

Clay Air Conditioner(CAC)

IP Application No: SA1020245805

PROBLEM DEFINITION

Global warming is one of the biggest environmental problems in the world, Because of that the temperatures rising , it forces us to use air conditioners frequently to cool and improve the atmosphere. However, the problem lies in the high costs of air conditioners, which causes economic collapse. Therefore, it is necessary to tray provide air conditioners at the lowest costs with the least electricity consumption, this is where our idea began.

INVENTION DESCRIPTION

- The idea of the project is based on inventing an air-conditioning device that saves electrical energy and has Suitable quality in cooling.
- It reduces electricity consumption at the lowest costs. Here, pottery was used, which is characterized by its high porosity and cools its surroundings.
- The innovative part is reducing temperature losses by using aluminum balls inside the vacuum clay cylinder that are cooled with cold water. This gives a longer time to stop the operation of the compressor, ranging from (22 to 35 minutes).

HOW DOES IT WORK?

The compressor functions by compressing Freon gas, transferring it from a low-pressure state to a high-pressure state. It draws the Freon from the evaporator and compresses it, which increases its temperature and prepares it to move through the subsequent stages of the refrigeration cycle. This gas then cools the water within the copper pipes located between the clay and plastic layers. Simultaneously, the fan introduces outside air, which passes over aluminum balls that cool rapidly due to the metal's heat exchange properties and the high porosity of the clay, which aids in retaining the cold. The outcome is cool air and energy-efficient air conditioning.

Recommendations:

• Positives:

1. Provides electricity savings: each clay air conditioner consumes half as much electricity as a traditional freon-based unit.
2. Reaches a high level of cooling compared to other types of air conditioners.
3. Lightweight, easy to maintain, and cost-effective.

• Negatives:

1. The clay material may accumulate salts over time due to its high porosity, which can affect the smooth flow of air toward the exit vent.
2. Salt buildup can also impact the heat exchange on the clay's surface, thus reducing cooling efficiency. Therefore, it is recommended to use distilled water for cooling the outer surface of the clay unit.

INVENTION ADVANTAGES

Saves electricity with a consumption efficiency rate of 0.022 SAR/hour.

It reached a temperature of 15 to 12 degrees Celsius.

Easy to maintain periodically and inexpensive.

Contact

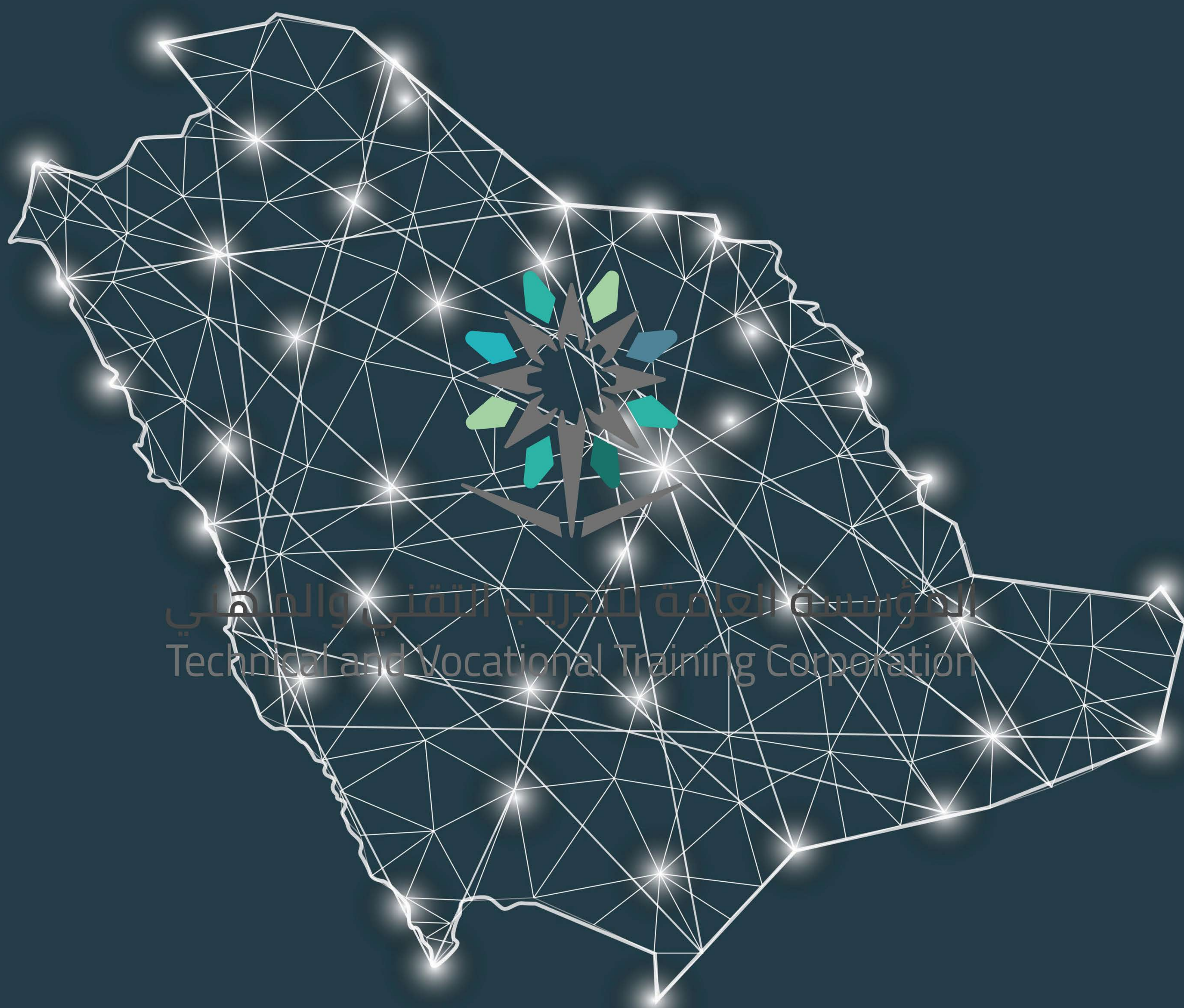
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