Smart Air Cooler

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Abstract- In the modern world of 21st century to get cool air to the work space efficiently by resolving the drawbacks of old and bulky conventional cooler, the smart air cooler that is sustainable having automated features, compact and size changing design to use it as multipurpose is made. The air cooler that makes the area of workspace cool with better results, effectively, soundlessly, vibration-free, easy to use product and a true innovation for a common man with many more advantages is presented in the research paper. The smart air cooler is made simple and compact to use at any place that even consumes less space and electricity power. It is made totally environment friendly and healthy to use by not only avoiding harmful gasses to use but it even prevents the rise of mosquitoes by making it close to the environment.

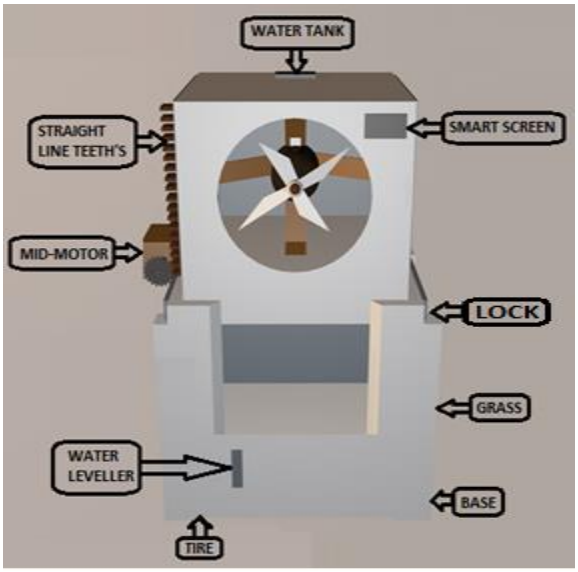
Keywords-Compact and size changing design, consumer friendly, resolves the drawbacks of conventional air cooler, sustainable.

INTRODUCTION

In the hotter world due to global warming, the earth's temperature is rising day by day that has many negative impacts on human health. To resolve the small but necessary household product drawbacks and make it more efficient to use in any climate, the smart air cooler is made. As conventional air cooler looks more messier and covers a large area of the workspace and produces heavier sound and vibrations with less efficient working results in poor concentration and irritation to user as the main drawbacks of the air cooler and people are shifting towards air conditioners that even has negative impact on our environment and health by feeling user sick in long term due to the uses of harmful gasses in air conditioner that attracts viruses and microbes to the workspace.

As understood above, we need a sustainable, environment friendly, healthy to use and innovative product with compact design that provides cool air to the workspace effectively and moisture free. The smart air cooler is made for efficient working, hi-tech advanced automated features controlled with smart screen via micro-controller to execute the command with negligible disadvantages than the conventional air cooler. It is made compact that can change its size according to the given input for space saving feature and multipurpose use. The air cooler has efficient motor used to provide cool air effectively with less power consumption.

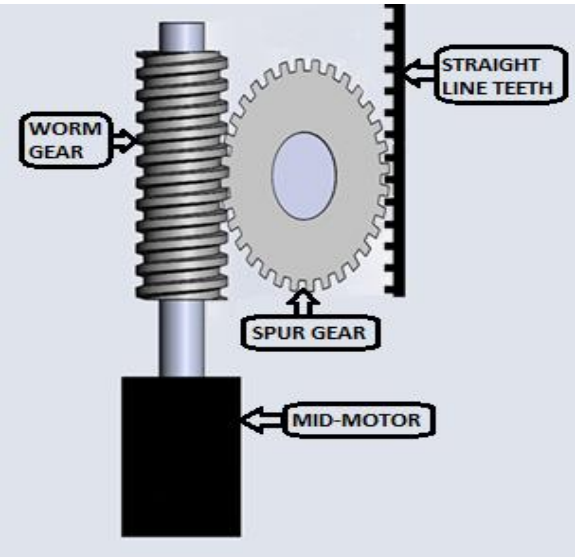
The diagram of the smart air cooler is presented below-



