

The Legal Aspect of GPS Technology as Means of Safeguarding National Security

Ibrahim Shehu^{1*}

¹Faculty of Law Usmanu Danfodiyo University Sokoto

DOI: [10.36348/sijlcj.2022.v05i04.004](https://doi.org/10.36348/sijlcj.2022.v05i04.004)

| Received: 11.03.2022 | Accepted: 18.04.2022 | Published: 30.04.2022

*Corresponding author: Ibrahim Shehu
Faculty of Law Usmanu Danfodiyo University Sokoto

Abstract

The whole world is faced with different kind of insecurity challenges. To tackle the current insecurity and safeguarding the national security of a particular nation, there is the need to make effective use of GPS technology. For Nigeria to tackle the current insecurity problems, GPS technology must be fully utilized in tackling and destroying different types of security threat bedeviling the nation, ranging from the Boko Haram terrorist, the economic terrorist in the Niger Delta, kidnapers, Armed Robbers and the herdsmen and other criminal gangs around the country. The focal point of this paper is to examine the legal aspect of GPS technology on the development of national security. The paper will recommend possible ways of improvement.

Keywords: GPS Technology Means, Safeguarding.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

The global positioning system (GPS) is a simple idea that has some complex results [1]. GPS has slowly permeated into the civilian community and has become an essential accessory for the modern individuals [2]. GPS can be thought of as a system of hardware, software and information transmitted from satellite information. Technologies such as GPS represent a serious challenge to government control, in addition to the difficulties of a restricting the technology [3]. Information Technology plays a critical role in strengthening national security of a country against potential attacks, specifically it will help to enable the nation to identify potential threat, share information more readily, provide mechanisms to protect the nation and develop response capabilities. Therefore GPS technology device can help authorities to track down any location that may constitute a breach to the national security of a country and it can also help

citizens to signal for help when emergency situation arise [4]. Therefore, this paper is aim at examining the GPS technology and its effect in safeguarding national security.

Historical Origin of GPS Technology

GPS technology emanated from the United States. However, Roger Easton was the inventor and designer of the patents which laid the foundation for the fundamental operation of GPS [5]. Meanwhile Raytheon Company further created the technology used in GPS when the United States air force acknowledged the need of an accurate guidance system. In 1960 Dr. Irvan Geving, a scientist who worked with the Raytheon company left his post and started developing the GPS [6].

¹ <https://www.rad.org/./mr.aelb> assessed on 20th march 2010.

² Mohd, iqsal and Salim, legal and ethica implications of GPS vulnerabilities. Journal of international commercial law and technology vol 3 issue 3 (2008).

³ Ibid

⁴ ojedebe p m, and Jacob Bp, the role of information technology combating security challenges in Nigeria. Academic research international vol 2 No 1 January 2012.

⁵ Thomas BM, GPs inventor; an overview.. ww.gp inventor.com assessed 18th march 2017

⁶ Edsys, history of GPS www.edsys in history-gps. Assessed 22 march 2017.

It is worthy to note that the GPS was originally designed for military and intelligence applications at the height of the cold war with the inspiration coming from the launch of the soviet spacecraft sputnik in 1957 [7]. The GPS has eighteen satellites, six in each of three orbital planes spaced 120o apart and their ground stations, formed the original GPS, it uses these man made stars or satellites reference point to calculate geographical positions and accurate to a matter of meters [8]. Therefore in 1957, the former USSR launched its first ever satellite (Sputnik) amidst the space race and cold war that was hitting the country, US scientists started observing sputnik and realized the fact that the satellites orbit can be traced listening to the changes in radio frequency using the doppler effects. Actually Doppler Effect was previously used to explain why the pitch of a cars horn alters due to the change in its speed.

However, based on the using the information and knowledge acquired from tracking sputnik in 1960, the navy launched TRANSIT, the first satellite navigational system to assist the process of guiding the Navy's fleet of ballistic missiles submarines, in 1967, the Timaton technique was also developed by the U.S navy. This system used a highly consistent, synchronized clock in the satellite, a technique on which GPS is dependent. The first atomic clocks were put into orbit by 1974. This development happened gradually and U.S military was credited with launching the first four GPS satellites by the end of 1978, GPS technology was accessible for U.S military only until the necessity arose to extend its use to civilians in 1983. This was due to the repercussions of a tragedy which occurred at that time. A civilian Korean airplane with 265 passengers mistakenly entered soviet airspace and was shut down killing all passengers on board. In response to this woeful incident, a directive was issued by President Reagan providing free access of GPS technology throughout the world [9]. Note that GPS III launched the first 32 new satellites in 2014 and has a timeline extending until at least 2025.

