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All correspondences and enquiries should be directed to:The Editor-in-Chief
FUDMA International Journal of Social SciencesFaculty of Social Sciences
Federal University Dutsin-Ma, Katsina State, NigeriaEmail:fudijoss@gmail.com

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THE ROLE OF GLOBAL POSITIONING SYSTEM (GPS) IN COMBATING ARMED BANDITRY IN NIGERIA

Ahmed Rufa'i Usman
Department of Sociology
(Criminology and Security Studies)
Federal University, Dutse. Jigawa State
arusman2015@gmail.com

&
Rabiu Ahmad Usman
Department of Sociology
Al-Istiqama University, Sumaila, Kano State
rabiuahmadusman@ausumaila.edu.ng

Abstract

The paper examines the role of Global Positioning System (GPS) in combating armed banditry in Nigeria. Routine Activity Theory is adopted as the theoretical framework. The GPS technology navigates the position of a person and objects on the World Google Map. The system is used by the security agents in crime prevention and control. GPS applications are widely use today by individuals and organizations. Armed banditry has recently become one of the insecurities affecting Nigeria. The bandits attack day and night in large numbers using motorbikes which give them advantage to escape immediately before the arrival of the security agents. Large forests in Nigeria are governed by bandits and terrorists. The ungoverned spaces are becoming red zones and no-go areas. The application of GPS technology can assist in navigating the movement and positions of armed bandits in areas they operate. GPS can track armed bandits and inform the security agents the locations and routes. This can help in detecting the cross-border bandits, organized criminals and arms traffickers. The application of GPS becomes imperative in detecting and combating security challenges such as armed banditry, Lakurawa, Boko Haram, insurgency, terrorism, militancy and secession movement in Nigeria. Military operations would be successful by employing GPS technology in combating insecurity across the country. Today, technology such as GPS become relevant in tracking criminality. The positions and movement of criminals are always detected by the GPS helping security personnel to launch attack and neutralize criminals in their positions. The use of GPS among the security forces become a serious challenge. The paper recommends that, Federal Government through the Ministry of Defense should employ the use of GPS technology in the fight against armed banditry. Security forces should be enlightened on the use of the GPS. This can help in combating armed banditry, militancy and insurgency in the country.

Key words: Armed banditry, GPS, Crime, Navigation, Tracking

Introduction

Insecurity is increasingly affecting both rural and urban Nigeria. This becomes a threat to socioeconomic activities and national security in Nigeria. Security is imperative and provides the enabling environment for citizens to live and work for social, economic and political development. Security of lives is a cherished value of all human societies as the basis to achieve its goals. Nigeria has been ravaged by insurgency, terrorism, armed banditry, kidnapping,

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farmers-herders mayhem, cattle rustling, water piracy and many more. These security challenges disrupt peace and socioeconomic activities. It becomes a threat to social, economic and political development. Insecurity now becomes a serious challenge in the country affecting many regions. Today, technology become imperative in neutralizing criminal gangs. Drones and Global Positioning System (GPS) technology can aid the security in Nigeria in neutralizing armed bandits and *Boko Haram* especially in rural Nigeria.

Armed banditry is one of the major security challenges affecting Nigeria. In recent time, Nigeria had continued to witness a tremendous setback in socio-economic development fueled by different security threats particularly armed banditry, kidnapping, insurgency, farmer-herder conflict, cattle rustling, terrorism, militancy among others. This becomes a serious threat to Nigeria's national security. The security challenges required the use of advanced technology like GPS for the maintenance of law and order. The GPS can help in neutralizing armed bandits in their hideout states like Zamfara, Sokoto, Katsina, Kaduna and Niger.

For Coffed (2014), the Global Positioning System (GPS) provides potential ground and space-based positioning, timing, location and navigation. It is a satellite-based navigation system that provides continuum positioning and timing information, anywhere in the world under any weather conditions. The GPS device locate, navigate and control the movement of people globally. GPS provides accurate location and information for an unlimited number of people in the world, day and night, on the land, air and sea. The GPS is made up of three parts: satellites orbiting the earth, control and monitoring stations on earth and the GPS receivers. GPS satellites broadcast signals from space that are picked up and identified by GPS receivers. Each GPS receiver provides three-dimensional location (latitude, longitude and altitude) plus and time. GPS accurately locate and navigate positions on earth.