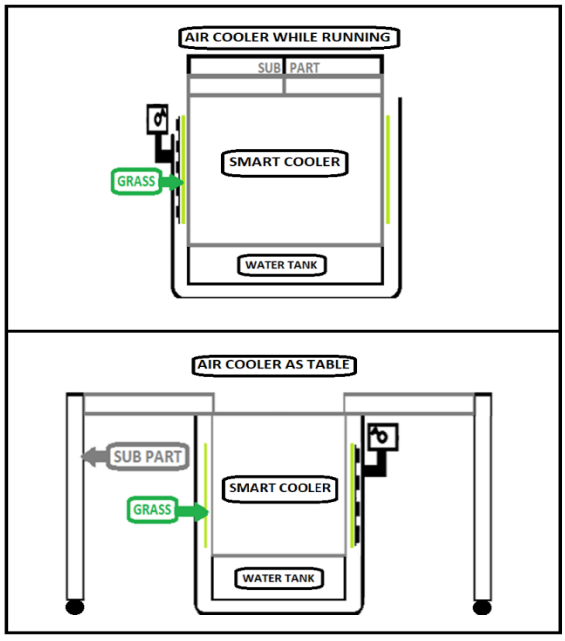
TECHNICALITIES TO CHANGE THE SIZE OF SMART AIR COOLER

The air cooler is made smart enough and focused on automated features to execute the various command by smart screen via microcontroller. The smart air cooler is divided into two halves connected by a lock mid-motor in the middle to change the size of smart air cooler according to the given input. The upper part of the air cooler goes inside the hollow lower part of the air cooler to reduce the size of air cooler by mid-motor to rotate accordingly that even extend the size of air cooler to the fullest according to the input given. The mid-motor controls the straight-line teeth attached with the upper part of the air cooler connected with gearbox having shaft, spur and worm gear to increase the efficiency, maintain the size of the smart air cooler by avoiding straight-line teeth to glide. The mechanical diagram of the mid-motor attached with

straight line teeth of upper part of smart air cooler is presented below-

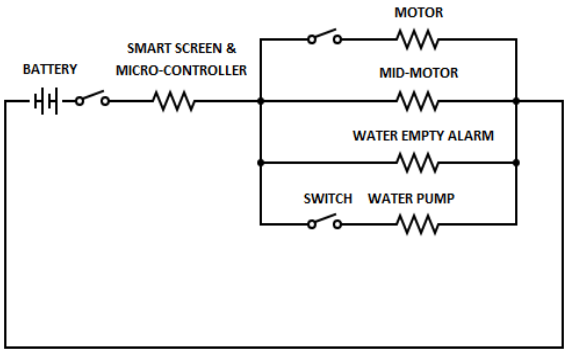


Other than the size changing feature, the smart air cooler has two subparts on its top two opposite sides that are made flexible to go in and out of the smart air cooler that can be extended by the user. One sub part can move horizontally while another sub part is attached to the first one that can be rotated to touch it to the ground to provide more strength to the first sub part to use the same air cooler in small size as extended table as multipurpose device and sub parts would not even affect the cooling results of air cooler and diagram of the sub part of smart air cooler is given ahead-



Hi speed brushless motor with proper coils is used in the smart air cooler to provide cool air effectively and soundlessly with attaching rubber at essential points as a shock absorber for making the smart air cooler vibration free to use.

