

Designing of Woman Safety Glove

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Abstract— The main aim of this work is for safety purpose of women using electric shock technology. Smart glove is an electroshock weapon. To override muscle triggering mechanism, low current, high voltage electric discharge is used to give electric shock. The concept used in the electric mosquito bat is used as a major source and fixed in the glove through knuckle fixed in the glove. To achieve an alternating high voltage current, step-up transformer is used. Oscillator and resonant circuit also used in this circuit. It may be powered by one or more batteries. Various factors for output current contact with the target depends on internal circuitry, type of skin, targets resistance, moisture, type of cloth used, electric shock weapon and battery conditions. Safety of women in present scenario is very important. Therefore compatible safety device is designed. This compatible safety device is named as smart glove which is easy to carry and easy to use. This smart glove will give the shock to the attacker without killing him.

Keywords: Woman Safety Glove

I. INTRODUCTION

This smart glove is specially and successfully designed to protect women from attackers. This smart glove is compact, light in weight and can easily be carried and the components used in this project are easily available and very economical. This smart glove restrict attackers by gives the shock without killing them. Input supply of 3 V with 3 to 5 Amp is given to the device. Current intensity and output are of the device are range of 100 to 500 mA and 600 V. Other electric shock weapons available for women's safety are Compact stunt gun, Electric shock pads, Stun belts and Stun shield. This device uses a low current electric discharge and high voltage temporarily to affect muscle functions by giving minor pain without affecting major injury. 1.5 V to 4 V with 3-5 Amp is used as an input supply. Also 100 to 4 kV as output voltage [1]. To monitor human body parameters, Arduino board and sensors are used. For high supplying high voltage shock, Electric circuits are used. Also GPS and GSM modules are used for tracking purpose. The device will send a distress message and location coordinates if any abnormal variations in body sensed and an electric shock will be applied to defend from victims [2]. Uses a sandal to generate shock. An electric shock circuit is safely placed inside the sandal. By triggering a switch it will supplies a shock through the projection tips. Once the sock is generated, a signal will be sent by AVR microprocessor and it sent to GSM device. It will send the coordinate message [3]. Uses a system which cause mild muscle contraction using the gun by stimulating sensor and motor nerves. Due to that the movement of attacker will be restricted. In this system RFID is used as main source and illegal use of the weapon will be prohibited [4]. Uses Arduino as a main source to give signal to the user defined person using GSM module connected to the Arduino as shown in

figure 1. GSM module sends message as a SMS to the pre-defined person's mobile number with location of victim [5].

A. Gloves:

The glove is made up of leather, plastic (PVC) and synthetic rubber. It is Light weight and compact design, it can be used by both men and women. Additional bumper is projected at the knuckle portion for our comfort as shown in the figure 2.

B. Metal Rivet:

Metal rivet is made of Silver. They act as an electrode. Silver is a good conductor of electricity due to their movement of free electrons. They are resistant to corrosion. They conduct the current from output terminal of the circuit to the human body.

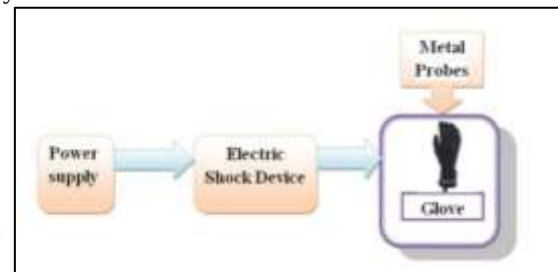


Fig. 1: Basic principle



Fig. 2: Glove

C. Spring for Triggering:

When spring comes in contact with the opponent, it will be deformed and probe will be projected which in turn touches the human body. Material used for making spring is poly vinyl chloride. It can be deformed up to 5mm