For Okeshola and Usman (2017), the GPS consist of 24 satellites that circle the globe once every 12 hours, it provides worldwide position, time and information. GPS makes it possible to precisely identify locations on the earth by measuring distance from the satellites. GPS has become a mainstay of transportation system worldwide, providing navigation for aviation, ground, and maritime operations. Disaster relief and emergency services depend upon GPS for locations in life saving missions. It helps in tracking stranded persons and predicting natural disaster such as earthquakes, tsunamis, hurricanes etc. The security agents, surveyors, geologists and many others work efficiently and accurately using GPS signals. GPS technology aids security agents in crime prevention and control. GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilian used.

According to Kennedy (2002), GPS is an advanced technology use for many purposes and one of the rapidly growing technologies around the world. GPS use satellites data to calculate an accurate position on the earth. The calculations relate to users' positions and map projection. All GPS work in a similar manner, but they often look very different and have different software. GPS is used by the security agents, transporters, industries, banks, commerce and many more to determine navigation, position, time and location of a vehicle, person or other assets. GPS is among the major developments of the wireless telecommunication industry.

According to Usman (2021), armed banditry is attributed to the influx of people into Nigeria from the war- ravaged countries, especially the Sahel region. The fall of former Libyan leader, Gaddafi in 2011, has resulted in the massive circulation of illegal weapons used by cross border bandits. Cross-border pastoralists have facilitated the influx of arms used by bandits in Nigeria.

This makes both rural and urban areas in Nigeria vulnerable to armed robbery, kidnapping and cattle rustling. Rural areas are more prone because of the ungoverned spaces and proliferation of arms in the country. Thousands of people have been killed, displaced and properties worth billions of naira have been destroyed. Banditry is a crime against humanity. Armed banditry is accompanied with rape, organized attacks on villages, cattle rustling and destruction of properties, displacement and loss of lives. The impact of ungoverned spaces and armed banditry in Nigeria include: killings, kidnapping, displacement, theft of livestock, burning and raiding grains, armed robbery and rape. This affects internal security, peaceful coexistence and economy of Nigeria.

From the foregoing, armed bandits take advantages of ungoverned spaces and perpetrate criminality in Nigeria. Large unregulated forest and porous borders facilitate the movement of the bandits. Therefore, it becomes imperative for the security agents to use GPS technology in tracing and tracking the positions, location and movements of the armed bandits especially in Nigeria's forests. GPS works in any weather conditions, anywhere in the world, 24 hours a day. The use of GPS satellite can locate the armed bandits in their hideout. The GPS can navigate the transportation system and weapons use by the bandits. The GPS is one of the 21st century technology use by the security agents in countering insecurity. GPS can also aid security agents in Nigeria in the fight against armed banditry, *Lakurawa* and *Boko Haram*. GPS technology is crucial in the 21st century in fight against insecurity in Nigeria. Against this background, the paper examined the role of GPS in combating armed banditry in Nigeria.

Historical Development of Global Positioning System (GPS)

According to El-Rabbany (2002), over a period of time, people have developed a variety of ways to figure out their position on earth and navigate locations. The 1920s witnessed the introduction of advanced technique- radio navigation based on radios that allowed navigators to locate directions. This laid the ground work for GPS. The GPS was developed as a worldwide satellite-based system by the United State Department of Defense (DoD) to simplify and improve military and civilian navigation and positioning. The National Aeronautics and Space Administration (NASA) and the Department of Transportation (DoT) were also interested in developing GPS satellite system.

For Singhal & Paul (2012) GPS grew out of the space race with the Soviet Union during the 1950s. By the 1960s, the Air Force developed a system in which several satellites with accurate clocks could assist in determining the position of a vehicle moving on land. In 1973, the combined Navy and Air Force formed the Navigation Technology Programme. The Russians also developed a GPS called GLONASS (GLObal Navigation Satellite System). The European Union approved funding to develop a GPS called Galileo. Development and testing of the system began, following the first GPS satellite launch in 1974. These satellites were built by Rockwell Collins and launched by the Air Force. Testing continued until 1980s when GPS satellites were among payloads carried by National Aeronautics and Space Administration (NASA). The GPS became fully operational in 1993 when the full constellation of 24 satellites, 21 operational and three in reserves, became available.

Initially GPS was developed by US Department of Defense (DoD) as a military system to fulfill US military needs. However, later GPS evolved far beyond its military origin. GPS is now made available to civilians and a dual-use system accessed by both military and civilian users. GPS system is use to navigate the position and movement of people and track their precise position. It became a worldwide information resource supporting a wide range of civil,

scientific and commercial functions. GPS would become crucial and helpful to the Nigerian security agencies in the fight against armed banditry, *Boko Haram*, *Lakurawa*, militancy and other security challenges bedeviling the country.

