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The Phoenix Gloves

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***Abstract:** In this developing country we all know that women are one of the most important part to improve our civilization. But, however the crime rates against women are increasing day by day in every 4 minutes more than one woman are being man-handled. So to overcome these problems we're making a device by which women can protect herself while walking on streets alone during nights. And this device is known as "Phoenix Gloves". This device can help women to fight against attackers, by giving them admirable shock (as tasers) and burning sensations, so that attackers will thinks twice before attacking any women*

I. INTRODUCTION

"Phoenix Gloves" is a device which will helps the women to fight back whenever the attackers try to attack on them. Only the work of the women will be to switch on the gloves or to activate the gloves so that the attackers will be harmed by having some admirable shock (as tasers) and burning them. The idea of thermal gloves is conceived from the need of maintaining comfort skin temperature while driving during winter and simultaneously managing ease of grip on the vehicle. The current option available in the market are woolen and battery-operated thermal gloves but woolen gloves are not that efficient in maintaining skin temperature while driving and are thick and hence resulting in poor gripping while battery operated thermal gloves are costly. So the need of the hour is an unconventional approach such as piezoelectric-thermal gloves, that are cheaper with low maintenance and effective heating. The circuit consists of piezoelectric cells connected in series which are placed on the palm side of gloves. As the driver grabs the handle these piezoelectric cells are under mechanical strain and hence produce emf. The less sensitive material available in the market are only efficient to produce emf in the range of 3-5V.

A. Necessity

As we know that rate of crimes against women are increasing day by day so What efforts we can do to overcome these crimes and help women to fight back.

B. Objectives

The objectives of this project are:

1) To protect the women and empower them so they could fight and walk safely in night alone.
2) To built a new level of confidence in women so they will overcome the fear of wandering anywhere.

II. COMPONENTS USED IN PHOENIX

A. PTC Heating Element

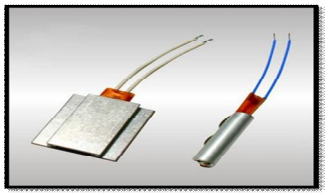

Fig.1 PTC heating element

1) A typical heating element is usually a coil, ribbon (straight or corrugated), or strip of wire that gives o heat much like a lamp lament. When an electric current flow through it, it glows red hot and converts the electrical energy passing through it into heat, which it radiates out in all directions.
2) Heating elements are typically either nickel-based or iron-based. The nickel-based ones are usually nichrome, an alloy (a mixture of metals and sometimes other chemical elements) that consists of about 80 percent nickel and 20 percent chromium (other compositions of nichrome are available, but the 80-20 mix is the most common).
3) We have established that PTC heaters are safer and longer lasting. It only makes sense then that these benefits will directly affect your bottom line in a positive way.
4) Thus it is safe to use.

B. Thermal Insulation

1) Fiber Glass

Fig .2 Fiberglass insulation.

a) Thermal insulation is the reduction of heat transfer (i.e. the transfer of thermal energy between objects of differing temperature) between objects in thermal contact or in range of radioactive innocence. Thermal insulation can be achieved with specially engineered methods or processes, as well as with suitable object shapes and materials.

b) Heat low is an inevitable consequence of contact between objects of different temperature. Thermal insulation provides a region of insulation in which thermal conduction is reduced or thermal radiation is reacted rather than absorbed by the lower-temperature body.

c) The insulating capability of a material is measured as the inverse of thermal conductivity (k). Low thermal conductivity is equivalent to high insulating capability (Resistance value). In thermal engineering, other important properties of insulating materials are product density and specific heat capacity.

2) Mineral Wool

a) Mineral wool actually refers to several different types of insulation. First, it may refer to glass wool which is fiber glass manufactured from recycled glass. Second, it may refer to rock wool which is a type of insulation made from basalt.

b) Mineral wool can be purchased in batts or as a loose material. Most mineral wool does not have additives to make it re resistant, making it poor for use in situation where extreme heat is present. However, it is not combustible. When used in conjunction with other, more re resistant forms of insulation, mineral wool can definitely be an effective way of insulating large areas. Mineral wool has an R-value ranging from R-2.8 to R-3.5.

