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Modern Electronic and other Technologies to Combat New Wave of Terrorism and Criminal Activities

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Abstract

Terrorists are using most recent technology to launch their attacks, therefore it is important for the suffering states like Pakistan to excessively practice the recent Electronic and other devices and technologies to safeguard and combat terrorism. By boosting security, intelligence, and surveillance capacities, electronic technology is essential in the fight against terrorism. The following electronic tools and systems are frequently employed to combat terrorism. In this paper we will focus on Artificial Intelligence, Biometric, Border Security Technology, Cybersecurity, Surveillance Technology, Communication and Encryption, use of Drones, Geospatial Technology in the context of terrorism. Apart from this we discuss about the new wave of terrorist attacks from foreign nationals and refugees living in Pakistan and their modus operandi and how to combat with them using Electronic Technology. More emphasis is required to be given to the Border Security Technology. It's crucial to remember that even if these electronic technologies are useful tools in counterterrorism efforts, they must be utilized legally and with due regard for people's civil liberties, privacy, and individual rights. A multidisciplinary strategy, including collaboration between numerous agencies, intelligence sharing, international cooperation, and complete policies and plans, is frequently necessary for counterterrorism efforts to be successful. Pakistan is facing three major problem of smuggling of commodities, foreign currency, and terrorism for across boarder.

Keywords: Terrorism, Criminal Data Bases of terrorists, Cyber Security and counter Terrorism.

1. Introduction

The use of science and technology plays a crucial role; [1] asserts that there are

technological answers for practically all issues relating to terrorism. As technology has developed in recent years, criminals have also gained access to its tools and technical

know-how, particularly terrorists and gangsters engaged in white-collar crimes, bank robberies, robberies, and having information with which to hurt others. The terms revolutionary, sub-revolutionary, and establishment refer to the formation, creation, and launch of the three types of terrorism. There is a lot of "ideologically motivated terrorism" that happens. The use of the Internet, sophisticated intelligence gathering and analysis tools, and intelligent identification systems are just a few examples of how technology may be a vital aid in the fight against terrorism. Individual terrorist attacks are taking place all over the world, such as the shooting in a mosque in New Zealand and the recent incident in Texas, USA, when two families suffered significant losses. In May 2023, a second deadly shooting attack involving an 18-year-old kid took place in Farmington, New Mexico (in the northwest region of the state). In order to identify and discover terrorist groups and individuals working in public places, it is essential and crucial to use the most cutting-edge and inventive surveillance technologies combined with CCTV cameras. To prevent stress and suffering, the devices must be installed in parks, schools, stores, and other significant structures.

Some important policy features of US Department of State are relevant regarding transparency, Anti-corruption, Arms Control, Combating drugs and Crime and countering the terrorism. Cyber issues. Programs of public diplomacy to educate people must be initiated to inculcate the importance of science and technology in collaboration with other nations. The Counter Terrorism Department (CTD) in Pakistan, has been entrusted with very important responsibilities such as crime scene investi-

gations, cross-examinations, interrogations, dealing with intelligence and anti-terrorism programs. The Counter Terrorism Department (CTD) in Pakistan, has been entrusted with very important responsibilities such as crime scene investigations, cross-examinations, interrogations, dealing with intelligence and anti-terrorism programs.

In addition to suicide bombing and shooting as a form of harassment, terrorists also engage in a variety of financial crimes such as blackmail, bank fraud, fraud on Phone line, computer fraud, credit-card-fraud, fake investment-schemes, currency schemes, forgery in all forms, and insurance-fraud in an effort to raise money. The majority of these scams are performed through misusing information technology (IT) systems and breaching the infrastructure's security barriers. The financial institutions, banks, and other business owners must first install the most recent licensed software for their operations as well as that for network security in order to prevent such incidents. The management of a bank's dedicated intranet and extranet, departmental communications, and interactions with stockholders and stakeholders are all suggested. The science and technology created expressly to combat terrorism includes methods for either detonating explosives early or preventing their ignition. For general intelligence, law enforcement, or public health-related objectives, the bulk of S&T counterterrorism tools are very helpful. The paper [9] argues that psychological problems and influences cannot be disregarded since they have a role in Pakistani terrorism, terrorist acts against historical, geopolitical, and societal targets, and terrorism in general. The outcomes might potentially be used as a road plan to fix this core issue. The

concept of ritual killing, martyrdom, and self-sacrifice is present in the majority of religions, and terrorists use it to persuade their suicide bombers, attackers, and shooters. In actuality, this is a form of mental illness. Though "self-sacrifice" is "haram" in Islam.

