



Development of Less Lethal Safety Device Stun Stick

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Abstract: The use of electroshock weapons such as Tasers is already common among police officers and prison officers, as well as defence agencies. It is a way to immobilize and control a person. Despite their efficiency, these devices have a long history of accidents, some resulting in serious injury or death. Knowing these risks, it is necessary to look for alternatives that balance efficiency and safety. The program introduced the concept of "falling" as a potentially less dangerous option designed to offset the negative effects of AI. Tasers provide better safety for officers and trainees while protecting a critical need for law enforcement. This debate provides an in-depth look at the design, function and effectiveness of stun sticks, advocating for a change to stun sticks being considered in regular debates around whether the options are good for authorities.

Keywords: TASERS, Personal Safety Device, Women Safety, Less Lethal, Electroshock Device.

I. INTRODUCTION

In today's law enforcement and security operations, stun sticks are an important tool designed to incapacitate suspects and ensure public safety. It has been praised for its effectiveness due to its ability to be powerful, but has also been criticized for its misuse and negative effects on humans. As society grapples with issues of appropriate force and police ethics, it is important to understand the complexities of stun sticks. Beauty products are designed to solve safety issues caused by traditional stunning products, making them durable and reducing the risk of injury. The use of stun sticks such as Tasers by security institutions such as police stations and prisons has become a way of controlling criminals. These devices play an important role in protecting public safety by allowing police to remove potentially dangerous individuals and prevent them from harming the public or police. As technology advances, mitigating changes are critical to law enforcement and public safety. Stun sticks are a step towards redressing balance by providing tools that can help control dangerous situations with less risk than stun sticks. The ongoing debate regarding the use of these tools demonstrates a commitment to advancing the rule of law by focusing on the importance of protecting life while ensuring public safety.

II. PROBLEM DEFINATION

The use of stun guns such as Tasers by security institutions such as police stations and prisons has become a tactic to control criminals. These devices play an important role in protecting public safety by allowing police to remove potentially dangerous individuals and prevent them from harming the public or police. The introduction of stun sticks into police practice is a serious issue that needs to be thoroughly investigated. Understanding the process and effectiveness of these tools from a visual perspective is important, but the ethics surrounding their use are equally important. These include issues of fairness, fairness and human rights, especially given the potential for abuse of power or excessive use of force. Although many IoT-based security tools have flooded the market, their results often fall short and people begin to look for additional solutions. Even traditional self-defence measures such as pepper spray may not provide the level of assurance needed in critical situations.

The best option is the stun gun, which works well but has two big problems: its ability to kill and the legal limitation of its classification as a weapon due to the number of pellets. To solve these problems, the concept of a weak but effective security device emerged: the rod. Non-lethal design tools provide solutions to threats without the risk of fatal injury and injury. The bat-stunning project aims to provide the public with a simple but effective security tool. This new security system aims to define the field of self-defence, better protect citizens and enforce the legal framework for the prohibition of weapons.



III. OBJECTIVES

1. Design and Development: Create a functional prototype of the Stun Stick, ensuring its portability, ease of use, and effectiveness in immobilization while prioritizing safety.
2. Safety and Reliability: Conduct comprehensive safety assessments and trials to ensure the Stun Stick's non-lethal nature, emphasizing its capability to immobilize targets without causing significant harm.
3. Legal Compliance: Evaluate and address legal regulations and restrictions related to self-defense tools, aiming to position the Stun Stick within permissible legal boundaries for civilian use while meeting law enforcement standards.
4. Accessibility and Usability: Ensure the Stun Stick's accessibility for civilian use by emphasizing simplicity and ease of operation. Additionally, design it to meet the specific operational needs of law enforcement personnel, focusing on practicality and effectiveness in intervention situations.
5. Ethical Considerations: Analyze and address ethical implications associated with the use of self-defense tools, emphasizing the Stun Stick's role in promoting safety while minimizing potential harm.
6. Impact Assessment: Evaluate the potential societal impact of introducing the Stun Stick, considering its implications on public safety, law enforcement practices, and the overall perception of self-defense devices.