3) Cellulose

Figure.3 Cellulose Insulation.

a) Cellulose insulation is perhaps one of the most ecofriendly forms of insulation. Cellulose is made from recycled cardboard, paper, and other similar materials and comes in loose form. Cellulose has an R-value between R-3.1 and R-3.7. Some recent studies on cellulose have shown that it might be an excellent product for use in minimizing re damage. Because of the compactness of the material, cellulose contains next to no oxygen within it. Without oxygen within the material, this helps to minimize the amount of damage that a re can cause.

b) So not only is cellulose perhaps one of the most ecofriendly forms of insulation, but it is also one of the most re resistant forms of insulation. However, there are certain downsides to this material as well, such as the allergies that some people may have to newspaper dust. Also, finding individuals skilled in using this type of insulation is relatively hard compared to, say, fiberglass. Still, cellulose is a cheap and effective means of insulating.

4) Capacitor

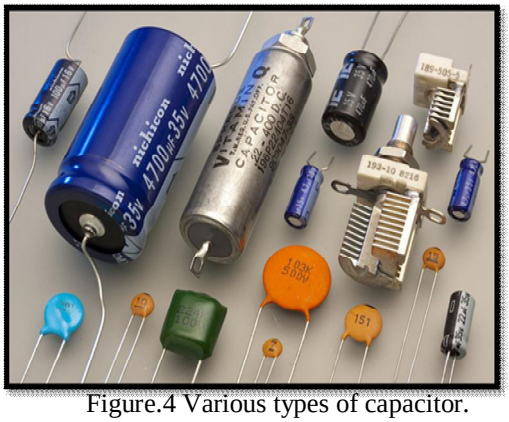

Figure.4 Various types of capacitor.

a) A capacitor is a passive two-terminal electrical component that stores potential energy in an electric field. The effect of a capacitor is known as capacitance. While some capacitance exists between any two electrical conductors in proximity in a circuit, a capacitor is a component designed to add capacitance to a circuit.

b) The capacitor was originally known as a condenser or condensator. The original name is still widely used in many languages, but not in English.

c) The physical form and construction of practical capacitors vary widely and many capacitor types are in common use. Most capacitors contain at least two electrical conductors often in the form of metallic plates or surfaces separated by a dielectric medium.

d) A conductor may be a foil, thin sintered bead of metal, or an electrolyte. The non-conducting dielectric acts to increase the capacitor's charge capacity. Materials commonly used as dielectrics include glass, ceramic, plastic paper, mica, and oxide layers. Capacitors are widely used as parts of electrical circuits in many common electrical devices. Unlike a resistor, an ideal capacitor does not dissipate energy.

5) Lithium Ion Battery

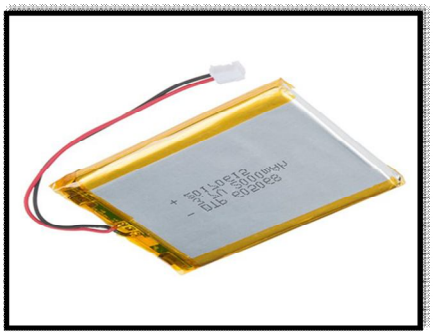

Figure 5. Li-ion Battery

a) Like any other battery, a rechargeable lithium-ion battery is made of one or more power generating compartments called cells. Each cell has essentially three components: a positive electrode (connected to the battery's positive or + terminal), a negative electrode (connected to the negative or terminal), and a chemical called an electrolyte in between them.

b) The positive electrode is typically made from a chemical compound called lithium-cobalt oxide (LiCoO2) or, in newer batteries, from lithium iron phosphate (LiFePO4).

c) The negative electrode is generally made from carbon (graphite) and the electrolyte varies from one type of battery to another but isn't too important in under-standing the basic idea of how the battery works.