Extremism in its different forms is one of the most prominent aspects of terrorism. The National Counter Terrorism Authority (NACTA) in Pakistan is working to eradicate and combat terrorism and extremism through awareness-raising campaigns and other appropriate ways. A helpful document about Pakistan's narrative in relation to terrorism and extremism was presented by NACTA in [7]. It discusses a popular FATWA signed by 1800 renowned muslim religious scholars of all sects of Islam including scholars of Al-Azhar University and Imam-e-Kaba. It refocuses the key elements of the Quran and the Sunnah to promote harmony among all Islamic religious sects. The educational institutions must be closely monitored to see if they are promoting extremism, terrorism, violence, or militancy. If they are, they must be reported to law authorities for prosecution. Violent extremism has many distinct definitions and interpretations; it is a complex problem that is discussed in academic settings. It is perceived and tolerated differently in many groups, based on their unique structures. Academic institutions should not support, advocate, or encourage hate of Pakistan or provide ongoing terrorism training. No person, group, or province may proclaim jihad in the presence of the Pakistan Army, Pakistan Air Force, or Pakistan Navy.

Department of Automation at Shanghai Jiao Tong University in Shanghai, China, created monitoring and surveillance technologies that

rely entirely on automated detection and analysis. Based on "Multi-Stream 3D latent feature clustering for abnormality detection in videos" connected with CCTV at key locations, the full systems have been published and documented in [2] and [3]. The "Multi-Level Two Stream Fusion based Spatio-temporal Attention Model for Violence Detection and Localization" is used by the second system. These devices might be deployed in barren locations. how deviant behavior develops.

2 Pakistan Situation In New Wave Of Terrorism

Pakistan in the past several years is facing terrorism and heavily suffered in terms of more than one hundred thousand humans and resources at the cost of Pakistan's economy. The occupation of Afghanistan by two big powers, resulted in large number of refugees, who had to come to Pakistan. The last two-year extension of the Proof of Registration cards, which were given to Afghan refugees in Pakistan in 2006, occurred in 2021. Moreover, 1.3 million of the 3.7 million Afghans living in Pakistan as per statement of United Nation's High Commissioner for Refugees. According to the investigations of terrorist activities, it has been found that in majority of foreign elements involved are of afghan origin most having forged national identity card and passport of Pakistan.

Pakistan and Afghanistan have had a protracted and complicated relationship in the past. Geographically speaking, they are neighbors and share the Durand Line, a porous border that stretches over 2,600 km and has been a point of contention between the two nations for decades. A multidisciplinary approach is

frequently necessary for effective counterterrorism measures, comprising coordination between numerous agencies, intelligence sharing, international cooperation, and all-encompassing policies and plans.

To strike a balance between security requirements and individual rights and privacy concerns, it is also important to carefully analyse the ethical and legal issues surrounding the use of these technologies. To improve security, intelligence, and counterterrorism activities, electronic technology can be employed against terrorism in a number of ways. The application of electronic innovations discussed in this research paper have shown to be successful in the area of combating terrorism. The Taliban took control of Kabul in August 2021, and the country's political landscape has shifted dramatically. Pakistan's role in the new Afghan government, its stance on various issues, and its relations with the Taliban and the international community were likely to evolve, but unfortunately, it didn't happen. It is also important to indicate some salient features of relationship and partnership between Pakistan and Afghanistan. A few important issues are discussed next.

- **Border Disputes:** Pakistan and Afghanistan's shared border has long been a source of friction. Afghanistan claims portions of Pakistani land as its own and has never publicly acknowledged the Durand Line as its boundary with Pakistan. Over the years, this conflict has damaged the relationship.
- **Since the Russian invasion of Afghanistan in the 1980s,** Pakistan has been sheltering millions of Afghan refugees. This has had

both advantages and disadvantages.

- **Security Concerns:** According to Afghanistan, Pakistan supports and shields elements that challenge the Afghan government, including the Afghan Taliban and other insurgent groups. These accusations have been consistently refuted by Pakistan, which has asserted that it is devoted to promoting stability and peace in Afghanistan.
- **Commercial and Trade Relations:** Because both nations share a border and strong cultural links, there is potential for further commercial collaboration. The ongoing conflict in Afghanistan and security concerns have, however, hindered trade cooperation.
- **Peace Process:** Pakistan had helped in the past to arrange negotiations between the Taliban and the Afghan government. These initiatives, which include the intra-Afghan conversation held in Doha, Qatar,
- **U.S. Involvement:** Pakistan-Afghanistan ties have been impacted by the presence of international forces in Afghanistan, particularly those from the United States and its allies. Pakistan has participated in the U.S.-led efforts to stabilize Afghanistan while also being the subject of criticism.
- **Cultural and People-to-People linkages:** Despite political and security difficulties, there are strong linkages between the Afghan and Pakistani people on a cultural and familial level. Commonalities in language, culture, and religion establish connections that go beyond politics.

