Handy Air Cooler Design to Face Rising Temperature Outside the Home

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Abstract- Summer Egypt hot, and characterize by weather day strongly heat , which increase inflammation and hotter with the passage of summer days , but a little breeze refreshing , and increase weather suffocate Egyptians to the inability of most of them to go to the resorts as a result of the summer in the intense heat . The problem with research in high temperature in summer and especially in open spaces outside the home so that the sun shines strongly the length of the day and open spaces difficult to control or deodorants out , causing harass the people and their sense of tension during the walk may cause overheating damage greater for patients chronic diseases. The research aims to contribute to solving the problem of high temperature in summer or minimize their effects and the design of cooler air can be carried during a walk in the open spaces outside the home. The Researcher was able to design Air cooler Manual to cope with rising heat in summer and especially outside the home.Users expressed interest in the device , because of the high temperature and the intensity of the need for such devices to be used in the street.

Index Terms- Air Conditioner, evaporative cooling**,** Handy cooler, Hand Fan, potable cooler, Smart Fan.

I. INTRODUCTION

The global temperatures upward trend rates Variable , and often return the natural variability in temperature to three factors , namely solar activity, volcanic eruptions and global warming . Many regions of the world experienced during the summer months, waves of intense heat and longer summer current exceptional in high temperatures , making some describe him as the most inflammation and heat-up time , because suffered some of the troubles during the fasting month of Ramadan , which occupied most summer months heat month July.

Summer Egypt hot early this year, and was characterized by weather day strongly heat , which increased inflammation and hotter with the passage of summer days , did not enjoy the Egyptians over the quarter , but a little breeze refreshing , and increased weather suffocated them to the inability of most of them to go to the resorts as a result of the situation political solidarity with the summer in the intense heat .

high air temperature is normal as a result of environmental pollutants, where stands the planet since the past several years bewildered between environmental pollutants and industrial and messes human nature and high greenhouse gas a second carbon dioxide in the air by exceeded barrier 400 ppm in the month of May this year, a measure historic, did not happen since the appearance of man on earth, according to the findings of meteorologists.

high temperatures during the summer in Egypt is an element of global system dogging all States, the world entire running out towards the rise in temperature of about four degrees Celsius by the end of this century, which is revealed by the World Bank report warning of failures to address climate change, which threatens changes catastrophic affecting the millions of people and include high rise in temperatures, shrinking global food stocks, and rising sea levels.

After the presentation of the current image of the Earth's climate in general and the climate of Egypt in the summer, in particular, find industrial designer in this area a role in reducing the temperature in summer in open places where the sun's heat directly, works search in that area on the design of air cooler can be carried during a walk in the way to overcome the high temperatures experienced by man and Egyptian user.

A. The research problem

The problem with research in high temperature in summer and especially in open spaces outside the home so that the sun shines strongly the length of the day and open spaces difficult to control or deodorants out, causing harass the people and their sense of tension during the walk may cause overheating damage greater for patients chronic diseases

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B.Objective of this research

the research aims to contribute to solving the problem of high temperature in summer or minimize their effects and the design of cooler air can be carried during a walk in the open spaces outside the home.

C.Significance of the research

Interested in research to find a role for the industrial designer facing high temperature, research is working to reduce tension and stress from the heat and the crowds in the street, also works to help patients of chronic diseases to overcome the excess heat.

II. PREVIOUS STUDIES

The Researcher wants to treat the problem in a way different from what others had previously dealt with so exposed search for some products the study as follows:

A. Handy Cooler Small Fan

The original patented handy cooler, the world's first hand held Personal air cooler

This is the authentic Handy Cooler. Featuring efficient & compact design, precision-fit components, and sturdy construction, the Handy Cooler allows user to enjoy him in comfort no matter what temperature conditions have to deal with as shown in figure (1).

Figure 1.shwing Handy Cooler Small Fan

We can use it at home, at school, in the office, at sporting events, on trips – Handy Cooler can go wherever you need a breeze of cool, refreshing air specification as follow and as shown in figure (2):

1) 15 knot breeze cools air up to 30°F (subject to ambient temperature and humidity)
2) 30dB whisper-soft turbine is quiet, appropriate for sleep or office use.
3) Just add water to activate patented air conditioning feature.
4) Exceptionally versatile – use hand-held, desktop, attach to any surface; airflow adjustable through 90 degrees.
5) Runs on 4 AA batteries or USB connection.
6) 1-year manufacturer's warranty.
7) Available in stylish black, blue, or pink.