IV. LITERATURE SURVEY

- i. Designing Less Lethal Stun Guns for Law Enforcement Use, by Adelina Tumbarskaand (2021): Taser-type weapons are widely used in law enforcement around the world, especially in the United States where they dominate. Police Less lethal choice for raid. Electronic devices continue to improve in terms of quality and safety, demonstrating a commitment to continuous technological development. Contrary to popular belief, data shows that functional electronic devices (CEDs) are safer, less lethal, and challenge safety concerns than other options. This study recommends responsible use and advocates using CEDs only when necessary to protect against firearms or other weapons that do not pose a greater threat. The program promotes balanced use of CEDs by preventing unnecessary violence, thus promoting positive outcomes for law enforcement and citizen self-defense.
- ii. Taser Perspectives on the Future of Law Enforcement Technology, Corporal Kris K. Moffit (November 2008): Taser equipment has evolved since the 1970s and now includes Advanced Technologies such as Pulses Technology and neuromuscular automatic system. technology can improve law enforcement performance. Taser International ensures the reliability of police officers' electronic control devices by breaking new ground with products such as Taser XREP, Taser Shockwave and accessories such as Taser Axon. Stun accessories like Taser Axon and Taser Cam increase law enforcement accountability and provide greater visibility into the use of electronic control devices. The courts, Draper v. Reynolds and Willkomm v. Mayer. Research, including studies from Wake Forest School of Medicine and the Cleveland Clinic, has confirmed the safety of Taser devices, making them an important tool that law enforcement can use to minimize harm and protect lives.
- iii. Electric Fire: Materials and Disease Prevention Dan Dermengiu, Sorin Hostiuc and George Cristian Curca (2008): Although allegations of taser misuse and death are rare, forensic experts must be prepared to handle such situations Whether in the medical field, whether in the medical field, Hard or crime scene investigation. Forensic examiners must be well prepared and familiar with specific techniques and procedures when dealing with a situation involving a Taser. This includes a full forensic examination and clear procedures in diagnosing and investigating the incident. In all Taser-related deaths, it is important to exclude drug overdose or overdose. These are the most common causes of death related to Taser use. These causes must be thoroughly investigated and eliminated before death can be attributed to Taser use.

To determine the role of Taser use in the death, medical doctors must first rule out drug overdose or mental illness as much as possible. The presumption that Taser use caused or caused death should only be considered after these sources have been eliminated. Following standard procedures when investigating Taser-related incidents increases the accuracy and reliability of forensic evaluations, helps determine the cause of death, and contributes to a better understanding of incidents involving the use of Taser.



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V. BLOCK DIAGRAM & CIRCUIT DIAGRAM

