.epa.gov/ttnchie1/conference/ei20/session8/aalessandrini.pdf>). This method is only accurate to around 4%. It is also possible for drivers to abuse their own fuel use by filling up a personal vehicle

As MECH5 delivers actual Fuel Tank levels and actual ODOMETER readings (not GPS values) from the Instrument Cluster sensors, a totally accurate picture of a vehicles fuel usage can be attained.

**Prognostics** – The ability to predict electronic problems arising within a vehicles ECU before they cause problems by logging certain predictive DTCs (faluts)

**Service Management** – By being able to monitor a vehicles Service Schedule remotely without driver involvement - more efficient fleet service management brings lower costs

**On the Fly Service and Maintenance** – with complete ECU access, MECH5 can be programmed to deliver daily reports on a vehicles condition, identify DTCs even before the driver is aware of them

**DOC – Duty of Care** – If a fleet vehicle is involved in an accident, MECH5 data could be used in any subsequent legal action to prove that the car was in an electronically roadworthy condition.

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## What are the most useful features of MECH5?

This really depends on which sector of the automotive community you come from. MECH5's business model serves B2B, Garage Professional and Enthusiast Car Owner. But once the vehicle is connected to MECH5, we can remotely, securely and safely interact with it to provide:

- Real time parameter data including (to name a few):
  - Current Odometer, Fuel Level and MPG
  - Tire Pressure Information
  - Driving efficiency
  - Vehicle Occupancy
  - Current Levels for Brake Fluid, Wiper Washer, Coolant, etc.
  - In-Vehicle Entertainment Usage (tuned radio station, phone usage, etc.)
  - Environmental Information (outside temperature, Sunlight and Rain sensors)
- Complete vehicle health check reports (look for DTCs in ALL ECUs, not just the engine)
- Historic vehicle health records
- Remote activation of components (windows, door locks, lights, etc.)
- Perform service procedures (oil & service reminder reset, etc.)
- Remote firmware update (FOTA manufacturer updates or chip tuning)

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## What type of business can leverage MECH5's data and functions?

These are several industries that can use our platform:

- Automotive Telematics
- Fleet Management
- Vehicle Rental
- Usage Based Insurance
- Roadside Assistance
- Remote Vehicle Diagnostics
- In-car entertainment
- On road Fuel Rewards and e-coupons
- Traffic Management & Environmental Control
- Market Research
- OEM warranty analysis
- Big Data Analysis

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## Who else can use MECH5's data and functions?

- Professional Garages worldwide
- Individual Professional Technicians
- Car Enthusiasts worldwide

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## Where did MECH5 come from?

The core of the MECH5 diagnostics engine derives from the DEC SuperScan scan tool which has been in continuous development for 15 years. DEC Automotive are leading creators of aftermarket scantool technology

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## Who are Nebula Systems?

Nebula Systems Ltd, is a UK company formed by the Directors of DEC Automotive ([www.decautomotive.com.ar](http://www.decautomotive.com.ar)), a world leader in automotive diagnostic systems development and Maverick Technology (UK) Ltd ([www.mavericktechnology.co.uk](http://www.mavericktechnology.co.uk)), one of the UK's leading aftermarket diagnostic tool distributors. We have a combined experience in scantool development of over 20 years

We are a small but very passionate bunch of people whose ultimate goal is to develop Cloud based technology that will revolutionize the automotive diagnostics and telematic markets.

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