The smart air cooler uses only necessary electronic components for making it energy efficient to consume less electricity power. Electric circuit diagram with major electronic components of the smart air cooler is given below-



WATER IN THE SMART AIR COOLER FOR EFFICIENT WORKING

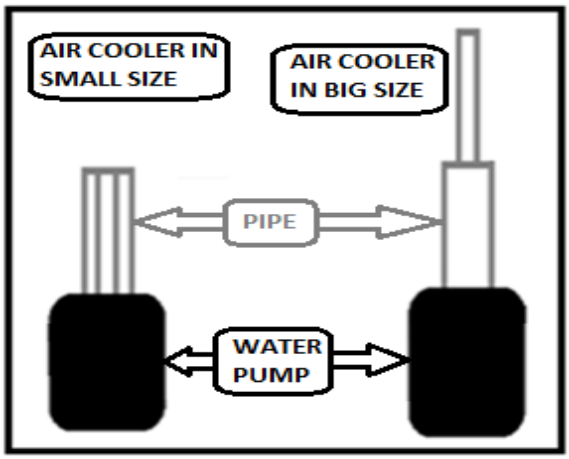
The water tank is situated in the lower part of the smart air cooler to reduce the weight in the upper part of the air cooler to work more efficiently and water tank would be separated to not affect the upper part of air cooler to change the size that even prevents the rise of mosquitoes to avoid infectious diseases and water do not come in contact with the environment to make it cleaner for long term use to cool the air.

The air cooler is even made moisture-free by using honeycomb grass with thin sheet membrane attached with grass to trap big molecules of water to make the air cool with less humidity and moisture for healthy environment and user convenience.

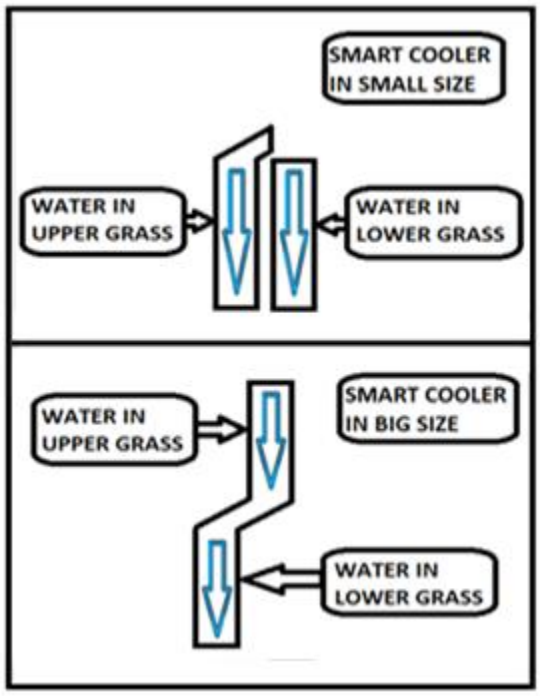
The water empty alarm is used to know the less level of water wirelessly and smartly, when all water of smart air cooler is absorbed and evaporated for converting hot air into cool air to the workspace through honeycomb cooling pads.

The extending water pipe is used in the smart air cooler to pump the water to grass in any size of the air cooler and hole is made in the bottom of upper part of the air cooler to extend the water pipe to the top of the smart air cooler. When the air cooler would be in big size, the water pipe would extend and when the air cooler

would be small in size, the water pipe would shorten as the air cooler size to flow the water in upper and lower grass of air cooler simultaneously to provide cool air.



Both the upper and lower grass would get water in any size of the smart air cooler simultaneously to convert hot air into cool air effectively. The diagram of flow of water in upper and lower grass of the smart air cooler is given below for both small and big size of smart air cooler-



CONCLUSION

The smart air cooler, presented for the user of modern era that provides better air-cooling results with more advantages. It is made to focus on automation and effortless features with multipurpose uses that even consumes less electricity power for providing cool air. It is made sustainable household air cooler that is very effective, efficient and affordable with consumer-friendly features. It even resolves sound and vibrations produced by conventional air coolers by making smart air cooler soundless and vibration free.

APPENDIX

Recycled plastic can be used for making the smart air cooler for getting proper insulation to avoid electric shock to the user and even avoid rusting.

Additional sensors can even be used in the smart air cooler for user convenience to execute the various commands even with multidevice connectivity for effortless and wireless features.

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