How Global Positioning System Operates

According to Smith (2011), the GPS use satellites in space as reference points for locating positions on earth. The GPS consists of three segments: a space segment of 24 orbiting satellites, a control segment that includes a control centre and access to overseas command stations, and a user segment, consisting of GPS receivers and associated equipment. GPS satellites transmit two different signals: The Precision or P-code and the Coarse Acquisition or C/A-code. The P-code is designed for authorized military users and provides what is called the Precise Positioning System (PPS) as a restricted code to ensure that unauthorized users do not acquire the P-code for their personal uses. The C/A-code is designed for use by nonmilitary users and provides what is called the Standard and Positioning Service (SPS). The Precise Positioning Service (PPS) and Standard Positioning Service (SPS) are the two levels of services by the GPS. The PPS is a restricted accurate positioning, velocity, and timing service designed primarily for the USA military/government and allies. The SPS was designed to provide civil users with a less accurate positioning capability than PPS.

George and Hennery, (2013) opined that, GPS satellites circle the earth twice a day in a precise orbit and transmit signal information to the earth. The satellites transmit two low- power radio signals designated L1 and L2. Civilian GPS use the L1frequency of 1575.42 MHz signals and can pass through clouds, glass, and plastic but cannot go through most solid objects, such as buildings and mountains. GPS receivers take signal, transmitted by the satellites to calculate the user's exact location. The GPS receive signal transmitted by a satellite with the time it received. The time tells the GPS receiver how far away the satellite is. If the GPS unit has information from other satellites, it can determine the user's position and display it. The GPS receiver determines the user's position and reveals on a display screen. A GPS receiver must use signals from at least three satellites to calculate two-dimension positions (latitude and longitude) and track movement by using signals of four or more satellites, a receiver can determine the user's three-dimensional position (latitude, longitude, and altitude). Once the user's two- or three-dimensional position has been determined, other information such as speed, bearing, tracking, distance to destinations and time of sunrise or sunset can be determined.

The Application of GPS Technology in Security Institutions

For Okeshola and Usman (2017) and Kennedy (2002), GPS technology offers many benefits for law enforcement agencies. Law enforcement professionals map crimes in their respective jurisdictions using GPS. Security agents benefit from GPS technology due to the large jurisdiction as well as the diverse, remote, patrol areas encountered. The navigational capabilities offered by GPS enhance efficiency and safety as well as support to law enforcement and criminal justice functions. GPS technology is used to carry out special operations and educate personnel about a new assigned work area. Air Force and aviation personnel can determine their exact location, speed, and arrival time when responding to calls. Air units utilizing GPS also relay on the location of any activity on ground, simply by responding to ground units. Through GPS and computer maps, the Air Force rely on easiest route into a location on ground, as such they do not have to fumble with maps, or provide vague locations in reference to other landmarks.

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For Brandon (2003), GPS aids law enforcement to track stolen property, stay safe, summon help, and do many other things. GPS technology support security agents in a variety of operations. In developed nations, law enforcement agencies use Global Positioning System and Geographical Information System (GIS) for crime mapping. Mapping crime of any type help security agents to enforce laws and regulations and prevent crimes in the areas they operate. Security agents use maps of larger geographical areas to identify trends and future problems in their jurisdiction. GPS aids in monitoring of probationers and parolees. Probation and parole officers tend to have high number of probationers and parolees under their care. GPS technology helps the probation officers in supervision and locate the positions of probationers and parolees whenever they change locations.

The GPS aids law enforcement working in very large porous borders and thick forests in diverse and remote locations. Security personnel can find the location of an incident, plan their travel route, and estimate their arrival time. Security agents acting as first responders can find it easy to summon medical help, trace location of an accident or crime scenes using GPS. Security agents operating in States facing bandit attacks such as Zamfara, Katsina, Niger, Kaduna and Sokoto can communicate through the GPS technology. This can aid to counter any attack within their States of operations. The GPS technology can help the security operatives to avoid civilian casualties in order to locate the precise locations of the armed bandits in their hideout.

