Cellphones to Monitor Highway Traffic

Posted by Zonk on Sun Feb 03, 2008 05:33 AM
from the using-the-fillings-in-your-teeth dept.

Roland Piquepaille writes "On February 8, 2008, about 100 UC Berkeley students will participate in the Mobile Century experiment, using GPS mobile phones as traffic sensors. During the whole day, these students carrying the GPS-equipped Nokia N95 will drive along a 10-mile stretch of I-880 between Hayward and Fremont, California. 'The phones will store the vehicles' speed and position information every 3 seconds. These measurements will be sent wirelessly to a server for real-time processing.' As more and more cellphones are GPS-equipped, the traffic engineering community, which currently monitors traffic using mostly fixed sensors such as cameras and loop detectors, is tempted to use our phones to get real-time information about traffic."
top tags

- cellphones
  - x
  - !
- technology
  - x
  - !
- transportation
  - x
  - !
- wireless
  - x
  - !
- turnitoff
  - x
  - !

system tags

- hardware
  - x
  - !
- wireless
  - x
  - !

type tag
• The Netherlands ... (Score:2)

by foobsr (693224) * on Sunday February 03 2008, @05:34AM (#22280772) Homepage Journal
... already [engadget.com] has it, the UK and Germany to follow.

Wish those other countries could also follow up with Coffee Shops.

CC.
  ○ and Belgium by Koohoolinn (Score:1) Sunday February 03 2008, @06:07AM
  ○ Re:The Netherlands ... (Score:4, Insightful)

by wfberg (24378) on Sunday February 03 2008, @07:06AM (#22281140)
... already has it, the UK and Germany to follow.

The TomTom/Vodafone system doesn't use GPS coordinates being sent by mobiles, it only uses triangulation to work out where handsets are, and how fast they're moving. Highways are already equipped with detection loops every half mile or so, so this is mostly useful for smaller roads. It won't detect roads where cars are at a complete standstill though, if the phone isn't moving fast enough (e.g. less than, say, 4mph) it'll assume the phone's just in the pocket of someone who isn't in a car.

Parent

○ Re:The Netherlands ... by owlnation (Score:3) Sunday February 03 2008, @07:52AM
  ○ Re:The Netherlands ... by Gordonjcp (Score:3) Sunday February 03 2008, @09:37AM
  ○ Re:The Netherlands ... by The Spoonman (Score:1) Sunday February 03 2008, @12:00PM
    ○ 1 reply beneath your current threshold.
  ○ Re:The Netherlands ... by overeduc8ed (Score:1) Sunday February 03 2008, @12:06PM
  ○ Re:The Netherlands ... by Gordonjcp (Score:1) Sunday February 03 2008, @02:19PM
    ○ Re:The Netherlands ... by rabbit994 (Score:3) Sunday February 03 2008, @02:41PM
Measuring changes results (Score:1)

by DanMelks (1108493) on Sunday February 03 2008, @05:40AM (#22280798)
While well intentioned, I hope these testers remember that measuring a system changes the system.

Re:Measuring changes results by davester666 (Score:1) Sunday February 03 2008, @06:03AM
Re:Measuring changes results by jamesh (Score:3) Sunday February 03 2008, @07:03AM
Re:Measuring changes results by nack107 (Score:1) Sunday February 03 2008, @10:07AM
Re:Measuring changes results by jamesh (Score:2) Monday February 04 2008, @01:43AM
1 reply beneath your current threshold.

Re:Measuring changes results (Score:5, Insightful)

by vertinox (846076) on Sunday February 03 2008, @10:23AM (#22281862)
How is that abuse? Anyone doing 80mph on a road where the limit is 55mph is breaking the law and should be caught and fined, and if they do it too many times, have their car impounded and crushed into a little cube, and then charged a disposal fee for their cube.

I think the problem is that of now, everyone breaks the law every now and then without really thinking about it. If the world got to a state where you got punished every time you broke the law even slightly then such issue would get quite serious.

In fact, I'd wager (if you have a car) that you broke the speed limit somewhere the last time you drove even if it was simply 1 to 5mph over the limit.

The real problem is that many local and state government gets a great deal of revenue from speeding and parking tickets so rather than to alleviate the core problem of they encourage quotas and sometimes post arbitrary low speed limits in order to increase revenue. I mentioned parking tickets because there was story a while back where an Apple Store offered to buy two parking meters outside their store to mark as no-parking zone for aesthetics (you know Apple) at the theoretical price of what those parking meters could provide if they were maned 24/7 365 days a year, but the city
refused on the grounds it had never been done but moreover they made more money from parking tickets than the actual meters. Its the same with speeding... They don't want reduction but they want the violations.

