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E-SANDAL

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Abstract This basically an intelligent and simple solution to evade the rising crime against women in the modern world. This project is designed in such a way that without causing any harm to the user it can stupefy the assailants when used in the situation of assault against the user of the device. The circuit works on the principle of DC to AC conversion where a small DC voltage is converted into fairly high voltage AC. Due to the unique property of AC which acts against the human body is used in the device to produce the effect which can harm the assailants. The circuit technique which is used to make the device is Fly Swatter Circuit Technique. The circuit also contains transformer where the output is sent to the primary of the transformer which yields 500 to 600 volts AC at the secondary of the transformer. The circuit is installed inside the shoe or sandal in such a way that the output AC can be passed through the metal lids and connecting wires towards the front of the sandal with the help of switch. The circuit can be activated and is used in the effective manner. The project will make sure that the safety of the user is guaranteed and effectiveness in the situation of assault and physical harassment is used by the victim with confidence and harm the assailant in self-defence to protect themselves from serious assaults.

Keywords: DC to AC, Fly swatter, sandal

I. INTRODUCTION

Safety of Women in India has become a major issue in India now. The crime rates against women in the country have only risen to a great extent. Violence against women is a very important aspect of any society. Women think twice before stepping out of their homes, especially at the night. This is, unfortunately, the sad reality of our country that lives in constant fear. Girl students studying in the schools or colleges have to shield themselves through books or bags or they have to wear clothes which can cover them completely. Globally, an estimated 736 million women—almost one in three have been subjected to physical and/or partner violence, non-partner sexual violence, or both at least once in their life (30 per cent of women aged 15 and older). Although the list of crimes is very long, we can take measures to ensure women's safety in our country.

Research on violence against women has exploded in the past 20 years, particularly in the areas of non-intimate partner violence and sexual assault. Despite this outpouring of research, many gaps exist in our understanding of violence against women. For instance, reliable information on minority women's experiences with violence is still lacking. Few empirical data exist on the relationship between different forms of violence against women, such as victimization in childhood and subsequent victimization. Finally, empirical data on the consequences of violence against women, including their injury rates and use of medical services, are lacking.

II LITERATURE SURVEY

1. Nancy Thoennes-Report of The Prevalence, Incidence and Consequences of Violence Against Women

Women safety is a very important aspect of any society. However, women safety is at risk due to increasing sexual harassment in public places in our society. Due to fear of social stigma and many other reasons, women accept, tolerate and keep quiet about such experiences. Street harassment and harm-physically, psychologically, sexually and girl's security, dignity, self-worth, and their right to enjoy fundamental freedoms. Social safety for women plays a critical role in advancement of women and society. Thus, it is important to recognize the existence of street harassments as harmful and it causes in order to prevent it. In terms of absolute numbers, Uttar Paresh reported the highest number of cases in both these categories. But Assam reported the highest rate of crimes against women (per lakh population), while Rajasthan had the highest rate of crimes.

2. Abishek Suman-Report on Women Safety and Empowerment

Crimes Against women increased 7.3 percent from 2018 to 2019, according to the annual National Crime Record Bureau's "Crime in India" 2019. A total of 4,05,861 cases of crime against women were registered during 2019, showing an increase of 7.3% over 2018 (3,78,236). Majority of cases under crime against women under IPC were registered under 'cruelty by husband or his relatives' (30.9%), followed by 'assault on women with intent to outrage her modesty' (21.8%), 'kidnapping and abduction of women' (17.9%) and rape (7.9%). The crime rate registered per lakh women population is 62.4 in 2019 in comparison with 58.8 in 2018," says the NCRB report. Many American women are raped at an early age: Of the 17.6 percent of all women surveyed who said they had been the victim of a completed or attempted rape at some time in their life, 21.6 percent were younger than age 12 when they were first raped, and 32.4 percent were ages 12 to 17. Thus, more than half (54 percent) of the female rape victims identified by the survey were younger than age 18 when they experienced their first attempted or completed rape. There is a relationship between victimization as a minor and subsequent victimization: Women who reported they were raped before age 18 were twice as likely to report being raped as an adult. Women who reported they were physically assaulted as a child by an adult caretaker were twice as likely to report being physically assaulted as an adult. Women who reported they were stalked before age 18 were seven times more likely to report being stalked as an adult.

III PROBLEM STATEMENT

Violence against women first came to as a serious social problem in the early 1970s, in part because of the re-emergence of the women's movement. When the emergency situation occurs then women cannot protect and operate the smart phones. Also, she cannot be set alert function, when they are in risk situation and immediately, they cannot pass and send their location to the police and family members.

IV OBJECTIVES

The main objective of this project is to provide women safety by dazing the assailant. When the emergency situation occurs then women can protect themselves using this sandal. Also, she can be alert, when they are in risk situation and immediately, they can protect themselves.