MEANING OF GPS TECHNOLOGY

GPS is defined as a system of satellites, computers and receivers that are able to determine the latitudes and longitude of a receiver on earth by calculating the time difference for signals from different satellites to reach the receiver [10]. It is also a global

navigation satellites system that provides geo-location and time information to a GPS receiver anywhere on or near the earth where there is an unobstructed line of sight to form or more GPS satellites [11].

Furthermore, GPS on the other hand can be seen as a worldwide radio navigation system that was developed by the U.S department of defense. In addition to military purposes, it is widely used in marine, terrestrial navigation and location based service [12]. It is also seen as a network of satellites which provide extremely accurate position and time information useful in remote locations or for moving platforms [13].

It is clear from the various above definitions of GPS that, it is a system that operates independently of telephone or internet reception, though these technologies can enhance the usefulness of the GPS positioning information.

TYPES OF GPS TRACKING SYSTEM

The following are the types of GPS tracking system

a. An active GPS tracking system

Active system is also known as a real time system as this method automatically sends the information on the GPS system, to a central computer or system in real time as it happens. This kind of system is usually a better option for commercial purpose such as fleet tracking and individual vehicle tracking as it allows this company to know exactly where these vehicles are whether they are on time and whether they are where they are supposed to be during a journey.

b. A passive GPS tracking system [14]

Passive system monitors location and stores its data on journeys based on certain types of events. For example, this kind of GPS system may log data such as turning the ignition on or off or opening and closing doors, the data stored on this kind of GPS tracking system is usually stored in internal memory or on memory card which can then be downloaded to a computer at a later date for analyses.

⁷ www.mio.com/technology history of 5ps assessed 23 march 2017.

⁸ Mary B, History of the Global position system GPS <https://www.thoughtco.com/history> assessed 20 march 2017

⁹ Edsys above n2

¹⁰ American Heritage, dictionary of the English language, fifth edition. 2016 Houghton Mufflin Harcourt publishing company.

www.thefreedictionary.com/global. Assessed 20 March 2017.

¹¹ [Http://En.M.Wikipedia.Org/./Global](http://En.M.Wikipedia.Org/./Global). Assessed 21 March 2017.

¹² www.nitronex.com/education/glossery.html/G. Assessed 24th March 2017.

¹³ www.weather.gov.glossery/glossery.php?letteo=9. Assessed 22 March 2017.

¹⁴ Akinde JL et'al, improving national security using GPS tracking system technology. Proceeding of the first international technology, education and environment conference. African society for scientific research (ASSR)

It is important to note that there are three GPS tracking units namely data loggers, data pushers and data pullers [15].

GPS Technology and National Security

The global positioning system is a technological miracle and America's gift to the world. Highly precise and free for use anywhere one can see the sky, the systems timing and location signals have been incorporated into numerous essential technologies. Cell phones networks, first responder, radio systems, computer and financial networks. Meanwhile despite all this, GPS signals are weak and easy to disrupt illegal jamming devices and are readily available on the internet and are used by criminals, terrorists, even delivery drivers who don't want to be tracked by their employers[16].

Note that, GPS has become an integral component of many developed countries military systems and their forces are increasingly reliant on access to GPS signals because it provides accurate positioning and navigation for all types of military equipment including land vehicles, ships, aircrafts and precision guided weapons [17]. The wide scale availability of highly accurate below 15 m positioning has many national security implications, although it is not a significant factor in nuclear threats [18]. The commercial satellites remote sensing sector has important implications for national security [19], it is further noted that GPS aided conventional weapons represent an air defense challenge to the United state and its allies. Conventionally armed GPS aided cruise missiles in particular may pose a significant threat to a large fixed targets, although they do not threaten most mobile target, aided weapons that evade its defenses will have a greater potential for causing significant damage [20].

However, the ubiquitous nature of GPS allegedly has been exploited by North Korea for several years. In 2011 it was reported that North Korea scrambled the conducts of U.S spy plane attempting to make an emergency landing in south Korea. Also North Korea jammers have so far proved merely aggravating to U.S and South Korean forces, therefore the GPS threat is not limited only to military scenarios or

blunders, it can be offense in nature against a civilian population [21].

It is clear that criminals use modern technological devices to carry out criminal acts, within a country. Terrorist, spies and other criminal gangs use GPS technology in furtherance of their activities which constitute a threat to not only national security but to the whole world at large. The activities of Boko Haram in Nigeria, AL Shabab in Kenya & Somalia, ISIL and ISIS, Alqaeda network, Taliban were all assisted by this great innovation.