If a cell phone system allowed them to charge violators instantly it would result in more of this at the extreme not to mention possible corruption. Recently in Philadelphia, there is a big spat between city hall and the Parking Authority [philly.com] about revenue and where it is going and complaints about corruption the the Authority organization.

My first suggestion would be to either have revenues earn not go to the gathering organization itself but possibly elsewhere like education or charity.

And if they want a technical solution, then I would argue that make it so cars can't break the posted limit rather than fining them money every time they violate the speed (and or parking). Now keep in mind, I'm probaly one of the more slower drivers out there you'll meet and you'll never see me park in a place I'm not supposed to (I'm that anal) but the issue that these organizations being allowed another way to squeeze money and make things arbitrarily "more illegal" in order to increase revenue bothers me.

None of these government bodies actually want to curb speeding. Their livelihood depends on it.

Parent

- Re:Measuring changes results (Score:5, Insightful)

by jacksonj04 (800021) <nick@tn-uk.net> on Sunday February 03 2008, @10:37AM (22281950) Homepage

Making cars not able to break the speed limit is a massive safety problem. I've been in situations (usually on a motorway or other large trunk road) where something has happened, a guy loses control and pings off the central reservation etc and I needed the extra speed immediately to get out of the way. If I was already cruising down the outside lane at 70mph (UK limit) then where would I get the extra speed from? I suppose some form of 'burst' limiting could be a solution.

Also there's a huge difference between safe and not. On an empty motorway with clear vision I would say it's safe to do 90mph or up, conversely on a motorway in heavy fog it's common to see people going no faster than 50, and that's on the outside. If you're being really anal about it then some drivers are far safer at high speeds than others. There can be no technical solution to this unless there is a system in place which knows the skill of all drivers, the position of all cars, all road conditions, and is capable of making intelligent judgements about what is safe and what isn't.
I had this idea a long time ago. (Score:3, Interesting)

by caluml (551744) <slashdotNO@SPAMspamgoeshere.calum.org> on Sunday February 03 2008, @05:45AM (#22280822) Homepage

Another idea I had years ago [calum.org]. My idea though was to pay people to run the software on their phones (just as Google pay people to have ads on their sites - paying per hour of data uploaded, or something similar), and then lease the aggregated data to interested parties. Companies interested in building/buying toll roads, government agencies to see if new roads need to be built, etc etc. However, with SatNav getting more and more sophisticated, it was only going to be a matter of time before TomTom (or whoever) built a model where it uploaded your position back to them, enabling them to build up a realtime picture of traffic speeds, which they could then use to update drivers to avoid jams, etc.

- Re:I had this idea a long time ago. by palegray.net (Score:1) Sunday February 03 2008, @06:39AM
  - Re:I had this idea a long time ago. by caluml (Score:2) Sunday February 03 2008,
Call me crazy...but (Score:2, Insightful)

by William Robinson (875390) on Sunday February 03 2008, @05:55AM (#22280862)
skeptical -1

Will it not be misused by finding the routine information of people?

- Re:Call me crazy...but by Dan541 (Score:1) Sunday February 03 2008, @06:02AM
  - 1 reply beneath your current threshold.
- Re:Call me crazy...but by palegray.net (Score:2) Sunday February 03 2008, @06:48AM

Big Brother (Score:2, Insightful)

by Dan541 (1032000) <danNO@SPAMdanscomp.net> on Sunday February 03 2008, @05:59AM (#22280878)

Will this gps information be warrantless?

- Slashdot stories to monitor website traffic (Score:2)

by houghi (78078) on Sunday February 03 2008, @06:06AM (#22280920) Homepage
On February 3, 2008, about 100,000 Slashdot readers will participate in the clickvertising experiment, using website increase to Ronad Piquepailles site. ...

- "What did you do..." (Score:1, Flamebait)
  by FreeDisk.nl (1181167) on Sunday February 03 2008, @06:06AM (#22280922)
  "So Dad, what did you do while you were in college?"

  "Well son, I helped testing this monitoring system that allows the government and some big companies to track your every move nowadays. But in my time, they only used it to do a traffic thingy."