- Building a border barrier along the Durand Line: In an effort to improve security and regulate the flow of people and products across the border with Afghanistan, Pakistan started building a border fence along that country's western border. The fence is a component of a larger border control system intended to stop unlawful cross-border activity like smuggling and militant movement.
- Disagreement and Controversy: Afghanistan has vehemently opposed the building of the fence. The Durand Line itself is one of the major issues in dispute. The Durand Line has never been legally acknowledged by Afghanistan as an international boundary, and it still claims a portion of Pakistani territory as its own. Afghanistan therefore views the building of the fence is not in their interest.

It's crucial to note that since my previous update in September 2021, a lot has changed in Afghanistan. In August 2021, the Taliban seized control of Kabul, and since then, the political climate of the nation has drastically changed. Pakistan's position on many topics and its part in the new Afghan government.

3 Electronic Devices

To improve security, intelligence, and counter-terrorism activities, electronic technology can be employed against terrorism in a number of ways. The following electronic innovations have shown to be successful given in Table 1.

Table 1 : Important Electronic Technologies and Methods to combat with Terrorism

| Sr# | Technology and Methods |
|-----|------------------------------------|
| 1. | Artificial Intelligence (AI) |
| 2. | Analytics Drones |
| 3. | Behavioral analytics |
| 4. | Big Data |
| 5. | (CCTV) |
| 6. | Chemical and biological sensors |
| 7. | Cryptography |
| 8. | Explosives Screening & Detection |
| 9. | Communication & Encryption |
| 10. | Fingerprint & iris scanners |
| 11. | Geographic Information Systems |
| 12. | Psychological Profiling |
| 13. | Protecting Critical Infrastructure |
| 14. | Secure Communication Tools |
| 15. | Satellite Imaging |
| 16. | Surveillance & reconnaissance |
| 17. | Signal Interception |
| 18. | Social Media's Monitoring |
| 19. | Threat intelligence` Processing |
| 20. | Technology based on biometrics` |

4 Recommendations For Using The Technology

In this Section, we highlight a few methods from Table1, which are effective for detection and control of terrorism. The Technology for surveillance and reconnaissance using unmanned Aerial Vehicles (UAVs or called Drones is effective. The Drones are used for intelligence gathering, surveillance, and monitoring in remote places to look for and detect terrorist activities; particularly, while using the satellite imaging method. Counter-drone technology has become crucial for security as terrorists utilize drones more frequently for reconnaissance and potentially for attacks. It is useful to monitor the movements and activities

of the terrorists used with high-resolution satellite imaging as source of intelligence.

However, the employment of closed-circuit television (CCTV) is effective to observe terrorist activity, which can be used with the aid of surveillance cameras placed in public areas, transit hubs, and is therefore, is of vital infrastructure value. The methods based on biometrics facilitate the facial recognition particularly at airports, border crossings, and other high-security places, people can be recognized using facial recognition technology.

The identification of criminal and terrorists is carried out using Fingerprint and iris scanners: These tools are used to verify identities and follow terrorists who have been identified. The algorithms of artificial intelligence and data analytics are used to analyze information from a variety of sources to spot trends and potential dangers. The techniques of Big Data Analysis are used to find patterns and linkages within terrorist networks by analyzing "big datasets". It is the need of day to observe and monitor closely the Social Media and on media sites for indications of radicalization and terrorist activity. To stop cyberterrorism, it is crucial to ensure the security of vital infrastructure including power grids, transportation networks, and financial institutions.

Geographical Information Systems helps in mapping and analyzing geographic data, which can be critical in understanding and responding to terrorism-related incidents. Also the communications of terrorist can be monitored and jammed by means of encryption breaking techniques. The intelligence and law enforcement agencies extensively use the cryptogra-

phy to code and decode their messages and confidential reports. The technology for the detection of explosives and dangerous materials is of great significance. The sensors are used to identify chemical or biological dangers. The X-Rays is used for this purpose. One method of identifying prospective terrorists is through Psychological Profiling. Firewalls and Intrusion Detection Systems (IDS): These technologies protect government and critical infrastructure networks from cyberattacks.

