www.vidiwave.com
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Vidiwave Limited
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Bus & Coach Solutions

Key Features

Fleet

- Reduce CO2 emissions
- Reduce fuel costs by 10 ~15%
- Reduce vehicle maintenance costs
- In-cab Eco-Driver training module
- 3G Driver alcohol safety alerting
- 3G Fuel theft alerting
- 3G Real-time passenger information management
- 3G recovery of Tachograph data
- GPS tracking
- 3G Remote CANbus vehicle diagnostics

CCTV

- Panic button driver protection
- Driver video reversing aid
- Lone worker protection – night shifts
- Asset theft protection
- Live in-cab video via 3G
- Video-based people counting
- Bodywork damage investigation
- Insurance investigation tools – to help reduce annual premiums
- Passenger safety

Network

- 4G (LTE) /3G / GPRS / CDMA
- WLAN – 2.4 / 5 GHz
- VPN – AES256 Security encryption of data

User Remote Access / Management

- Via a desktop computer
- Via any browser using Cloud Technology
- Via a smart phone or tablet

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Why move to the Vidiwave solution?

Typical Fleet Management

GPS Tracking / Tachograph / CANbus / J-bus / CCTV / RFI ID / Staff Security and Protection are all separate technologies from different manufacturers. So as you would expect this means that there is very little if any integration between the management technologies

Problem 1:
This means that YOU have to work hard to integrate the information into one REAL-TIME synchronised platform to manage your day-to-day fleet activities.

Problem 2:
Because of the cost of multiple 3G modems and fixed IP SIM cards - generally this means that you can only afford to manage key services via 3G - like vehicle tracking.

Problem 3:
Different technologies means different suppliers and service and maintenance partners - so total cost of servicing and spares is high because it is fragmented.

Vidiwave Fleet Management solution

GPS Tracking / Tachograph / CANbus / J-bus / CCTV / RFI ID / Staff Security and Protection are all fully integrated into our WIMS module (Wireless Integrated Management System)

Solution 1:
Already synchronized – everything is managed via one software suite – one platform – all with fully automated reporting.

Solution 2:
Our WIMS module has a built in SIM card, so all the devices (TCP/IP and serial) can be accessed via one 3G network (cost saving 1). This runs over a standard DHCP public APN cellular network at standard low cost data rates (cost saving 2).

Solution 3:
One manufacturer – one technology platform – one service and maintenance partner via our local channel partner program – lower day to day running and maintenance costs.

Now everything is not only possible, but also very affordable

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Our Wireless Gateway Technology

Enterprise Class GPRS (m2m) 3G + LTE

Built into every WIMS module is a SIM card slot, which allows YOU to choose your provider or opt for a built-in PRE-ACTIVATED business M2M SIM

So why choose a business M2M SIM?

- A business M2M SIM can combine multiple PUBLIC APN networks onto one SIM card.
- IP leases over multiple cells, which results in more stable 3G video connections.
- Contention ratios and reserve bandwidth for your vehicles.
- This means our customers get all the advantages of a PRIVATE APN, but at much lower PUBLIC APN costs.
- Plus they add enterprise class security to your 3G data for free.
- This means you can share pre-purchased data bundles across all vehicles.
- It means you never get overage charges associated with fixed IP SIM cards.

Put simply… quality of service is 1st class

Vidiwave WIMS Module

Enterprise Class Wireless LAN

Also built-in to every WIMS module is a WDS 5GHz wireless client

So why is WDS and 5 GHz WLAN the correct choice for vehicle fleet managers?**

- Because 5 GHz delivers better range, has better reflection characteristics and has better network stability than 2.4 GHz WLAN.
- Because 5 GHz performance is not affected by day-to-day atmospheric factors like rain, fog and snow, unlike 2.4 GHz WLAN technology.
- Because 5 GHz supports non-static roaming clients (like vehicles) much better than 2.4 GHz WLAN technology. Essentially it's an absolute must have feature for reliable downloading of video evidence from vehicles in depot environments.
- Because the 5 GHz WLAN band is regulated use, it's not saturated with other wireless devices like 2.4 GHz WLAN. This means 5 GHz suffers from much less interference and has better stability than 2.4 GHz WLAN.
- As a result it also means 5 GHz can reliably switch to TURBO mode (channel bonding) and achieve > 40% faster download speeds than a depot based 2.4 GHz network.
- Built-in WDS means that each vehicle WIMS can also acts as a wireless repeater – boosting the radio signal to reach vehicles parked further away.
- Smart WDS technology that requires no customer set-up, it just works… All the benefits, none of the hassle.
- 5GHz has 23 non-overlapping channels compared to only 3 with 2.5GHz. Making it easier to find a channel that is not being used by any-one else in the area.