- Cell phones and GPSes (Score:1)
  by amasiancrasian (1132031) on Sunday February 03 2008, @06:09AM (#22280932)
  I never understood why GPS is considered such a good feature in a cell phone. On the contrary, it is possibly a bad thing, given the number of cases of wire tapping, cell phone eavesdropping (even when turned off [zdnet.com]). We already have enough privacy concerns given that triangulation can already tell a close-enough location of a cell phone user.
  - Cellphone triangulation by boris the engineer (Score:1) Sunday February 03 2008, @06:29AM
  - Re:Cell phones and GPSes by esper (Score:2) Sunday February 03 2008, @01:13PM

- Call me olde fashioned but... (Score:3, Insightful)
  by blacklabelsk8er (839023) on Sunday February 03 2008, @06:21AM (#22280980) Homepage
  The more I see stories like this, the more I feel that a full-on Big Brother world could be oncoming. Sure, it could provide all kinds of data on the technicalities of GPS tracking via mobile phone triangulation or whatnot, but how much danger is there that these kinds of 'experiments' could be field tests for a greater invasion of privacy? RealID or even RFID, combined with this sort of GPS tracking could provide all the pieces needed to make our highway system a channelized control mechanism.

  I should be more 'forward thinking' for my age I suppose. Does anyone else think that our privacy outweighs the convenience that realtime navigation and itinerary interactivity could potentially provide?
  - Re:Call me olde fashioned but... by rohan972 (Score:1) Sunday February 03 2008, @06:46AM
  - I reply beneath your current threshold.

- TomTom HD traffic does this without GPS (Score:1)
  by rigolo (416338) on Sunday February 03 2008, @06:22AM (#22280982)
  Last year TomTom announced their HD Traffic system http://www.tomtom.com/news/category.php?id=4&nid=389&language=4 [tomtom.com] that is using GSM handset location information from Vodafone to determine traffic conditions on dutch highways. Every 3 minute TomTom gets raw, anonymous handset location data from Vodafone. This data is then processed to determine where on the highways large concentrations of mobile phones are moving slow. This might mean that there is a traffic jam at that location.
Each TomTom with HD traffic will also be equipped with a GSM sim and this enhanced traffic information is send via GPRS to these devices.

Some people are questioning the validity of their claims that this gives better traffic details that current methods. What is a car has broken down? will it trigger a traffic jam notification? How about parallel roads that are jammed? Or taxi’s waiting at the train station for a pick up?

- Re: TomTom HD traffic does this without GPS by Dan541 (Score:1) Sunday February 03 2008, @08:16AM

- solution? (Score:1)

  by robo_mojo (997193) on Sunday February 03 2008, @06:49AM (#22281072)
  Turn off the phone when you're driving.

- Being the proud owner of one of these things.. (Score:1)

  by mille666 (798904) on Sunday February 03 2008, @06:49AM (#22281074) Homepage
  I would suggest bringing their battery charger along. 10 miles with the GPS enabled is too much for the N95.

- Old. (Score:1)

  by Kankraka (936176) on Sunday February 03 2008, @06:53AM (#22281088)
  Is it just me.... or.... did I read the same article on /. a few months back?
  - Re: Old. by MollyB (Score:2) Sunday February 03 2008, @08:28AM
    - Re: Old. by Kankraka (Score:1) Sunday February 03 2008, @12:25PM

- How is this amazing? (Score:1)

  by ephemeralspecter (990286) on Sunday February 03 2008, @07:28AM (#22281220)
  The only difference between this and what is done regularly by transportation research groups is the fact that instead of using normal gps devices, they just happen to be cell phones as well this time... I personally covered a few drive shifts when some of the interns where I work couldn't make it.

- It's called gBook MX in Japan (Score:1)

