Gps Essay, Research Paper

The Global Positioning System (GPS), a system of 24 satellites circling the Earth, is a fairly new technology. As with a lot of new technologies there are innumerable advantages and uses? but there is also a downside to our increasing reliance on this system.

These days GPS is finding its way into cars, boats, planes, construction equipment, movie making gear, farm machinery, even laptop computers. It works by using satellites as reference points to calculate a position somewhere on the earth – a position accurate to a matter of meters. In fact, with advanced forms of GPS you can make measurements to better than a centimeter! We have begun to give every square meter on the planet a unique address. GPS receivers are being made smaller and more affordable – making the technology accessible to virtually everyone. It’s becoming standard equipment in the field of archeology/anthropology, geology studies, is used for entertainment purposes (such as treasure hunts) – it just may become a universal utility. Most GPS receivers have the ability to store attribute information in addition to position information in a Geographic Information System (GIS). Examples of attribute information are the condition of a street sign, the name of a road, or a location of a mineshaft or other dangers. It is superior to other navigation systems in that it is more accurate and consistent ( ex.: celestial navigation is complicated and is only of use at night and in good weather conditions, with limited precision; radio systems such as Omega have limited accuracy and are subject to radio interference?)

It has supplied more information about how our earth works and moves; for example, researchers at the University of West Florida used differential GPS to study coastline erosion caused by hurricanes. The position of the beach/sand was measured with a GPS before and after the passing of a hurricane (Hurricane Georges, 1998) and the effect of the storm was measured and visualized in a GIS. Using it to more accurately record changes in the earth, we are better able to understand our environment because of it.

But with all of its advantages and contributions I think that the GPS can encourage a lack of self-reliance and an ever-increasing trend towards human reliance on technology. (Just look at the Y2K scare – that shows how much we have come to rely on our computers for everyday activities). If someone is lost out in the wilderness and for some reason his GPS is not functioning – which is all too common – he is lost. GPS signals can be obscured or confused by many objects, delayed by atmospheric conditions and radio waves, yet companies that sell the GPS are encouraging this complete reliance: “Throw away your paper maps. The CoPilot 2000 keeps track of your location and shows you the fastest route to where you want to go.” (Ziff Davis Smart Business for the New Economy, Sept 1, 2000) For me this is an indication of our all too integral reliance and confidence in technology. By using the GPS you are relying on other people, on politics. The government has control of what you know, how much you know, of your location. The public was officially told that the US military “will jam the global positioning system in any future conflict, to prevent hostile use of the satellite-based navigation system” – allowing the civil signal to be jammed without blocking the military code. They have complete control of the system; they have already tracked criminals and individuals on parole with it. Could the government eventually use it to track every individual? They have complete control of every aspect of this system, are able to “jam” it at any time, making GPS somewhat unreliable or unintegratable for the user. If we become too reliant on it, it will become just one more thing that we would be at their mercy for. There are already applications that are out there to “track your friends” The government controls the system’s accuracy – not your own personal ability to use the technology. For example – pres. Clinton just made the GPS a more accurate system by ordering the SA (selective ability) to be turned off. (it follows that they could just as easily order the entire system to be shut down or closed off to non-governmental use.)

Another issue that came to mind was privacy. (some of the things I found advertised on the net were pretty scary?)

“With mobile positioning, your phone could become a personal tracking device, allowing your family, friends and boss to know where you are at all times. My boss likes to think of mobile phones as umbilical cords that connect his employees to him around the clock. He may be pleased to know that soon he can stick willing underlings in a high-tech womb of sorts and know their whereabouts at all times.” http://www.zdnet.com/zdnn/stories/news/0,4586,2623279,00.html Mobile positioning: Track your friends

“Worry no more, doting parents! Whether it’s your little pumpkin’s first day walking home from school by herself or the millionth time you’ve lost her at the mall, the BabysitterTM will track your sweetpea’s location from a jelly bean-sized microchip implant, discretely tucked under her collarbone. You’ll be able to chart her every move. What better way to give her independence, and put your mind at ease?”

As the use of GPS technology spreads, your movements could be tracked and the data sold. And so far, there’s no legal protection? Fast-forward a few years into the future. Your cell phone is a smart personal digital assistant that’s equipped with, among other things, a Global Positioning System (GPS) chip. That means that as long as it’s turned on, the phone knows exactly where you are all the time. In many ways, this feature is quite convenient: Consult your cell phone, and you can now find the nearest Radio Shack, navigate your way out of an unfamiliar neighborhood, or provide emergency medical personnel with a beacon that shows them your location. But the technology also has a somewhat harmful potential. It will be much easier for everybody, including your employer, enemies, bill collectors, and family members to track you down. As you travel from the campus to the grocery store, to the liquor store, a permanent record can be built of your movements. That valuable data can then theoretically be sold to marketing companies — or to anybody else who wants it. This is probably going to be the next big issue – location privacy. In addition to cell phones, highly advanced GPS technology is also likely to be added to most models of cars. Already, the General Motors OnStar service, which is offered on several models as an optional feature, uses GPS data to provide directions, restaurant recommendations, and emergency roadside assistance. People don’t realize how available the information is, and how it is already being used. We’ve never had a situation where information about the location of millions of people is suddenly readily available, easily and cheaply.

The Global Positioning System has many pros and cons, and if we continue to increase our reliance on such technologies it may have an undesired result. The less we rely on ourselves and the more we look to someone or something else to inform us and instruct us, the more incompetent and less self-reliant we become.

http://www.trimble.com/gps/howgps/gpsfram1.htm

http://gpshome.ssc.nasa.gov/

http://www.gpsworld.com/0699/0699innov.html

http://www.g3oceanography.com/

http://pubs.usgs.gov/.html