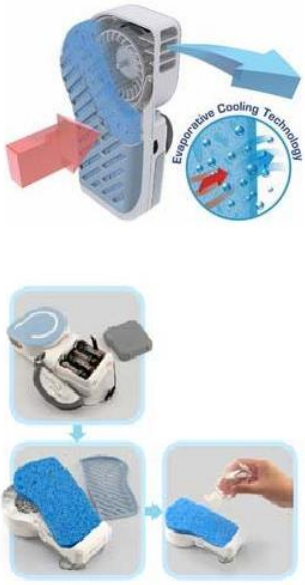

Figure 2 .showing Handy Cooler Small Fan internal components

Air cooling process delivers cool air up to 30°F cooler than ambient environment. Quick and easy setup. Wet the cooling filter.

Similar to large air cooling units and swamp coolers, the Handy Cooler utilizes the principles of 'evaporative cooling. To activate the air cooler, we simply need to wet the included cellulose cooling filter and Handy Cooler will do the rest.

The turbine draws air through the moistened filter, directing the air cool onto you. The process transforms uncomfortable hot air into a cool breeze (up to 30°F cooler) that refreshes and satisfies us.

The cooling performance may not be as powerful as compressor based air conditioners, but if we are looking for a lightweight and portable solution to take around anywhere, evaporative cooling is the only option.

Special care was taken to ensure that the Handy Cooler design looks as good as it performs. The ergonomic grip is comfortable to use all day in hand held mode, with a special texture for improved sensation, the padded hand strap keeps the unit secure and prevents slippage as shown in figure (3). The high quality plastics used are strong for durability, while maintaining lightweight properties to prevent fatigue. We designed this to encourage to take Handy Cooler with you wherever you need it , carry it easily in a purse or sports bag while on the go.

Unlike knockoff imitations, Handy Cooler's precision components ensure proper function. In contrast to the knockoff replicas, our cellulose cooling filter is designed to fit tightly in its casing without any gaps that may cause air leakage or reduced cooling capability. Our cellulose cooling filters are treated with an anti bacterial compound to ensure our health when using the device. Filter replacements are shrinking wrapped to guarantee freshness and unmatched quality.

This is not a misting fan, neither we nor our clothing will get wet. No pumping is required, Handy Cooler is fully automatic.

Figure 3.showing Handy Cooler Small Fan outdoor using

B.Smart Led Hand Fan with Flash Words

Programmable message fan
will keep us cool while we are watching amazing logo flashing light patterns LED mini fan with customers' flashing logos . Logo flashing mini fans have soft flexible fan blades with embed ded LED when the hand
held fan is turned on, it not only keeps us cool but the LED on fa n blades make amazing logo light patterns in air sure to be a hit for concerts, fireworks display vendors,
dance and events ,colors: black, yellow, red, blue, green, silver, I mprint area: 1 x 1" mini led message fan as shown in figure (4).
7 led lights also can have customized message can printing logo LED holiday decoration, mood light, Christmas lighting ,Christmas gift ,LED gifts ,Electronic Gifts ,flashing glass ,promotion gift ,promotional gift ,glassware ,drink ware ,flashing juice cup.

Figure 4 .showing smart hand fan

C.Mini Air Conditioner

We must be wondering what this little air conditioner can do for us. We do not have to worry about extreme heat when we are out relaxing in a tropical island or simply lounging around at home. The conditioners deliver a cool breeze even in the hottest conditions. The 30 degree Fahrenheit cooling system makes sure that we do not sweat ceaselessly in the hottest weather. The creates mini air conditioner cool breeze we need to be able to relax wherever we are. The conditioners cooling performance may not be as powerful as compressor based air conditioners, but if we are looking for a lightweight and portable solution to take around anywhere, evaporative cooling is the only option as shown in figure (5) .

Figure 5 .showing mini air conditioner

After handy cooler and mini air conditioner as well as some hand fans and used outside the home researcher noted that the proposed design is different in terms of shape , internal structure and components that will be offered by search below.