  by macdigger (1031146) on Sunday February 03 2008, @08:23AM (#22281394) Homepage
  I have a system like that already installed on my car. It's called gBook MX (http://g-book.com/pc/default.asp [g-book.com] ) In Japan, we already have a system called VICS (http://www.vics.or.jp/english/index.html [vics.or.jp] ) which monitors traffic on highways and some big/medium sized roads, using sensors placed over the road to track the speed of car flow, and then this information is gathered, processed and broadcasted to cars' navigation systems (by an FM radio signal, if I understand correctly) in a form of level of traffic on roads (which then used by navigation systems to lay out the most optimal route) However, I think about a year ago, Toyota have created another system called gBook MX (there also was gBook alpha variation, but honestly I don't know much about it). gBook MX (in addition
to allowing you to wirelessly access information which is not on a navi's hard drive), also supports centralized traffic monitoring system similar to the one in TFA. Basically, your navigation system is connected to the W-CDMA network (provided by Japanese mobile operator AU), and sends position of the car while it's on the move, to the data center, every 5 or 10 seconds. This information is processed and broadcasted your back in the similar way as VICS above. Navigation systems which support gBook MX come in two flavors - ones with built-in transmission module (so you basically have a mobile phone-like transmitter built into your car), and the ones which allow you to pair your mobile with the navigation using Bluetooth (that's the type I have). So I just basically enter my car, start the engine, the navigation system automatically connects to my phone, and I become a GPS broadcaster of a sort (my coordinates are broadcasted to data center every 10 seconds - and it would be every 5 seconds if I had a built-in broadcasting module). The traffic for this broadcast is pretty low so I don't really care if my monthly bill goes up by 100-200 yen/month (after all, it's so cool to be a part of this new system ;)) What's good about gBook MX is that it allows traffic monitoring for smaller roads, where there are no VICS sensors installed. Toyota said that it needs at least 100,000 cars equipped with gBook MX-compatible modules in order to get adequate coverage of the country. I don't know how many cars have this system on-board yet, though. But once the system is in place (it's already in place, but I think the number of "compatible" cars is still lacking somehow), this will be another way to escape traffic jams..

- Re: It's called gBook MX in Japan by macdigger (Score:1) Sunday February 03 2008, @08:25AM

- **Between Hayward and Freemont? (Score:2)**

  by Kelz (611260) on Sunday February 03 2008, @08:27AM (#22281406)
  Slow from 6-9:30 and 4:30-7:00, mostly northbound in the morning, mostly southbound in the evening. When do I get my grant money?

- **Constant Surveillance but "This is just a test" (Score:1)**

  by sciop101 (583286) on Sunday February 03 2008, @08:37AM (#22281440)
  Bad idea! Constant Surveillance and privacy invasion.

  Somebody will come up with a "friendly" name, such as *Living Vigilance*.

  1. Cell Phone transmits location, receives location-based advertisements.
  2. Smile & Wave at Security Camera.
  3. REAL ID/driver's license (still in pocket) scanned at shop entrance.
  4. Smile & Wave at Security Camera.
  5. Credit card scanned at purchase. Purchases registered and recorded.

    - 1 reply beneath your current threshold.

- **Why Phones? (Score:2)**
It doesn't make sense to use phones or triangulation to track cars. Keep in mind that driving is a highly regulated privilege, not a right. Within a few years you can be pretty sure that a GPS will be required in every motor vehicle (looking at you, sport bike riders). Have fun getting out of those speeding tickets, claiming you stopped at the stop sign, weren't weaving all over the road, weren't at the bank when it was robbed, etc. It's going to happen.

Re:Why Phones? by vertinox (Score:2) Sunday February 03 2008, @10:27AM

Re:Why Phones? by tomhath (Score:2) Sunday February 03 2008, @12:07PM

- Will I be stuck? (Score:1)

by EB FE (1208132) on Sunday February 03 2008, @10:11AM (#22281804)

I am constantly forgetting my cell phone at home or at work. Will I then get to a red light and be stuck because the GPS says I'm not there?

- bigbrother vs Nokia N95 (Score:2)

by 4D6963 (933028) on Sunday February 03 2008, @10:21AM (#22281856) Homepage Journal

The bigbrother tag amuses me, because it seems to imply that this cell phone GPS thing could be used against your will to track you or something. Well I've got a N95 and I have no fear of that happening, because for the GPS to synchronise you need to slide your cell phone out and wait about one minute and a half in a clear outdoors location. So clearly using a N95 you can be sure that the GPS will only be used if you want it to be used.

  - Re:bigbrother vs Nokia N95 by Forbman (Score:2) Sunday February 03 2008, @01:49PM

- Anonymyzed access protocol (Score:2)

by Craig Ringer (302899) on Sunday February 03 2008, @11:38AM (#22282276) Homepage Journal

It'd be interesting to provide a facility in phones to help make this less prone to privacy issues & semi-legal use by law enforcement. For example, allowing stations to poll passing phones for position and "instantaneous" speed (calculated internally by the phone using, say, the last 3 GPS position checks). Something like that would permit phone responses to omit any unique identifier since there would not be as much of a need to connect multiple responses from a single unit.

An alternative would be to generate a short-lived random ID on the first request by a base station and have it expire after, say, 2 minutes, with no record of it being retained in the phone.