The Role of GPS in Combating Armed Banditry in Nigeria

Okeshola and Usman (2017) opined that, the GPS technology navigate and track positions of objects and individuals. The GPS navigation system direct the security agents to find their way easily and quickly, while operating in an unfamiliar terrain. Military GPS navigation system gives crucial information to the security forces. The GPS combines telematics and telecommunications survey locating precise positions. Each satellite in the GPS constellation continuously broadcast radio signals in all directions. This information contains data about its orbit, equipment status and the exact time. The receiver has a digital road map in memory (in some cases on a CD-ROM) that contains most roads in the country. The GPS navigate the position of any target that security agents are traying to locate for arrest. GPS technology is used by the security forces in tackling criminality, this is through using Google map to identify and track the movement of people.

Today, GPS is used by millions of people globally, it provides the users required information needed. Presently, Nigeria is confronted with serious security challenges. This includes armed banditry, *Lakurawa*, *Boko Haram*, insurgency, terrorism, militancy and secession movement. GPS device is now use for crime prevention and control. The technologies detect perpetrators or suspect who are willing to attack a territory. The GPS tracking system is the most common tool that aid security forces. The device or tracker receive information on the location of persons in any suspicious environment. Anti-theft tracking GPS system trace and track any mobile number use by the armed bandits, especially when they contacted a relative of abducted persons. The GPS anti-theft tracking system retrieves the location and information from satellites in the form of latitude and longitude positions.

The Global Positioning System detect the movement of cars on the roads, ships on oceans and planes on air and report the status on demand on the world Google map. For instance, if security agents are looking for suspected bandits such as Bello Turji, Dogo Gide, Tsohon Manjagara, Baleri, Yellow Ashana, Ali Kachalla, Buhari General, Ado Aleru, Dangotte Bazamfare, Ardo

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na-shaware, Dankarami, Manu DO, Saleh piya-piya etc either in Zamfara, Katsina, Sokoto, Kaduna or Niger, the GPS satellites can be set to locate the position and movement of the bandits wherever in Nigeria on the Google map. For example, if the bandit is in Zamfara State and want to lunch attack in Sokoto State, the security agents in Zamfara can alert the security forces in Sokoto who are on GPS and Google map. The security forces in Sokoto can quickly locate the position and movement of the bandit on the GPS satellite. This can lead to repel or arrest the bandits through the GPS Google map. Communication can also be made to all affected security command from the affected States to arrest the bandits if they left hideout to the cities.

GPS technologies will become imperative to the Nigeria security forces in countering the activities of bandits and terrorist in thick forests like *Sambisa, Alagarno, Kamuku, Kudaru, Dansadau, Kuyambana, Burwaye, Ajja, Dajin Rugu, Falgore* forest, *Rijana* forest, *Dajin Madam, Kenyehu/Uttu* forest, *Kotonkarfe* forest, *DutsenMaigoshi, Burra/Lame* forest, *Yankari* forest, *Dajin Sakani, Dajin Wumumu, Kwando* forest, *Dajin Goronyo* among others. Bandits blocked the road at any time and robe people. Any time they are attacked by the security forces, they retaliate on local inhabitants on the ground that, the locals give information on their hideout. On such occasions, the bandits invade villages and kill indiscriminately. But with the application of GPS technologies there will be synergy among the security forces to repel any attack by the bandits. This can help to protect the lives and properties of the affected communities. GPS will be effective in tracing and tracking the *Lakurawa* jihadists along Nigeria-Niger border. GPS can help in maintaining internal security in Nigeria. Many operations were carried out with existing ones in neutralizing armed bandits. This includes operation *Diran Mikiya*, operation *Sharan Daji*, operation Thunder Strike, operation *Hadarin Daji*, operation Whirl Punch and operation *Fansan Yamma*. The use of GPS in these operations would be imperative in neutralizing armed bandits in Nigeria

Reasons why GPS is not Commonly Used in Nigeria

Okeshola and Usman (2017) opined that, the Global Positioning System is not widely used in Nigeria. The technology is used by different people, organizations and aids law enforcement agents in detecting crimes. Law enforcement agents in Nigeria lack technical know-how on GPS technology. This becomes a hindrance in the use of GPS to prevent and control criminality in Nigeria. Government is not committed to provide Information Communication Technology (ICT) and GPS services for the citizens. Nigeria also lacks expertise with technical know-how in providing GPS technology in the country. The technology is mostly provided by foreign expertise, this made the services cost and insufficient in Nigeria. There is limited number of people who can afford the technology. There is also lack of awareness among Nigerians on the importance and uses of GPS, most Nigerians are not aware on the uses and applications of GPS. Those who use GPS and car tracking system are very few in Nigeria. Recently there is campaign on the importance and uses of GPS for motorists, for monitoring, navigation and safety of vehicles by the Federal Road Safety Commission (FRSC) in Nigeria.

