

The Age Of The CAR-PUTER

It started with the wireless, then the 8 track, cassette and CD. Now if you don't have an in car DVD or games system then you're not ahead of the game but what's next on the horizon for in car entertainment? Welcome to the world of the Car-puter...

The idea of having a fully working PC in the car isn't really anything new, hell I wanted to build one myself about 6 years ago when Napster had just launched and there was suddenly an abundance of MP3 files floating around for no cost. Sure I could convert them to WAV files and burn them on to blank CD's but I wanted my whole collection with me, all the time - god damn it! This was back when a Pentium 2 PC was considered cutting edge and Quake had only been out for a year or so. My initial thoughts were to butcher an old laptop and link it up to my aging Pioneer DEH-534R headunit with improvised auxiliary input hacked into the IP bus at the back. Unfortunately I never had the spare time or money to put the project into practise but the idea was a good one and I planned to revisit it at sometime in the future.

In-car computer scene is in full effect with websites across the land brimming full of information on getting your car completely hooked up and we're not just talking music and radio. No sir, you can have GPS built right in, DivX MPEG4 movie playback, Bluetooth connectivity to your mobile and



speaking to people about their projects, what they've done and to find out more about this community of car modifiers that no-one really knows about. Thankfully I found them to be a very helpful and communicative bunch and before long a number of the users had discussed the idea and decided that to get the full effect of what they'd done I'd need to meet them in person. When I said I was up in Scotland and they were all down south it didn't phase them at all, we just agreed to meet somewhere in the middle and Carlisle services it was. This was back in late May/early June when there was still some sunshine to be had but we decided to keep this feature on ICE until now so it could be included along with the rest of the in car goodies in our annual ICE spectacular. Since that meet up, which was less than 5 months ago the whole in car PC game has moved on leaps and bounds, just as PC technology has and we'll catch up with how the guys have got on later in this article.

for synchronizing with your home PC network a WLAN/Wifi link up to make sure that all the latest tunes and movies are transferred across to your car when you park up at night. Basically anything you can hook up to your home PC can be linked to your car system so fancy a couple of webcams keeping an eye on your pride and joy then no problem. Want to read your car's sensors, plug in an OBD2 interface and see the fuelling, mixture, temperature and throttle settings all in real time. Now your eyes have been opened to some of the things a car-puter can do lets dig a little deeper and find out how you can get one for yourself either from a store or by trusty DIY.

Since I've not been thinking about putting a PC in the motor for a good few years I went searching the internet for information on what people were currently up to and stumbled upon a wealth of information at the Digital Car Forums (www.digital-car.co.uk). I signed up to the message board and placed a request to



In the following years many projects appeared on the net showcasing the talents of people around the world who had managed to marry the humble car and PC together, most of them had the intention of playing back MP3 music files through Nullsoft's WinAMP player linked to an LCD dot matrix display unit and this was long before Kenwood and JVC started the in car MP3 head unit revolution. Now in 2005 the



What The Hell Is A Car PC?

A car PC is just that, a personal computer that is situated in your car. It can be set up to act just like an in car DVD system or you can expand it until your hearts content with every conceivable add on from a wireless link to your home broadband router, or have it stream and record video signals from webcams on your car, link it to your Bluetooth enabled mobile, smartphone or PDA and have the car control these devices. It can be used as an integrated mobile media centre housing your entire music collection in MP3, WMA, OGG Vorbis or iTunes ACC - all available to play in an instant with a couple of presses on a touchscreen monitor. Play back DVD's as you would with a dedicated in car DVD system or go a stage further and store a load of movies, TV shows and such like in DivX/XVID MPEG4 files on the car PC's internal hard drive. You could even transfer downloaded content such as movies and TV shows from Torrent sites and have them available in car at any time. Every fancy satellite navigation but were put off at the price of an in dash system or the small size of screen on more portable options? With a car PC you can have all the above plus link it in with a USB or Bluetooth GPS receiver

and some clever software to have the latest in route finding technology at your finger tips. Add another couple of pieces of software and you can overlay speed camera locations and current road works and diversions on top of your sat nav maps. For those who love to pose (yes we know you're out there) the car PC is the ultimate fashion accessory. You can configure the look and feel of the interface to your own style. Create "skins" in Photoshop that match your car's colour and interior. Incorporate logos and designs of the parts you've got fitted and have a custom screensaver running on the display that ties in perfectly with your theme. At a cruise where DVD players and PlayStation2's are ten a penny be the king of in car godliness by streaming live video of the action directly to the internet through the GPRS mobile phone link. I did say its only as limited as your imagination! Everything you can think of doing with dedicated ICE equipment can be done with a car PC, the only downside is its not as easy a process as dropping in a new headunit or amplifier. You need some technical savvy and experience building and configuring desktop PC's is almost a necessity.