Meanwhile foreign countries development of navigational and location satellite services were issues regarding radio frequency spectrum, interference and compatibility issues regarding the GPS system. In addition, the foreign satellite systems may be used for military purposes.

The Legal Regime of GPS Technology

GPS technology emanated from the United States and there for emphasis would be made on the United State laws on GPS.

Current legal structures and historical precedents that may be applicable to GPS are aware description than prescription, there is no compelling historical or legal argument for preferring civil or military control of GPS as an aid and the choice is essentially based on U.S national interests, procedural disciplines to deal with emergency [22].

It is worthy to note that the 10 U.S code ss2281 on global positioning system and the federal communications commission's sustainment and operators for military purpose and regulating spectrum issues concerning GPS respectively are the current legislations on GPS technology in the United States. It is provided that the secretary of defense shall provide for the sustainment of the capabilities of the global positioning system and the operation of basic GPS services that are beneficial for national security of the United states [23]. The secretary shall further develop appropriate measures for preventing hostile use of the GPS so as to make it unnecessary for the secretary to use the selection availability feature of the system continuously while not hindering the use of the GPS by the United states and its allies for military purposes [24] and also to ensure that United states armed forces have the capability to use the GPS effectively despite hostile attempts to prevent the use of the system by such forces.

¹⁵ Ibid

¹⁶ Dana G. the looming national security threat everyone keeps ignoring the Washington post 2012.

¹⁷ ibid

¹⁸ ibid

¹⁹ Linda LH and Melvin SS, commercial space and United states national security. <http://www.fas.org/spp/military/commission/report/htm> l. assessed in 22 march 2017

²⁰ Operate abovemm introduction

²¹ Choles N W, is GPS technology now a threat to national security assessd 22 march 2017.

²² Opera above introduction.

²³ 10 U.S code ss2281 (9) www.law.cornell.edu/..2281

²⁴ Ibid (1)

The secretary of defense shall also provide for the sustainment and the operation of the GPS standard position service for peaceful civil, commercial and scientific uses on a continuous worldwide basis free of direct users fees and also the secretary shall further provide for the sustainment and operation of the GPS standard positioning service in order to meet the performance requirements of the federal radio navigation plan prepared jointly by the secretary of defense and the secretary of transportation [25].

It is also provided that, the secretary shall develop measures for preventing hostile use of the GPS in a particular area without hindering peaceful civil use of the system elsewhere [26].

However, GPS receivers are regulated in the United States under the federal communications commission as indicated in the manuals of GPS enabled devices sold in the United States; it must accept any interference received including interference that may cause undesired operations. The FCC further states that GPS receiver manufacturers must use receivers that do not discriminate against receptors of signals outside their allocated spectrum [27].

Note that, for the last 30 years, GPS receivers have operated next to the mobile satellite services band and have discriminated against reception of mobile satellite services such as Inmarsat without any issue. GPS receivers manufacturers design GPS receivers to use spectrum beyond the GPS allocated band in some cases GPS receivers are designed to use up to 400 MHz of spectrum in either direction of the L1 frequency of 1575.42 MHz because mobile satellites services in those regions are broadcasting from space to ground and at power level commensurate with mobile satellite service [28].

Meanwhile, the increased reliance on GPS technology raises important societal and legal considerations, some believed that law enforcements use of such technology to track motor vehicles movements provide for a safer society, others have voiced concerns that GPS technology could be used to reveal information inherently private. However, the fourth amendment to the United States constitution which protects the lights of the people to be secure against unreasonable search's and seizure [29].

Therefore, states and federal courts have long suite wrestled with whether and how to apply the KATZ Test to advancing technology. For example, the supreme court in Katz determined that when the suspect entered his phone booth and shut the door, he had a reasonable expectation of prove that the police conducted an unreasonable search by using a listening and recording devices without getting a warrant [30]. Also in another case of United states knott [31]. This involves a case of a beeper, a battery operated Rades frequency (RF) transmitter which was attached to a chloroform container that the defendant had purchased and loaded. In this case, the police followed the defendant by a combined of visual surveillance and the use of the beeper to locate the defender's rural cabin which turned out to be a drug laboratory. The court held that monitoring that vehicle while it was on public roads without a warrant was permissible because the defendant had no reasonable expectation of privacy when in public. In another case which is more recent and directly involved the use of GPS data for surveillance of suspected criminal activity and largely draws from the knots case was where the court of appeal concluded that installations of the GPS tracking device neither constituted seizure nor search because the device did not interfere with the devising qualities of the vehicle and was analyzed to a police officer following the vehicle. However, the court did not acknowledge that there was a difference between following a vehicle and suing GPS devices [32]. The cases discussed above involved installations of tracking devices by law enforcement officials. Not that the supreme court has not directly addressed this issue of whether law enforcement's use of GPS technology in connection with motor vehicle falls within the fourth Amendments power [33].