V METHODOLOGY

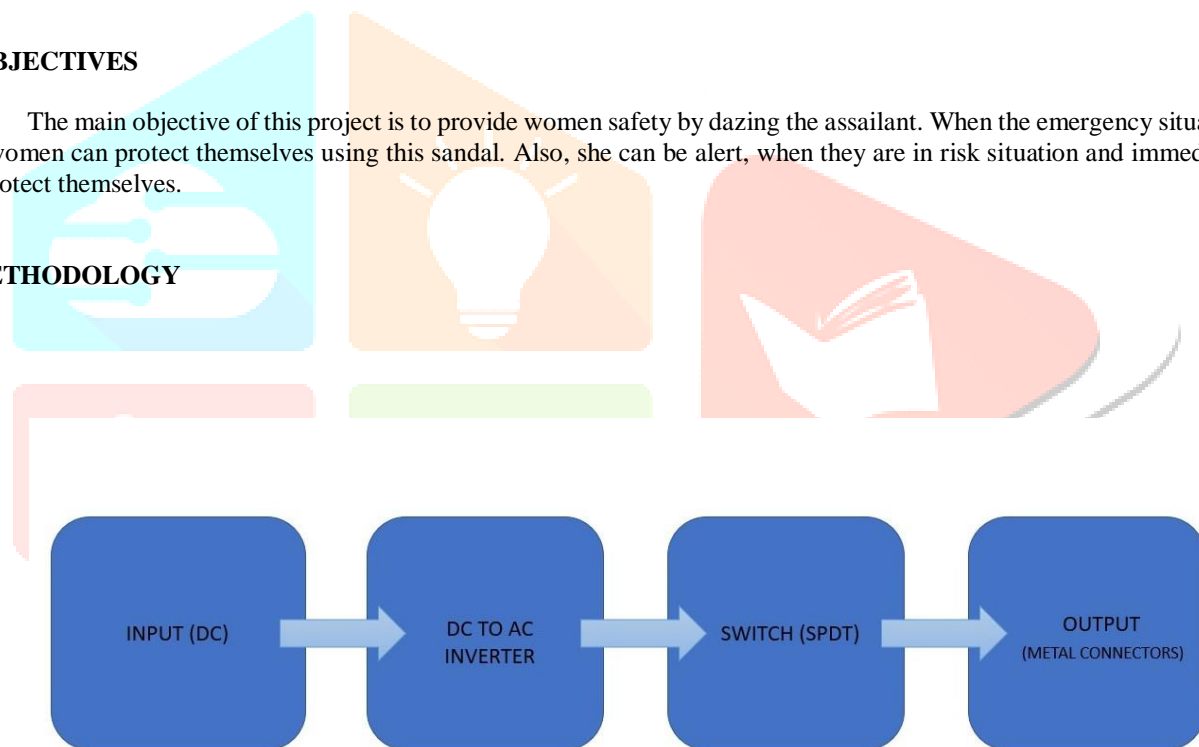


Fig.5.1: Block Diagram

This is basically a shoe/sandal which is designed in such a way that they can defend themselves against the assaults. This is designed in such a way that they can injure the assailant. It can be designed based on the principle of both AC and DC. A low voltage and high frequency AC can keep the assailant away from her. But a high voltage DC can cause injury to the assailant resulting in temporary contraction of muscles. The entire thing is embedded in a shoe in such a way that there is no harm for the one who uses it.

AC circuit can be constructed or embedded using two methods

- DC to AC inverter circuit method.
- Fly swatter circuit technique.

FLY SWATTER TECHNIQUE

In this method the available Fly Swatter Circuit is used. The transistors convert DC to AC due to their fast-switching action. The output is sent to the primary of the transformer which yields 500 to 600 volts AC at the secondary of the transformer. Since this much voltage cannot be given to the person, we have modified it to give an output voltage which is just enough to make the perpetrator stupefied and daze.

Here DC to AC inverter circuit is used to complete the project. A 3-volt DC battery, inverter circuit, Single pole double throw (SPDT) switch, Metal connectors, connecting wires are used. The DC battery is the input the entire circuit.

The inverter converts DC to AC. The output of AC signal having frequency 2KHz is connected to the step-up transformer. The output of the transformer is around 200 volts.

This output is connected to metal leads. This metal leads are the output device which is used to daze the assailant. Dazing is caused when the metal leads are touched to the assailant body. There will be a switch to activate the circuit. The user can ON the switch when they feel unsafe in remote places or while travelling alone in the odd hours.

ADVANTAGES/DISADVANTAGES/APPLICATIONS

Advantages:

- Women safety
- Effective since everyone wear sandals.
- Construction of the circuit is easy.
- Low cost of manufacturing.
- Makes the person safe in unsafe conditions.
- Compact and cannot be noticed by perpetrators.

Disadvantages:

- It cannot fit to flat or small heeled shoes or sandals
- The switch should be manually operated for circuit to on and off.

Applications:

- Self-defence
- Overnight working area
- Remote areas
- Solo travellers
- Sensitive environment
- Unsafe conditions

CONCLUSION

As analyzed the available data and information about the problem of attacks against women and vulnerable people in the modern world, we get to see many reasons and dangerous mentality behind those acts. The device with its compact design helps the user in many different ways. When the assailant tries to attack the person, the person with this designed e-sandal should give a slight kick such that the metal connectors in the shoe and the assailant's body comes in contact. Since the circuit converts small DC voltage into high AC it is possible for the user to harm the assailant to the possible extent and defend themselves from those attacks. As a result, the assailant or attacker gets a mild shock the assailant will be stupefied and the person being attacked can escape.

Finally, the intention of the project is served as it helps more and more people importantly the class of citizens who aren't in a good situation in the society if they get to protect themselves using this project then it will automatically define real success of it.

The entire purpose of the project is to provide a defense mechanism for the vulnerable demography of the society which is subjects to serious threats like sexual assault, rape and other serious problems which is majority of time goes unnoticed. In country like India with a huge population of 1.3 billion and which is largely unpoliced and with lack of state protection and prosecution most of the victims will not be served justice, so to tackle the problem and to safer side to have a device which is effective enough to give protection to the victims.

The proposed design will help the girl when she is in danger zone. She can make rescue of herself in danger situations. And this circuit will use to remove or decrease the tension of girl when she walks alone in night hour also, so that she will never feel helpless at any situation and can protect her by herself.

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