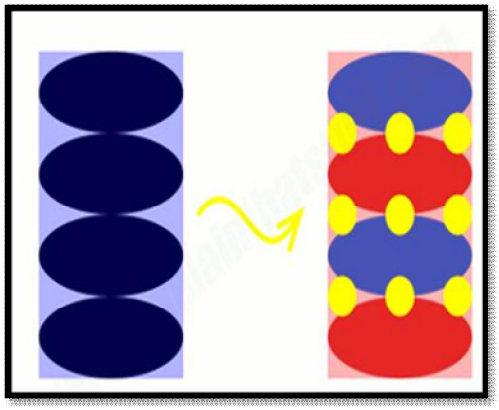

Fig 6. Storing of ions Li-ion Battery.

III. WORKING AND CONSTRUCTION

A. These gloves will consist of a 12-volt Lithium ion high-capacity rechargeable battery after the proper charging of battery the gloves can be ready to use.

B. After wearing these gloves and by pressing one single switch we can activate the heating system and electric shockers at a time simultaneously when the power supply is on the electric current start owing through the heating element and this causes increase in temperature of heating coil.

C. A typical heating element is usually a coil, ribbon (straight or corrugated), or strip of wire that gives o heat much like a lamp lament. When an electric current flow through it, it glows red hot and converts the electrical energy passing through it into heat, which it radiates out in all directions.

D. When you apply a voltage over the two plates, an electric field is created. Positive charge will collect on one plate and negative charge on the other. And this is what the physicists mean when they say that a capacitor works by storing energy electro statically in an electric field.

E. If you have an object or area that is at a certain temperature, you may want to prevent that material from becoming the same temperature as neighbouring materials. This is usually done by employing a thermal insulation barrier. If the air outside is cold, you may want to protect your skin by wearing clothes that keep the cold out and the body warmth in.

F. If your house has cool air inside during the summer, you may want to prevent the temperature from becoming the same as the hot air outside by having the house well insulated. If you have a hot drink, you may want to prevent it from becoming room temperature by putting it in a thermos bottle.

G. In any location where there are materials of two drastically different temperatures, you may want to provide an insulating barrier to prevent one from becoming the same temperature as the other. In such situations, the effort is to minimize the transfer of heat from one area to another.

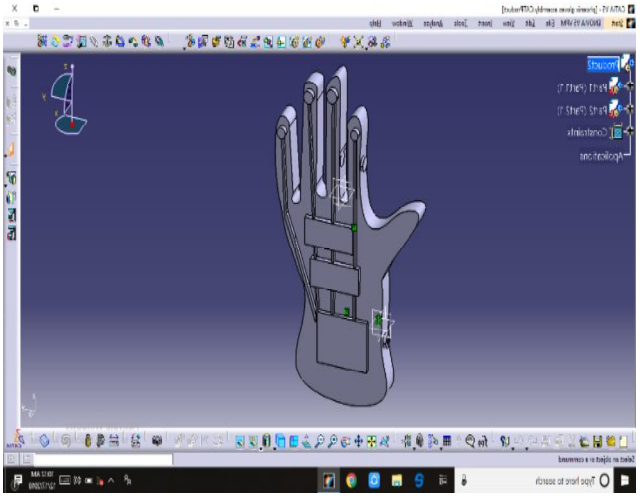

Figure 7. Assembly of Phoenix Gloves.

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IV. CONCLUSION

Women will be able to walk alone during night considering their own safety by putting the “Phoenix Gloves”. Women will be able to fight alone with the attackers without any fear. She will feel safe, concerned and free while roaming anywhere, also she can go freely in unknown places by keeping the “Phoenix Gloves”. So the device will contain PTC (Positive Temperature Coefficient) heating element, Capacitor, thermal insulation etc. All the components will be used with the help of Li-Ion battery. When the Li-Ion battery is fully charged the device is ready for work. Now women can use it and the attackers will be in danger and they will not try to harass any other women even in their dreams. And women will be fully empowered and feel secure while walking at night alone.