Put simply... Our WLAN is faster – more stable – longer range and more secure.

5GHz Turbo

** WDS – (Wireless Distribution Service)

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Bus & Coach Solution

Our Vehicle Diagnostics Technology

When developing our software – one of the most popular requests from fleet managers was for the integration of a fleet diagnostics tool into our 3G solutions. Their ultimate goal was to be able to perform workshop level diagnostics, from the comfort of the PC remotely using 3G. This would allow them to correctly diagnose roadside breakdowns and dispatch the correct parts and technicians to fix 1st time in the field. Thereby minimizing downtime and lost revenues.

In addition they wanted a tool that could pro-actively monitor the condition of the vehicle telemetry and provide remote alerts via email relating to **Vehicle health**, **Fuel theft** and **Driver performance**.

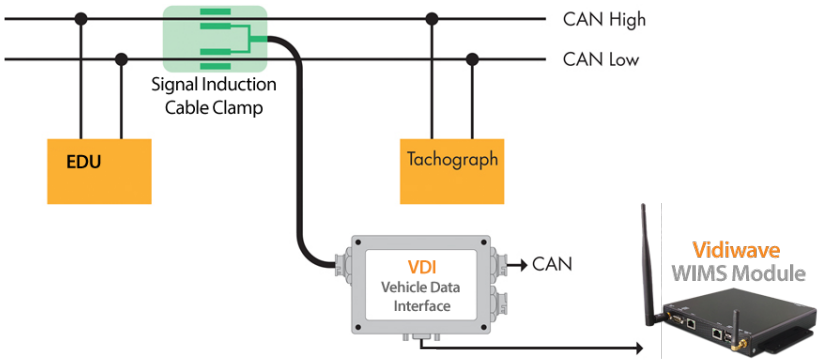
Here is a list of useful telemetry reports we developed for them:

Idling	• Time spend at idle each day • Fuel used at idle each day • Fuel used at idle per week
PTO(Power take off):	• Daily PTO fuel consumption & time analysis
Rough driving	• Daily average acceleration measurement • Number of times kick down mode used daily
Brake analysis	• Number of brake actions per day • Total time harsh braking per day
Clutch Gearbox	• Number of gear changes per day • Number of times sat high RPM per day • Time spent engine braking per day • Time spent coasting per day

Fuel analysis	• Total fuel used per day – litres • Total fuel used per week – litres • Actual fuel consumption (MPG) per day • High torque per day • Refueling time / date stamp – daily • Fuel level recorded at every start / stop (fuel theft alert)
CO2 emissions	Total CO2 per day
Driver analysis	• Speeding alert (User definable) • Total driving time per day • Total time cruise control used per day
Maintenance	Service requirement alert – at 1000 miles pre service interval

Having achieved this integration – the next big challenge was to simplify the installation of our telemetry module and keep all the vehicle warranties intact.

We achieved both by adapting an innovative CLAMP technology that simply clips around the CAN hi-lo cables and listens to the CANbus data using **signal induction without cutting into the original wiring loom.** Once it is clipped in place, it can automatically recognize the vehicle manufacturer, model and variant using a smart listening filter that loads the correct DCF* file to analyze the live CAN and J-bus data transmissions in real-time.



The VDI module is then connected to the WIMS data logger that runs periodic collections of this data via its RS232 port and then reports back to the Vidiwave Cloud management platform (Vidi-Cloud).

Once data is passed to Vidi-Cloud it instantly analyses the data against each customer's pass / fail criteria to decide if there are any failures that the client needs to be aware of and if so, sends an email to the fleet manager to alert the client.

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Bus & Coach Solution

Our Mobile CCTV Technology

One of the most exciting aspects of the Vidiwave solution for fleet managers is the level of information that the CCTV integration provides them with, in almost every aspect of their daily fleet operation.

From original concept to final production our CCTV solution was designed to provide fleet managers with a "user-friendly, hi-technology experience" coupled with Vidiwaves proven build quality and reliability. It delivers ALL the latest innovations in mobile CCTV and combines it with seamless remote wireless management technologies, cloud storage and secure video distribution – all via our ultra-secure AES-256 encrypted VPN.

Always customer focused, Vidiwave have combined traditional analogue CCTV technology with the two latest cutting edge Hi-Definition Camera technologies, HD-SDI and HD-IP, to provide customers with a seamless upgrade path from old-to-new.

