

Chapter 41

GPS Patents and Their Effects on Our Future and Rights

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ABSTRACT

The interest in GPS technology has led to the filing of many GPS patents. Although not all the filed patents result in the production of final products, there has been a rise in the question of GPS Technology and its ethical values in relation to privacy, rights, and government surveillance. Aside from covering the above issue, this paper will also discuss the branching of from GPS technology, development, and ethical implications to GIS mapping and RFID tagging in modern society. The main dilemma addressed will focus on the legality of taking people's locations in patented applications, devices, and programs, and using them for various needs, whether the user is aware or unaware of this. Will this be considered an infringement on personal rights and liberties, specifically pertaining to the Fourth Amendment?

INTRODUCTION

In the second half of the twentieth century, the United States Department of Defense began experimenting with groundbreaking technology we now call Global Positioning Systems, or GPS. Eventually, this technology would be released to the public market, allowing for its implementation into business related projects geared towards civilian use, not only military use. With continuous growth and development of GPS technology, there comes the debate as to whether GPS in apps, products, and mapping devices has overstepped its boundaries. Overstepping its boundaries may result in a discovery of foreign territory: the invasion and re-evaluation of privacy and personal rights. Not only is GPS being applied to mobile devices and applications, it is also reaching individuals through new forms such as GIS and RFID. This

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begs the disconcerting question; do we have any privacy anymore in this technologically advancing society? The ability to patent GPS innovations has not slowed down the race to define our new privacy rights; rather, it has facilitated the growth of GPS products and a greater risk of violating our ethical values such as privacy and rights.

Since GPS was released to the public, inventors have found every way possible to implement this new technology into their business initiatives. In the 1970's, the Department of Defense's GPS was designed to transmit two types of information: "the first is encrypted information for military use. The second is for encrypted information for civilian use" (Hutchins, 2007, p. 414). Although GPS was made to allow for military and non-military transmission, the DOD ensured civilians would not be able to access their line at first. The government took extra steps to make the civilian transmission line erroneous, so that sending information via that route would not be successful. They performed this function to ensure the transfer of military related information would be secure, without any interceptions. It wasn't until 2000, when the government finally created an unbreakable encryption on the military line that the government took off these restrictions, and opened the civilian line to the general public. Since then, the civilian line has also seen improved and stronger encryptions (Hutchins, 2007, p. 417).

As a result, companies and individuals could explore the different routes in implementing GPS in their business plans. The GPS industry began, requiring only \$1.3 billion per year from the U.S. Treasury for "procuring satellites and furthering systems development. [It] has grown into a \$65 billion enterprise" because of the massive influx of individuals and businesses using the civilian transmission line (Chopra, 2014). Whereas GPS was initially meant for satellite tracking in the military, it now has the capability to be applied to many commercial applications, such as traditional navigation, mapping, timing, and individual tracking.

GPS PATENTING

At first, individuals exploring business ideas that implemented GPS filed for technological patents that did not list GPS as the primary focus for the new technology. These patents typically fit into one of two categories: Class 342 and Class 701. Both classes contain projects of different scopes: "Class 342 is titled Communications [for] Directive Radio Wave Systems and Devices, and Class 701 is titled Data Processing [for] Vehicles, Navigation, and Relative Location" (Yu & Kehoe, 2003). Most patents filed for GPS technology will fall under the category of Class 701, because they focus on the most basic concepts of GPS: navigation in vehicles. Now, as GPS has become so prevalent in everyday use, GPS patents have been filed for almost anything, thus creating less distinction between these two GPS patent categories.

In 2012, a pedestrian sued Google on the basis that the GPS directions from its map put her in the path of a car accident waiting to happen. As a direct result of the lawsuit, "Microsoft [was] granted a 701 patent, designed to make its maps more pedestrian-friendly" (Matyszczyk, 2012). This patent is now one of the many that constitute the 68% of GPS patents held by corporate assignees. Only 32% of all GPS patents are held by universities and the government, which is "surprising when one considers that GPS began as a military effort, and much supportive policy-making regarding GPS has been enacted by the US government" (Yu & Kehoe, 2003). The figures are a little worrying, especially when one sees that most of the patents created now are related to issues not as important as those GPS was initially intended for. The notion that individuals can sue a company for their GPS technology and result in the filing of a patent also brings to question just how easy it might be to obtain a GPS patent (Jain & Bhat-

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