V. ACKNOWLEDGMENT

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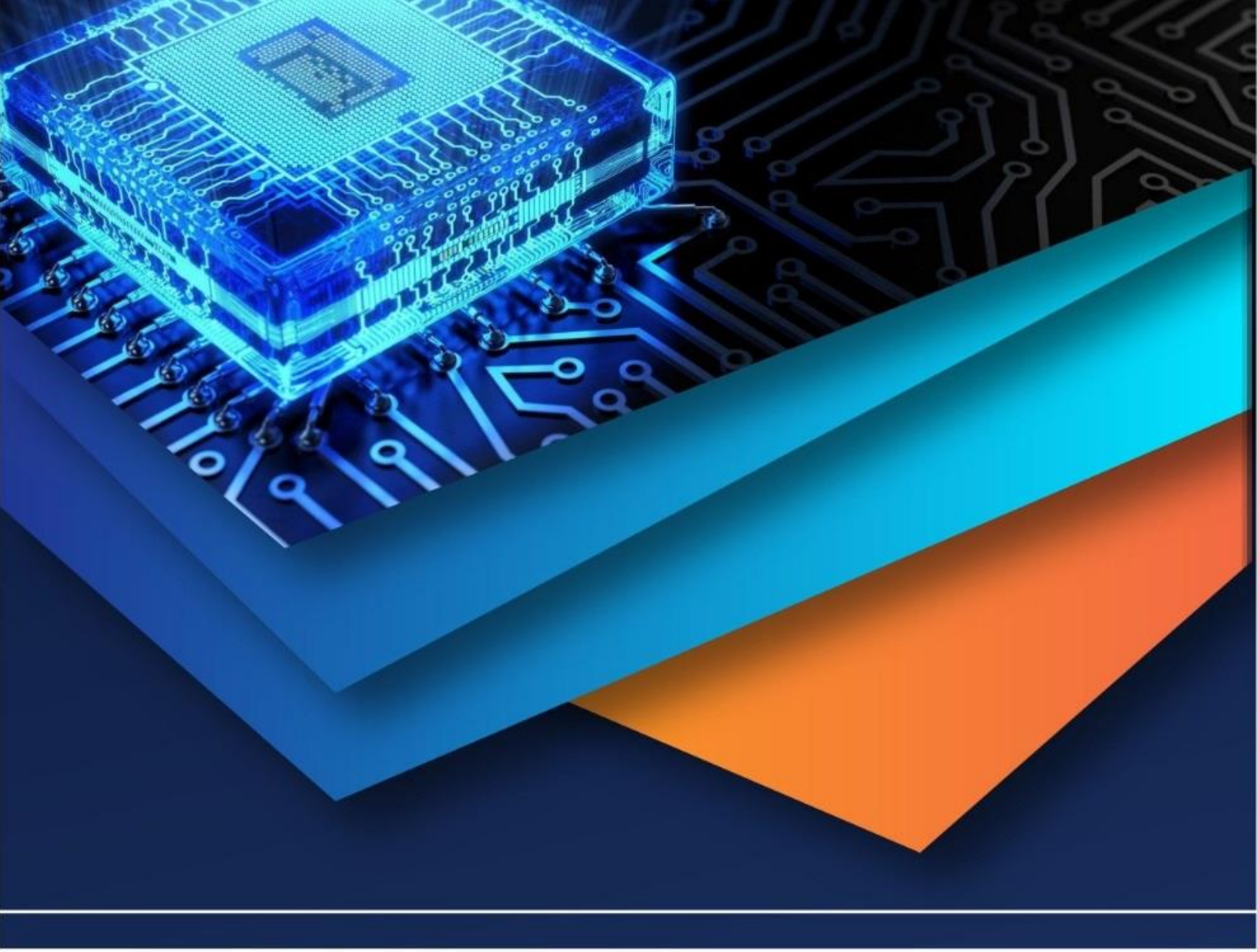

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