Theoretical Explanation on Global Positioning System

In line with the phenomenon in question, the paper reviewed Routine Activity Theory (RAT) as its theoretical basis of explanation. According to Siegel (2013) the progenitors of theory are Lawrence E. Cohen and Marcus Felson (1979) and later developed by Felson in studying crime. The theory focuses on relation to space, time and emphasizing its ecological nature and implications thereof. RAT moves the explanation of crime away from focusing solely on the offender, to include the suitable targets and the guardians. Crime occurs during every day

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routines in normal life when a suitable target is in the presence of a motivated offender without a capable guardian. Crime occurs through three essential elements that converge in space and time in the cause of daily activities (Cohen and Felson, 1979). These elements are:

Suitable target or victim-: prior to the criminal incident is known as target but after the crime is committed the person, object or place become a victim. What exposes a person, object or a place to criminal attack is the degree of attractiveness or vulnerability. People who reside in Katsina, Zamfara, Sokoto, Kaduna and Niger States where armed bandits operate are the suitable targets.

Potential offender-: when an accessible and suitable target-person, object and place are not kept safe from harm or injury by an individual. There is likelihood that harm and crime would occur. The armed bandits are the potential offenders found in Katsina, Zamfara, Sokoto, Kaduna and Niger States.

The absence of effective guardianship-: guardianship is defined as the physical or symbolic presence of an individual (either intentionally or unintentionally) to deter a potential criminal. The presence of capable guardian would discourage a criminal from committing crime. The guardian can be law enforcement agents, friends, lighting, locks, alarm system etc. **The theory has been criticized on the ground that it fails to address issues of social inequality that influenced individuals to criminality.** (Reid, 2006).

The justification for adopting RAT is that armed bandits are the potential offenders, they operate in the absence of guardianship. The guardians include the military, police and vigilante group who are saddled with the responsibility of combating armed banditry and other forms of insecurity in the country. The guardian who are security agents do not apply the technical how of the Global Positioning System (GPS) to detect the potential offenders (armed bandits). While members of the affected communities are the suitable targets and become victims of armed bandits. People from Katsina, Zamfara, Sokoto, Kaduna and Niger States suffer the heinous crimes from bandit groups.

The bandits engage in kidnapping, killings, displacement, raiding villages, cattle rustling, robbery and rape. This happens as a result of the presence of the suitable targets. There is absence of technology such as GPS that can help the guardian to repel any attack from the bandits. Communities in Niger, Zamfara, Katsina, Kaduna, Kebbi and Sokoto states are the suitable targets. The security agents are the capable guardians who are not able to use GPS technology to repel any attack from the bandits. This gives advantages to the bandits in committing heinous crimes against the targets.

Conclusion and Policy Implication

The GPS technology plays significant role in detecting criminality and insecurity through the Google map, this helps the law enforcement agents to apprehend criminals with the use of GPS technology. The application of GPS becomes imperative to security agents in combating armed banditry, *Boko Haram, Lakurawa* and many more. The use of GPS technology is very minimal among individuals, organizations, and security agents in Nigeria. The following serve as policy recommendations on how to improve the use of GPS technology in the country:

Federal Government through the Ministry of Communication and Digital Economy should remain committed in providing and improving ICT and GPS technology in the country with

uninterrupted internet services. This can help in detecting criminals by security agents and use it by the citizens to protect themselves.

Federal Government through the Ministry of Defense should employ the use of GPS technology among the security agencies. Security forces should be enlightened on the use and application of the GPS. This can help in combating armed banditry, militancy, water piracy, insurgency and other heinous offences in the country.

Nigerian Government should sign memorandum of understanding with National Aeronautics and Space Administration (NASA), Geohazards Division of Geosciences Australia and United States National Geodetic Survey (NGS) to improve ICT and GPS technology in the country. This can help in providing efficient services to individuals and organizations who are willing to subscribe for GPS technology.

The Legislature should review laws and policies concerning astronautics, astronavigation, astronomy, ICT, science and technology. The review of the existing laws and policies can improve the use of GPS widely among Nigerians. This can help both government and the citizens to take proactive measures in detecting cybercrime and other forms of insecurity in the country.

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