III. METHODOLOGY

A. The proposal Design

The Researcher was able to prepare drawings illustrate the design in terms of shape shows the initial design elements in preparation for the preparation of prototypes and engineering drawings , this form as shown in Figure (6)

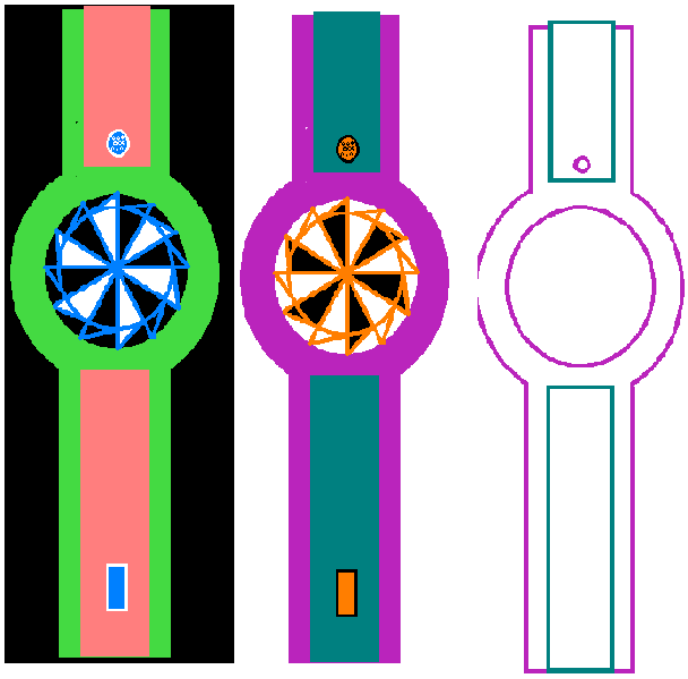

Figure 6 .showing proposal design illustration

Composed of the body of an external Multi inside DC motor operates fan with battery 1.5 volts and is installed behind the fan net made of natural fibers to absorb the cold water that falls from the top through the valve located in the container snow installed top of cooler as shown in Figure (7) which shows the basic elements of cooler as follows:

1)Air cooler outer body
2) Portable ice container
3) Key control valve cold water
4) Net made of natural fibers(wet filter)
5) Circuit for charging the battery and operating
6-Charging pins

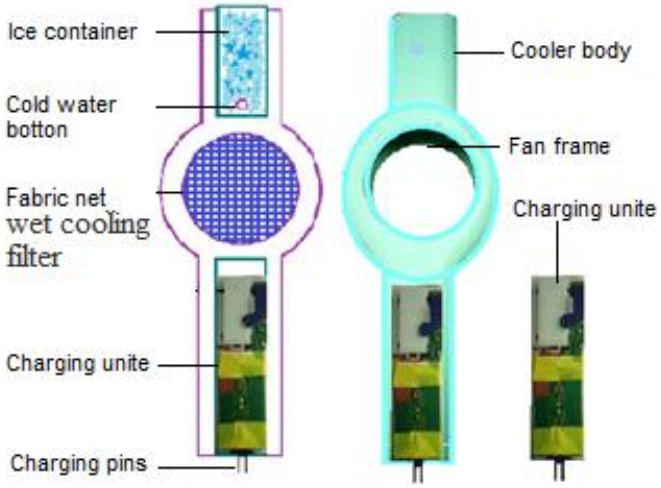

Figure 7 .showing proposal design elements

After selecting the items through sketches and illustrations and determining dimensions , Researcher could implementation models experimental raw material to hold preliminary experiments as well, and the following experiments make adjustments implementation of the first sample material can be implemented in ways that samples using Teflon was operated machines metalworking essential for the implementation of the exoskeleton or body air cooler and installation of the constituent elements of the air cooler to appear in its final form as shown in Figure (8)

Figure 8 .showing proposal design prototype model

View Finder device on a set of users , as shown in Figure (9) for testing by the poll , as well as determine the advantages and disadvantages are also to be adjusted later which will mention through the results.

Figure 9 .showing using and evaluation proposal design prototype model

B.The proposal Design Description

The cooler that can cool air up to 30F. This cooling fan is the closest thing to a hand held mini air cooler, Use it outdoors or keeps it indoors as a hanging fan. Provides gentle cool breeze. Add ice to ice container. Ambient air is forced through the wet cooling filter

(fabric net) and cools down. Works best in dry and hot climates. Fully portable and mobile, take it literally anywhere we want. Variable power control. Ergonomically designed, user friendly, and easy to use. Environmentally friendly. Best for hot flashes, home and office use, camping, outdoor sports, watching the game, and more.

IV. RESULTS

After viewing the radiator on a set of consumers , the results were as follows :

1) Users expressed interest in the device , because of the high temperature and the intensity of the need for such devices to be used in the street

2) a sense of relief after using the radiator in an atmosphere of high temperature

3) The most important amendment requests to increase the size of container and snow of the advantages it portable

4)Optimum cooling performance achieved under hot and dry environments.

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