Below is a list of some of the key features our Mobile CCTV solution delivers:

8 Channel Mobile DVR with GPS Tracking

DVR / NVR	• H.264 compression • 1TB ~ 16TB HDD providing 30 ~ 180 days storage • Supported Resolutions: Half D1 /CIF, D1, 960H, 720p, 1080p and 1920p • Support formats: • PAL/NTSC, SDI, HD-SDI, IP Cameras (>2MP), HD-IP cameras (>5MP), Fish-Eye IP 360° Vision • Records up to 16 cameras @ 25 IPS per camera • 2 Audio inputs • Removable HDD/DVR dock • USB flash drive BACKUP • Back-up via 3G and WLAN to SSL central Cloud storage • 4 alarm inputs (panic button) • EU Privacy law compliant
DSP Colour Cameras	• Ultra Wide Dynamic Range (U-WDR) • Hi Definition 600 TVL ~ 1920p HD • Ultra low-light light 0.01 Lux • IP66 Rated Snap Lock Automotive grade connector system
Video Analytics	• X, Y & Z axis G-sensors that record driver training / accident data • GPS speed and braking data via searchable meta-data • Time synchronized and embedded into the video evidence • Embedded alarm email server links to WIMS and Cloud
GPS tracking	• SiRFStar III chipset with ARM7TDMI CPU • Tracks up to 20 satellites simultaneously • Ultra fast first fix locating • Ultra low power • Tracking via serial and Google maps plug-in

Automated Incident Fault Reporting

Email with embedded video image of any driver panic button alerts, as they happen in real-time with time/date stamp and location
Automated system health checking by condition monitoring and alerting Server
Automated email alerts for faults relating to any camera, DVR or hard drive

HD-IP Cameras with 360° Panovision Technology

IP Camera	• 2 ~ 5 MP resolution for ultra hi definition images • IP54 and IP66 rated housing options • Built-in audio (option) • Built-in image de-warping • Built-in NVR technology to local storage • Built-in PEOPLE COUNTING Video Analytics reporting via Ethernet
Storage	• Built-in MicroSD card storage > 128 GB • Optional 2TB NAS if connected to WIMS
Simplified wiring	• PoE (Power over Ethernet) • Only one cable to run to camera
Low maintenance	• Unlike normal PTZ – no moving parts means low maintenance
360° Lens technology	• Built-in de-warping technology – provides a 360° view of the camera scene • Single camera that provides a multi-camera viewing technology • One camera easily replaces up to 4 normal fixed cameras

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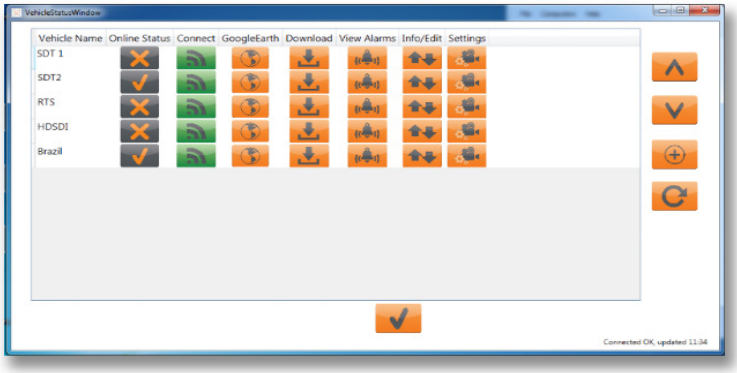
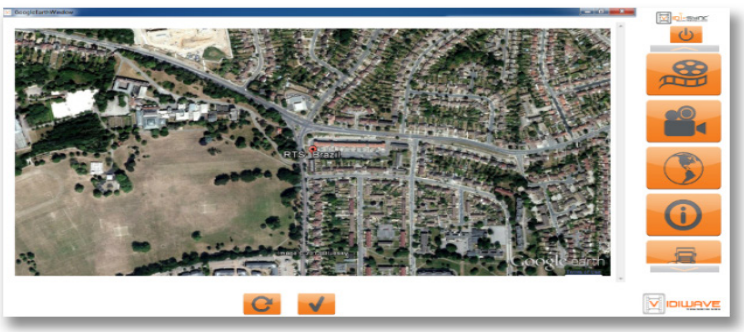
Our **Depot** Software Management Interface