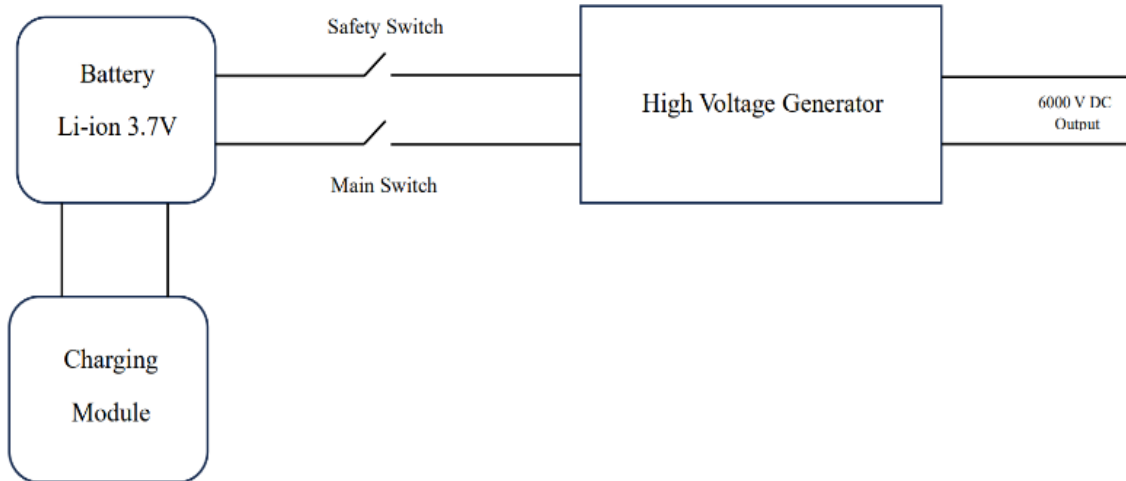


FIG. 1. BLOCK DIAGRAM OF SYSTEM

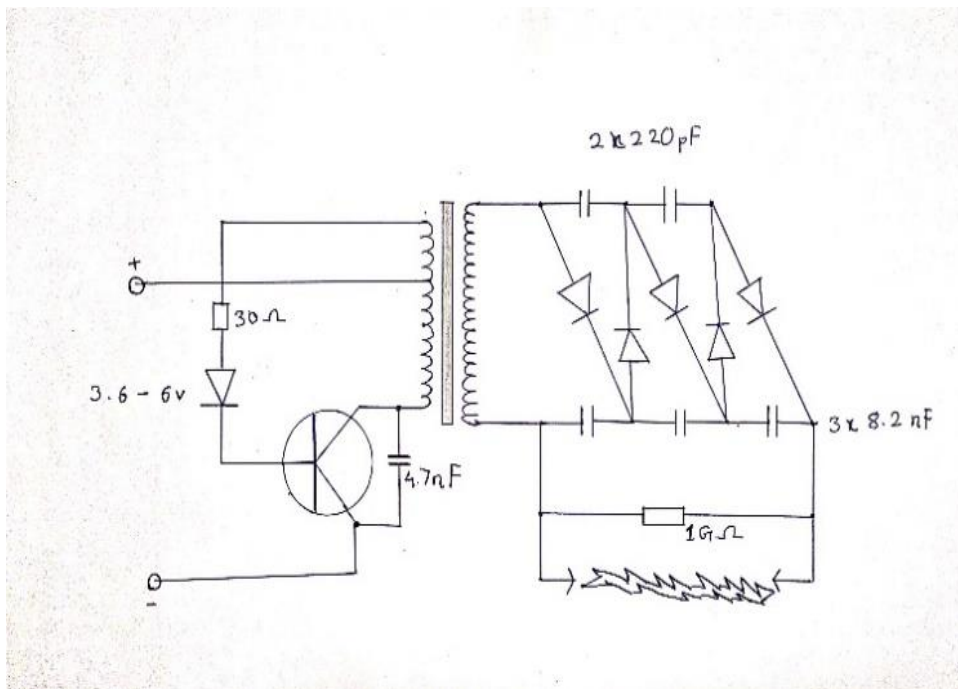
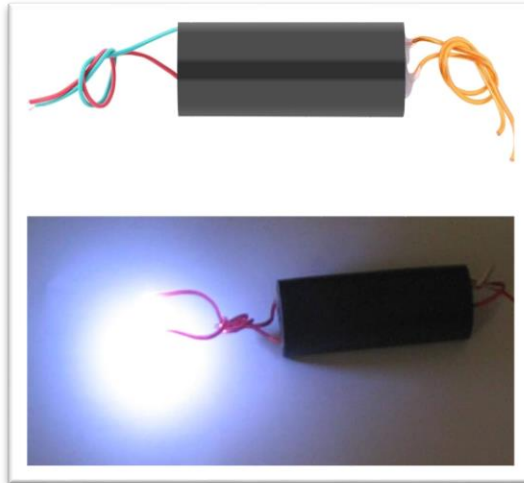


FIG. 2. CIRCUIT DIAGRAM OF SYSTEM



VI. EXPERIMENTAL SETUP

- 1) High Voltage Generator



- 2) 18650 Lithium-ion Cell 3.7 volts



- 3) Switches: On-Off Switch & Push Switch





4) A Charging Module



- **Lithium-ion 3.7V battery:** Indicates a lithium-ion battery with a rated voltage of 3.7V. This is the energy storage component of the system.
- **Charging Module:** Manages the charging process of the lithium-ion battery. Most include things like controllers, power controls, and security features.
- **High Voltage Generator:** Produces high voltage when necessary. Components such as transformers, voltage regulators and other circuits will be included. The generated high voltage can be used in any application or subsystem in the entire system.