Personally, I'd actually like it if things like phone and vehicle GPS could be used to enforce road safety rules... if I could trust the police to use it only for what they're legally allowed to use it for, rather than for random fishing expeditions and illegal surveillance. Since that'll NEVER happen, I guess the only option is strong anonymity for this sort of data collection.

- Not new. (Score:2, Interesting)
In 1994 (that's pushing two decades ago) I worked on a pilot project with Bell Atlantic Mobile (now Verizon), FHWA, Virginia DOT and the Maryland DOT that tracked mobile phones along the Washington, DC Beltway. The phones didn't have to cooperate, and it was also discovered that call rates went through the roof just as backups started to form. A bunch of the technology we developed ended up in some of the early E911 systems.

- Re: Not new, by Blrfl (Score:1) Sunday February 03 2008, @12:45PM

Real Time Earthquake Monitoring (Score:2)

by rotenberry (3487) on Sunday February 03 2008, @01:39PM (#22283136)
Anyone who has lived in an earthquake zone knows that even a ten second warning of an impending earthquake could save many lives. Dive under a desk, stand in a door frame, get out of an elevator, stop your car, etc.

I wonder if cell phones equipped with GPS and an accelerometer could provide such a warning? Even if only twenty per cent of the accelerometers registered abnormal acceleration, a real time analysis of the data would show the distinctive expanding wave front that could only be caused by a major earthquake. People could then be alerted by cell phone or radio.

Track Me? Sure! (Score:2)

by morari (1080535) on Sunday February 03 2008, @01:44PM (#22283170)
Just another reason why not having a mobile telephone is better.

How is this a story? (Score:2)

by Jason Pollock (45537) on Sunday February 03 2008, @05:21PM (#22284998) Homepage
How is it a story that a bunch of students are going to try to do this, when there are already commercial services providing the same information? Heck, /. even covered this back in 2005!

http://yro slashdot org/article.pl?sid=05/11/19/143247 [slashdot.org]

And that was something like the 4th time the story had been posted.

there's also:

http://www.tgdaily.com/content/view/30723/113/ [tgdaily.com]

and these guys have been around for ages.

http://www.zipdash.com/ [zipdash.com]
You know what? If they were running a free service that everyone could register with, and it integrated with google maps, then it would be a story.

Oh wait, ZipDash was bought by Google back in 2004...

The news here? That they're paying US$250 for the days work.

- detection? (Score:1)

  by garwain (688087) on Monday February 04 2008, @10:03AM (#22290128)
  And how will this system tell if there road is blocked stopping traffic, or if the road is empty and everyone with cellphones are sitting at the cafe or pub?

- WARNING: PARENT IS TROLL (Score:1)

  by SirBudgington (1232290) on Sunday February 03 2008, @06:00AM (#22280882)
  The link leads to the GNAA final measure. Don't click, it even ruins Firefox on ubuntu.

  Parent

  - Re:WARNING: PARENT IS TROLL by Datamonstar (Score:3) Sunday February 03 2008, @06:06AM
  - Re:WARNING: PARENT IS TROLL by xaxa (Score:2) Sunday February 03 2008, @06:38AM

- Re:I only care about getting me there (Score:5, Interesting)

  by lukas84 (912874) on Sunday February 03 2008, @06:24AM (#22280990) Homepage
  No country i know has got mass transit that allows you to ditch the car.

  I live in Switzerland, and some people argue that it has one of the best mass transit systems in the world - if that is true, other country must REALLY be in a heap of shit, because it sucks bad here.

  Mass Transit just isn't flexible enough to help most people. There are cases where it might be better than sitting on congested streets, but that doesn't make it good. If i expect congestion, i'll just take the motorcycle instead of the car - this has downsides of it's own, but it's still better than taking the train or bus.

  Parent

  - Re:I only care about getting me there by matt4077 (Score:2) Sunday February 03 2008, @08:35AM
    - Re:I only care about getting me there by lukas84 (Score:1) Sunday February 03 2008, @10:37AM
    - Re:I only care about getting me there by matt4077 (Score:2) Monday February 04 2008, @07:11PM
  - I live in tUSA by stomv (Score:3) Sunday February 03 2008, @09:47AM
Re:I live in tUSA by Anonymous Coward (Score:1) Sunday February 03 2008, @02:04PM
2 replies beneath your current threshold.

Re:I only care about getting me there by Rural (Score:1) Monday February 04 2008, @06:30AM
7 replies beneath your current threshold.

Doubt is not a pleasant condition, but certainty is absurd. - Voltaire

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