According to [4], the other cutting-edge technology known as geo-fencing has shown to be quite successful in identifying criminals and terrorists. As demonstrated below from [4], it functions in tandem and combination with RFID (Radio-Frequency Identification), CRD (Call Record Data), GPS (Global Positioning System), and Wi-Fi. Firewalls and Intrusion Detection Systems (IDS): These technologies protect government and critical infrastructure networks from cyberattacks. The technique is illustrated figure 1. To trigger and activate a marketing action to a mobile device (perhaps a mobile phone), a computer-generated, simulated, cybernetic, and virtual geographic boundary is created. When a user enters or exits this virtual boundary surrounding a certain area, GPS or RFID is detected.

As strongly advised in [6], the employment of cutting-edge technology known as "Demilitarized Zone". This technology gives gangsters no chance, who break into a network access while adding an extra degree of security to the LAN (local area network). Its main objective is to gain access to unreliable networks by intelligence agencies, if implemented successfully.

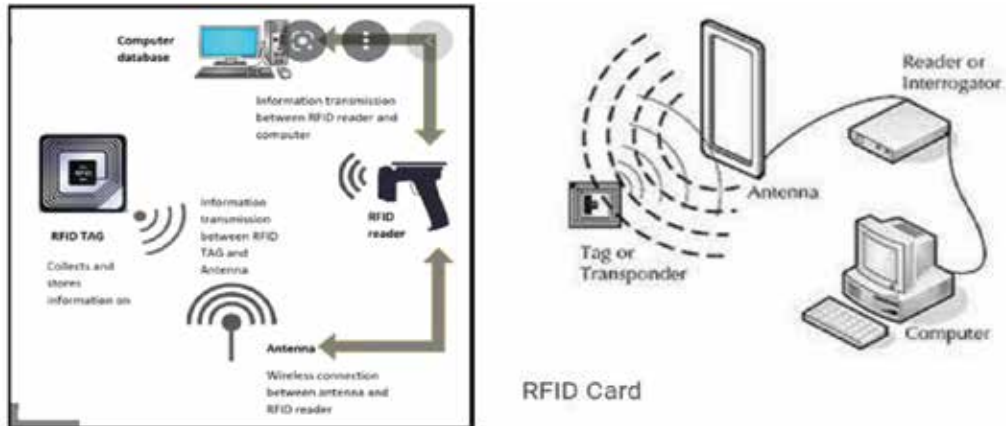


Fig 1: Geo-Fencing Network

For the security and sensitivity of their data, corporations keep data from external sources such as “Voice over Internet Protocol (VoIP)”, Domain Name System (DNS), FTP (File Transfer Protocol), Mail, proxies, and their web servers in the Demilitarized Zone. Hackers and trackers find it challenging to obtain

the crucial information held by the company because of the **Demilitarized Zone**. To guard against hackers and trackers, it uses two fire walls (the hardware firewall and the software firewall). With courtesy, from [6], the following Demilitarized Zone framework is displayed in Figure 2.

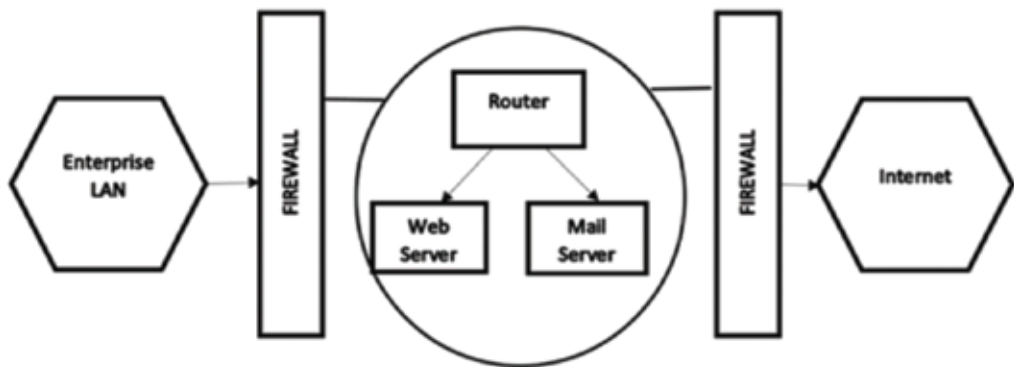


Fig 2: Working of Demilitarized Zone courtesy [6]

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6 Conclusion

1. All illegal foreigners including Afghan migrants must be repatriated.
2. To improve economic conditions in the country, smuggling of all commodities in the name of Afghan transit trade must be stopped.
3. Strict measures to combat terrorism are most essentially to be taken.
4. The entry of all foreigners without legal documents must be strictly banned.

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