VII. ADVANTAGES

1.Non-Lethal Immobilization: The primary advantage of the Stun Stick is its ability to immobilize targets without causing significant harm or fatalities, making it a safer alternative to traditional Electroshock weapons.

2.Legal Compliance: Unlike firearms or projectile-based Electroshock weapons, the Stun Stick can potentially bypass legal restrictions due to its non-lethal nature, enabling easier accessibility for civilian use.

3.Improved Safety: Its design prioritizes safety, minimizing the risk of serious injuries or fatalities, thereby making it a more viable option for both civilians and law enforcement agencies.

4.Versatility and Accessibility: The Stun Stick can be designed to be portable, easy to use, and user-friendly, ensuring accessibility for individuals with varying levels of training or expertise.

5.Ethical Implications: It addresses ethical concerns associated with the use of force by providing a tool that aims to immobilize rather than cause harm, aligning with ethical principles in self-defence scenarios.



VIII. APPLICATIONS

1.Law Enforcement Agencies (LEAs): The Stun Stick project aims to equip law enforcement officers with a safer non-lethal tool, enhancing overall officer safety and bolstering public trust. By providing an alternative to traditional electroshock weapons, the project addresses concerns about potential harm, offering a more secure intervention option for various law enforcement scenarios.

2.Civilian Self-Defense: Focused on empowering civilians, particularly women, the Stun Stick project seeks to introduce a user-friendly and accessible non-lethal tool for personal safety. The aim is to offer practical self-defense measures in diverse environments, providing individuals with a reliable option that prioritizes ease of use and effectiveness.

3.Security and Corrections Facilities: The project has implications for enhancing safety in correctional facilities by proposing a less lethal intervention tool. By minimizing risks associated with traditional electroshock weapons, especially in confined spaces, the Stun Stick contributes to the well-being of both inmates and staff, improving overall security protocols.

4.Public Safety Initiatives: With a focus on supporting public safety campaigns, the Stun Stick project advocates for the adoption of a less harmful self-defense tool. By addressing concerns related to potential misuse of electroshock weapons, the project promotes responsible and safer self-defense practices, aligning with broader initiatives for community safety.

5.Community Policing Programs: The Stun Stick project aims to facilitate community engagement by introducing an ethical and safe tool for maintaining public order. By enhancing the positive perception of law enforcement through a non-lethal and innovative approach, the project contributes to community policing programs, fostering safer interactions.

6.Emergency Response Teams: Geared towards equipping emergency response teams, the Stun Stick project offers a versatile and less risky option for managing high-stress situations. The goal is to provide a strategic tool for handling critical incidents, minimizing potential harm to responders and individuals in distress, and ensuring effective crisis management.

7.Personal Security Products Market: Positioned in the personal security products market, the Stun Stick project introduces a unique and innovative self-defense tool. Addressing the growing demand for non-lethal alternatives, the project contributes to market evolution by offering a viable and safer choice for personal safety, catering to consumer preferences.

8. Private Security Sector: Tailored for the private security sector, the Stun Stick project offers a reliable and less risky tool, positioning itself as a preferred choice for non-lethal force in security operations. Addressing the specific safety priorities of private security, the project provides a tool that aligns with their operational needs.

IX. CONCLUSION

Overall, stun sticks represent a significant step forward in addressing the current shortage of self-defence equipment. This new service aims to reduce the risks associated with traditional electronic devices while complying with legal and ethical requirements. Stun sticks strike a balance between effectiveness and safety and have the ability to adapt self-defence as a non-lethal weapon.

Designed with accessibility and usability in mind, the stun stick is portable and user-friendly, with features that meet the needs of the public and law enforcement. Organization of security measures. Although its performance is limited compared to its more powerful counterparts, it complies with the law, ethical considerations and response support. Security is excellent.

It is important to accept certain limitations, especially when you need to be incapacitated quickly or face an opponent who can adapt to their weaknesses. Addressing these complaints while taking advantage of its many benefits requires innovation and advanced design and implementation.

Beyond its function, the stun bat will mark the transition to safety and a greater sense of self-defence. By introducing these versatile and non-lethal tools, the program will work to promote a culture of safety in both civilian and police fields and enable safer and more responsible self-defence.



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