THE NIGERIAN PERSPECTIVE

National security is important not only to the government but to the nation as a whole. The growing insecurity in Nigeria is of concern to all and every effort must be employed to combat this challenges [34]. The state of insecurity in Nigeria today is no news to anyone and although it can be blamed on some factors that have been left unchecked for a long time by both the government and the people of Nigeria, but the level of insecurity in Nigeria today is threatening to tear her apart and requires quick, adequate and a new approach to deal with the security challenges plaguing the nation,

amendment considerations congressional Research service 2011.

³⁰Ibid.

³¹(1983)

³²United states vs Garcia (2007)

³³Alison op cit.

³⁴Peter MO, and Babatunde PJ, the role of information technology in combating security challenges in Nigeria. Academic Research International vol 2 No1 January 2012.

²⁵Ibid (2)

²⁶Ibid (4)

²⁷Part 15 rules of federal communications commission's report and order in the matter of fixed and mobile services in the mobile satellite services bonds Dec 2011.

²⁸ibid

²⁹ Alison MS, law enforcement use of Global positioning (GPS) devices to monitor vehicles fourth

apart from food insecurity and financial insecurity, health insecurity and security failures has eaten deep on the life of this country [35]. For example, the Boko Haram in the North east, the Niger Delta militants in the South South, the kidnapers in the South east and other parts of the country, the herdsman killings, the Massob and Ipob in the South east, the Armed Rubbers all over the country, the cultist in the South South and the corruption rot in the system are all factors that constitute a threat to the cooperate existence of Nigeria as a country.

It is worthy to note that globally, information technology has been adopted in the developed world to combat this problem of insecurity and the GPS tracking system is one of the most rapidly growing technologies around the world, most developed countries have focused on the GPS technologies in resolving some of their inherent insecurity problems [36].

Nigeria as a country has no any legal or regulatory framework on GPS technology and the GPS technology have not been adequately put into use in addressing national security challenges in Nigeria. Hence the problem is still with us, though the current government had succeeded in technically defeating the Boko Haram and temporary restoring peace in the Niger Delta by dialoging with the Economic terrorist in the Niger Delta regions. The success recorded recently by the Nigerian Police in arresting Nigeria most wanted billionaire kidnapper (EVANS) in Lagos was as a result of the use of digital technology which the GPS tracking device was also part of it.

Therefore, in order to tackle the problem of insecurity in Nigeria, there is the need to fully adopt the GPS tracking system by the federal government; this can help to forestall possible attacks on civilians and oil installations by the Boko Haram, the herdsman and the economic terrorist of Niger Delta on government facilities [37]. Note that, the criminals use modern technology devices to carry out Criminal act and to reduce the possibility of detection, they can hardly complain when the police take advantage of the inherent characteristics of those very devices to catch them [38].

Meanwhile, to adequately address Nigerian security challenges, modern intelligence gathering devices must be acquired and deployed by security services like the SSS, police, Army, the navy, the air force and other para military, Nigeria should lay emphasis on the use of GPS technology to track down individuals criminals or groups that constitute threat to the national security. Note that, if GPS technology is properly adopted, our security agencies, in MDA's and other organizations would go a long way in tackling the menace of insecurity. Also the absence of legislation on GPS technology is a major challenge in this regards, this is because suspect can rely on the constitutional provision of 1999 as amended of the right to privacy to challenge the use of GPS surveillance against them.

CONCLUSION

The Nigeria insecurity problem has been compounded by the inability to use GPS and other modern technology in addressing the issue of national insecurity. Therefore GPS technology has a major role to play in tackling the Nigeria's insecurity problem. There is need to use GPS in monitoring and surveilling the various criminal groups. This will greatly improve the ability of the security agencies to combat security challenges in Nigeria. There is also the need for legislation on the use of GPS technology by our security agencies in Nigeria. Therefore the national assembly should consider as a matter of urgency to promulgating a law on the use of GPS technology in safeguarding national security in Nigeria.

³⁵Adams O.K, the role of information Technology in national security. A case study of Nigeria. Global journal of computer science and technology. Information and technology vol 16 issue 2 2016.

³⁶Akmode JL e't al, improving national security, using GPS tracking education and environment conference, African society for scientific Research (ASSR).

³⁷ ibid

³⁸James B Ct, GPS technology finding its way into court the Washington post 2012.