

THE DOON SCHOOL (INDIA)

THE WINDY WINDOW - AN INDIAN ECO-COOLER PROJECT

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Windy window is an extension of research project carried in Bangladesh named Eco cooler. The aim of the research is to study how the cooling effect of eco-friendly air-cooler can be enhanced and make it effective in context of Indian subcontinent. The research is based on the hypothesis that, due to adiabatic expansion, large cooling effect will be produced if a large air flux is compressed through a narrow inlet. Hence the research question addresses *the effect of size of inlet on the cooling of a room*. The study is based on the cooling affected with the change in the size of the inlet of the air flow.

A number of cones made out of waste plastic (coca cola) bottles of base diameter 10 cm were used to allow the air to pass through the inlet (mouth) of bottle of diameter ranging from 3 cm to 0.5 cm at constant speed.

It has been found that the cooling effect is maximum when the inlet diameter of the bottle was 2 cm there by producing a temperature difference of 3 to 4 degree Celsius in a wooden box of size 6 x 4 x 4 feet with respect to surrounding. The cooling effect is studied by using 16 inlets made on four feet wooden wall of the box.

The experiment was performed in moderate temperature conditions of the city in temperature range 35 -40 degree Celsius. The success of eco cooler depends on the temperature and humidity conditions of the place.

A LIGHTNING STEP FOR A LIGHTNING FUTURE

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Laser operated board is an electronic device made with an objective to make an effective tool for teaching at primary level that works using laser, LDR and arduino to produce the desired effect of laser light on a display board. The project is an effort to design a board that could be easily achievable replacement for smart board at primary level learning. It would change the mode of education for the under privileged and make them learn fun way with minimum cost.

The device consists of two parts; the writing pad with an array of LDR's (Light dependent resistances) at user's end which operates with Laser pen and the display board made with LED's to show pattern drawn on writing pad. When light from laser pen strikes the LDR, it sends inputs to the Arduino which manipulates this information and switches the corresponding LED on. The desired effect can be produced on the display board by choosing suitable combinations of LRD – LED combinations. The model requires the least possible setup and is easy to use. An added advantage of the board is its utility. The device acts as writing pad that operates at 5 V power supply. This design of laser board not only minimizes the use of chemicals used in the manufacturing process of blackboard markers and accessories but also makes it much more efficient in terms of silicon used in its hardware.

The model works well when operated on one to one basis. An improved version of the device would be useful in making classrooms more interactive, increase learners' participation and used by the teacher facilitator to edit the text simultaneously.