D. Resistance:

E. Thyristor:

Figure 3 shows the thyristor

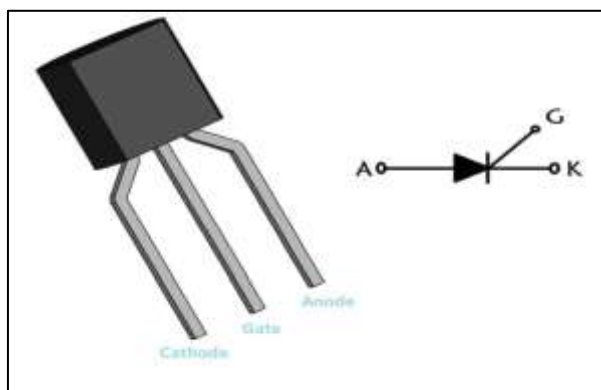


Fig. 3: Thyristor

F. Diode:

G. Transistor:

H. Capacitor:

II. CIRCUIT DIAGRAM:

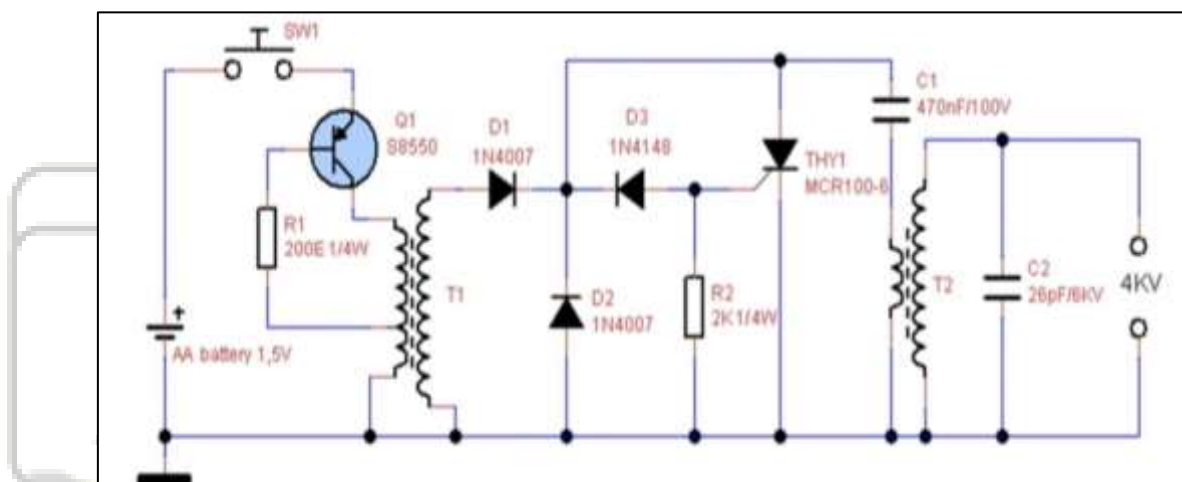


Fig. 4: Circuit Diagram

The circuit consists of battery (3V), resistors (1M Ω), and capacitors, step up transformer, transistor, diodes, led and switch. The ladder network consists of 3 diode and 3 capacitor boosts the voltage from 140V to 600 V. The battery used is chargeable by AC 230V.

III. METHODOLOGY:

The proposed smart glove is designed for safety purpose and its design is based on electric shock technology. Smart glove is an electroshock weapon. It delivers an electric shock aimed at temporarily disrupting muscle functions and inflicting pain without causing significant injury. Electric shock glove uses a temporary high-voltage, low-current electrical discharge to override the muscle-triggering mechanisms. The recipient is immobilized via two metal probes connected to the electric shock device. The recipient feels pain, and can be momentarily paralyzed while an electric current is being applied to him/her. Smart glove is an excellent, safe device that can be used in situations where an immediate safety situation requires quick action in order to neutralize an attacker. This device is perfect for such a situation. In electric shock device circuit, the concept of mosquito bat is used. The circuit diagram for the proposed smart glove. Electric shock

device is fixed into the glove. Whenever the push button is triggered the shock generated on to the tip of the glove. In electric shock device, circuit the concept of mosquito bat is used. The internal circuits of electric shock device includes an oscillator, resonant circuit (a power inverter), and step-up transformer to achieve an alternating high-voltage discharge. It may be powered by one or more batteries. The output current upon contact with the target will depend on various factors such as target's resistance, skin type, moisture, bodily salinity, clothing, the electric shock weapon's internal circuitry, discharge waveform, and battery conditions. Electric shock device which is placed in the glove as shown in figure 5 and 6. The remaining circuit is placed in a box. If someone will try to harass the user, the user will trigger the push button switch. As soon as the button is pressed, it forms a path and a shock is generated at the tip of the glove.

The input supply given to the device is between 1.5 Volts to 4 Volt with 3 to 5 Amp. The output of the electric shock device is in the range of 100 V up to 4 kV, current intensity output is in the range of 100 to 500 mA, individual impulse duration is in the range of 10 to 100 μ s (microseconds), frequency of impulse is in the range of 2 to 40 Hz, electrical charge delivered is in the range of 15 to

500 μ C (micro coulombs), energy delivered is in the range of 0.9 to 10 J.



Fig. 5: Gloves



Fig. 6: Circuit connection

IV. FEATURES OF GLOVE:

- 1) It can give a very hard shock of more than 1500 VOLTS just using a 3.7 volts battery to any target even also from above of his clothes also means it need not to target on open skin.
- 2) It can also charge your smartphone means it can be used as a POWER BANK in case of emergency.
- 3) It also has powerful FLASHLIGHT which will be very useful in dark.
- 4) It just took 1 hour to get fully charged by our regular smartphone charger.
- 5) It uses oscillator voltage amplifier means even though it gives a huge voltage shock but it will not damage anyone permanently.

V. CONCLUSION:

Our model for women safety from attackers can be carried easily due to its compactness. Also the components used are available at low cost. This system is mainly concentrated and developed as a water proof system. In future work, implementation of GPS and GSM technologies will be there

to make this device as more efficient. By using the GSM and GPS module, it will send the location of the attackers to the predefined number with a warning message. By implementing this GPS and GSM, the glove cost will be increased and many people are not able to buy at that cost. It costs around 1000 rupees. Due to its easy construction and affordable price we have fabricated this taser glove.

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