How Do I Get One These Babies In My Car?



Since this type of thing is still relatively new and a degree of expertise is required to get it all running correctly there are very few companies out there who will take a car in and fit a car PC. As I mentioned, its not as easy as fitting a new headunit or set of speakers. Each car PC has to be individually assembled, tested, and have its operating system and interface software installed. Only then is it taken and installed in the car itself. The easiest and most rewarding way of getting a foot into this exciting area of car modification is to go down the DIY route and build it yourself. The technical aspects of doing this are beyond the scope of this "introductory" article but at the end of the feature we've included some links to websites that will give you more than enough help and advice on building your own in car PC.



Jesus, How Much Is This Lot Likely To Cost Me?



At the age old question, "how much mister?" Well this is where it gets really interesting. You can get yourself an in car PC for LESS money than a top of the range motorised DVD and screen. Yup, for a grand or less you can have all the features of a top line DVD/AV system with all the benefits mentioned above and best of all, it isn't limited. You can enhance, upgrade and modify it whenever you like, something that cant be said of off the shelf systems. The downside is that you need to invest a bit of your own time making sure the system is running fine and since it is still in the enthusiasts stage of development there are slight niggles and bugs that crop up every so often, but that's all part of the fun!

Real World Users

I caught up with a few of the users from Digital-Car's forums earlier this year to get a hands on experience of what Car PC's were all about. The guys I met up with were Terran, Steve, Stuart and Gareth and each one had a different kind of Car PC fitted to their motors.

Terran
Aged: 29
Occupation: IT Project Manager

Terran's car is a modified Vauxhall Vectra with a lot of processing power under the hood and he is one of the most highly regarded of CarPC enthusiasts in the UK. He's helped produce a book dedicated to the subject and regularly writes articles on the advances made with in car technology on the CarTFT website - www.cartft.com "I've been in working in IT for 7 years or so. Being a Vauxhall enthusiast I have decided to get myself a special car. For some time I have wanted a Vectra B GSi and when I finally got it I wanted Sat Nav and so it began... I looked around at some very expensive systems and in the end decided to build and design my



own. This was an idea I had back in 1996 but due to funds and the lack of simple technology then it never happened. I was also laughed at by colleagues who thought it was a bit of a joke. So the idea was to create a cheaper system that had Sat Nav, was configurable and not just stuck with one function and upgrades dictated by the manufacturer. My argument for that was simple. If you wanted say a DVD or a TV in your car then it would cost you an arm and a leg to get this custom one function device installed. With the Car PC you can upgrade



with easy obtainable and cheap PC bits - its just a matter of installing the drivers etc. Once I had decided on this I decided because of the amount of different applications I wanted to use I needed to have my own interface, and for that matter one that complimented the car so it was individual and unique." "Since the main photographs were taken in June I've completely redesigned my whole in car system. Its quite mega the transformation. Ive now got an in dash screen, my own custom designed case and a lot more processing power thanks to an AMD 2600 XP CPU, 1GB of RAM and a 40gb hard drive. Ive also rewired the car using better quality cables and suchlike. This new system is going to be running full whack! The idea is to run independent screens for the passenger and another two in the rear. So you can be watching up to 4 different things on all the screens, say TV on one, a DVD on another and forward and reserve facing cameras on the other two."



Stuart
Aged: 32
Occupation: Graphics Designer

Stuart owns a Saab 9-3 and decided to build an in car PC when he started to miss the luxury of his previous Jag.

"My last car was a Jaguar with a lovely Sony stereo system but when I got the Saab I realised just how shite the sound system was. It was like something from Toy Town with Lego brick buttons and a really oddly shaped headunit that couldn't easily be replaced. I liked the idea of having satellite navigation but didn't fancy forking out £2,000 for the privilege. I did a search on the net and found a few sites where people had managed to cram a working computer inside their cars and it just went from there."



