Perancangan Termal *Solar Coolbox* untuk Penyimpanan Buah-Buahan
(*Design Thermal of Solar Coolbox for Fruits Storage*)

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ABSTRACT

One of the cooling machine that is often used in everyday life is coolbox. Coolbox is a tool that is used as a place to store food or drink in a cold state. However, the current growing coolbox is still dependent on electrical energy derived from fossil fuels. The purpose of this research is to design thermal coolbox using electric energy by utilizing solar power plant. The design is done by utilizing the empty space (front) under the panel on the construction of solar panel installations that already exist. This study begins by determining the coolbox main component consisting of a compressor, an expansion valve, an evaporator and condenser through simulation. Then proceed with making 3D design of solar coolbox using software. The results show that the selected compressor has a power of 156 Watt and a current of 1.301 Ampere. The selected expansion valve is a thermostatic type. The selected evaporator has a power of 20 Watt and a current of 0.16 Ampere. The selected condenser has a power of 70 Watts and a current of 0.35 Ampere. This type of battery is used in solar refrigeration system coolbox is deep cycle lead acid types with a voltage of 12 V and a capacity of 100 Ah 2 pieces. The dimensions of the coolbox have length, width and height are respectively 100 cm x 75 cm x 85 cm.

Keywords: *Coolbox, Cooling Machine, Solar Power*