IDI-SYNC™ Mobile CCTV - Fleet Management Software

Vehicle "on-line status" via Vidi-Sync
Instant health alerts / GPS tracking and Mobile CCTV
Simple back-up and Sharing of ~Video evidence via Vidi-Vault Cloud storage
HD-IP camera integration
Revolutionary 360 vision live and playback
>30 days storage built in to camera
Smart search of video
Search using any combination of: • Time/date • GPS location • Collision data • Speeding • Panic alarms • Motion detection zones
PUSH EMAIL alerting built in to DVR, protects against:
Driver attacks / abuse
Remote Collision / Accident alerts
Lone worker protection
Real-Time GPS tracking with live CCTV images via 3G whilst the vehicle is in-service
Also embedded into video playback as part of any accident evidence log





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Bus & Coach Solution

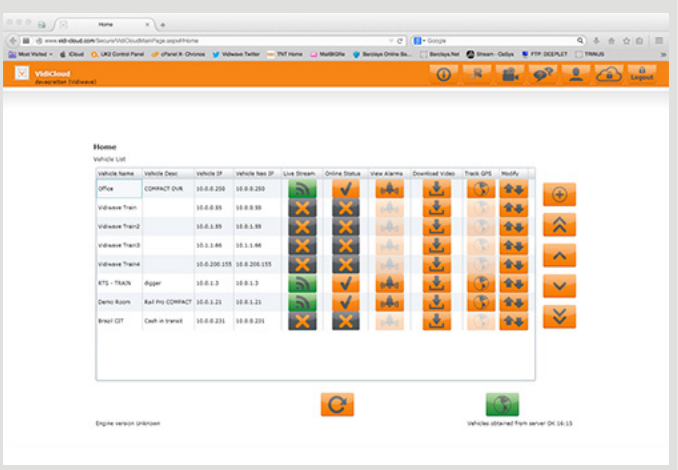
Our **Cloud** Software Management Interface

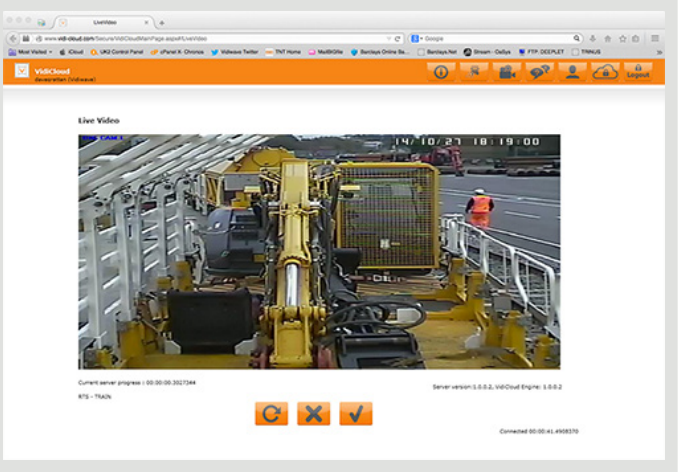
IDI-CLOUD™
Mobile CCTV - Fleet Management Software

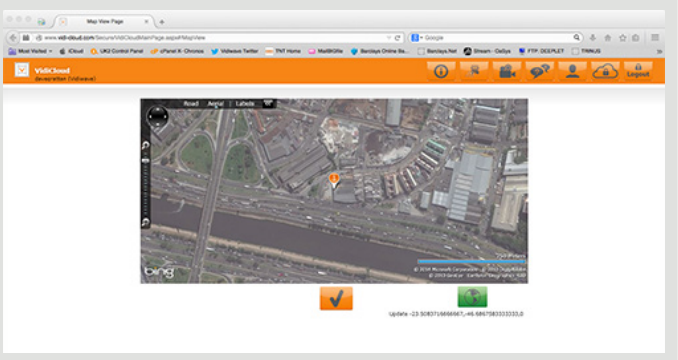
Vidi-Cloud	• Our browser based VPN CCTV management software – connecting you to your fleet. • Provides an instant overview of your fleet CCTV, GPS tracking and fault diagnostics. • Connect live to the CCTV of vehicles that are online (via 3G or WLAN) • Schedule automatic downloads to Vidi-Vault for vehicles that are off-line • Search, playback and download for vehicles that are online • Built-in Video Player software provides protected access to playback downloaded evidence • Instantly see and respond to CCTV alerts and system faults from any PC or laptop with Internet access • Supports Tablets and smartphones with browser that run Silverlight

Fleet tracking	• See the location of all your vehicles at same time
	• Instantly see which are off-line
	• Just select icon to go to connect to the related vehicle data
	• Individual vehicle tracking
	  • Live
	  • Historical
	  • By day
	  • By week
	  • By location

Vidi-Vault	• Secure your CCTV evidence to Vidi-Vault • Then share it securely to others, with full user level management and housekeeping built-in. • No more burning evidence to CD's, DVD's or USB sticks • No more expensive courier costs transferring HDDs







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