"The system was a lot cheaper to build compared to an OE deck and there was no real expense on the software side as its all open source and the only part you really need to pay for is the phone control system and that was only a tenner. The systems aren't flawless but since they are computers they get better and better all the time. I wanted things to be more slick, more OE looking instead of looking techy and something that just works. Since the meet I've taken a clean sheet and redesigned everything. The computer now runs at 3 times the speed and



everything is a lot slicker. I've got 4 channel sound for normal music playback and 5.1 for DVD and MPEG4 movies. I had been getting a bit bored with it all a while back but then all of a sudden I got right back into it and things are progressing forward really quickly just now. My car PC does everything a standard car hi-fi does but better. Radio, CD, MP3 music, video files, audio books and everything is linked to a search facility so I don't have to trail down menus for ages finding the song or film I want. The spec of my system at present is a Pentium 4 2.4GHz CPU enclosed in a steel case, 60gb HDD, 256mb RAM running on Windows XP. I've gone for a small amount of memory as it's a lot quicker to put the PC into hibernate mode and therefore quicker to start up again as there isn't as much RAM to dump to the hard disk. Who knows what I'll be doing next, theres so much new stuff happening it could be anything!"



Name - Steve Wagg
Age - 33

"In 1993 I was involved in a bad motorbike accident that left me in the intensive care unit at Blackpool Royal Vic. After about 3 months I got out and ended up having a lot of free time lying waiting for the old body to repair itself. In this time I bought a computer and this is where it all started.



My first Carputer started when a couple of years ago I wanted a GPS system in my car. I owned a Renault Laguna Sports at that time. I installed a laptop in this one with a Lilliput screen; let's just say it was a steep learning curve. I did have a website up with all the details but this is now lost in cyberspace. The next project was my M3. This was a great install in the respect that it



hardly went wrong. I had over a full year out of this install, but it had to go because we had a second kiddie coming. So that's when I got the ST220 Mondeo. More a family car... but hey needs must. I have installed the dash on this car, the rear install is half done but it's getting there. The components used are an Epia SP13000, Opus 150 PSU, 512mb stick, 250GB SATA drive, PNY FX5500 128mb PCI GFX card, Xenarc 7T5V screen, RF keyboard + mouse, Bluetooth, Wifi, GPRS CF card, a DVB-T Freecom USB thing that's a work in progress to get a decent signal. As for software I'm using RoadRunner and as for the GPS software I couldn't find anything that suited me, so decided to write my own, which is when



FreeDrive was created. FreeDrive is an on going project, but it's getting there. The other thing I've been doing is producing skins for roadrunner using normal skinning and flash... The latest one is MC2.0 and that's about it really, lots of stuff going on... Got live tracking coming up and installing an Xbox to the rear screens which will be controlled via the PC... its endless really!"

Name - Gareth Bromley
Age - 26
Job - Systems Engineer

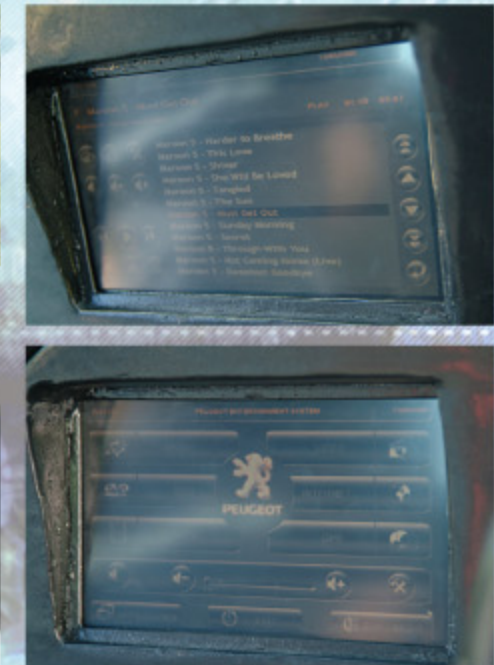
"I have always been interested in Computers and building a CarPC was a natural progression. I've been involved in CarPCs now for about 5 years on and off; my current install is my first proper one with a fabricated touch screen and a fully integrated system. Previous attempts have been screen less using a remote control. My main reason for having a CarPC is for the GPS and easy way of changing music.



I own a 1998 Peugeot 306 XSi and the PC is based around a Pentium 3 800Mhz CPU, 256MB RAM, 80GB Hdd and runs Runner, and FreeDrive. Although my system isn't as good as some others around, it pretty much does everything I need it to, the dash fabrication has been the hardest part due



to the shape of the 306 dash. My system is always evolving and I hope shortly to have live traffic reporting via GPRS direct to the GPS software something which will be made available to the public free of charge (www.infomatics.info)"



Shutdown

As you can see there is a lot going for building or buying your own in car PC and it doesn't have to cost the earth either. In fact I'm pretty much certain that over winter I'll build my own PC and get it hooked up in the MR2 for next year's show season.

If you'd like to find out more about the world of car-puters there are loads of websites to check out, here are a couple to get you started:

www.digital-car.co.uk
www.cartft.com
www.stevieg.org
www.mp3car.com
www.dashboardmonkey.co.uk
www.freedrive.co.uk

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