



THERMO-ENERGY CONVERSION

INTRODUCTION:

The world is now moving more towards pollution-free transportation and green concept, as a result, launch of electric cars, solar energy conversion in countries is getting popular. In my previous paper which was on duo engine concept we saw that charging electric cars could be difficult in countries where there is a lack of electricity supply and it might be difficult even to take power supply in remote places. So, the solution to this problem that would also fit into the go green concept would be conversion of heat into electricity, where lithium batteries in car would be charged by converting heat into energy. Solar energy is a popular concept now, and we all know that it converts light into energy, whereas, here in this concept of thermo-energy conversion we will be converting heat in the atmosphere into energy. At times when there isn't sufficient heat in the atmosphere for conversion we would be using the heat produced by the working of car as a source. Let's take a look at how this heat energy conversion system works.

WHY THERMO ENERGY CONVERSION?

Thermo-energy conversion is a concept that would help us solve a common issue that is more often referred as an disadvantage of electric cars which is charging of the batteries and low DTE (Distance to Empty). With this concept that converts heat into energy we can charge batteries easily and take source for the functioning of electric cars and its components without much difficulties. Effortless and economical means of source will make electric cars user-friendlier making the usage much easier. Easier ways to use the car means lot of people would be interested in purchasing one that will help us reduce pollution a whole lot quicker.

Using Thermo-energy conversion in electric cars or air-boost technology will not only reduce further contribution to pollution but will also help in reducing the adversity caused due to



the prior accumulation. Since we are converting the heat that is accumulated in the immediate layers of atmosphere we are reducing the heat contributing to the climate change that would bring back the normal atmospheric conditions resolving the issue of climate change. Now, Let us now look into how this conversion works.

HOW IT WORKS THERMO ENERGY CONVERSION:

Step By Step:

- 1.Heat will be absorbed through the hood and roof.
- 2.Heat will be converted into electricity by passing the difference in temperature through a series of semi-conductor cells.
- 3.The converted electricity will charge the batteries.
- 4.Electric power stored in the battery will be sent to a motor through a stabiliser to avoid power fluctuation.
- 5.Electricity that is been sent to the motor will force the motor to spin, which will convert the electrical energy into mechanical energy.
- 6.Converted mechanical energy will be sent to the wheels through a transmission.

Now, lets look through these outlined steps in detail,

For the conversion, we need to place a series of semi-conductor cells between a heat conducting medium and an heat insulating medium. Here, the heat can be sourced either from the atmospheric warmth or in times where the atmospheric warmth isn't sufficient to produce the desired level of output, the same can be got through brake energy recuperation



and deceleration energy regeneration, that is why the conversion system is designed both on the roof of the car and the hood of the car. Meanwhile, the other end that's crafted with heat insulating material can be kept cool from the car's air conditioning and the unit that's in the hood can be kept cool by having a hollow heat insulating material that can be filled with coolant to generate the needed temperature difference for energy conversion to take place efficiently. With the difference in temperature on both ends the semi-conducting cells will start pushing heated electrons towards the cold electrons and since the energy of electron surrounding near the hot end is higher than that of the cool end and it will move faster than the electrons at the cool end that will make electrons in the hot end move faster towards the cold end than the movement of electrons from the cold end towards the hot end eventually getting converted into electricity and this phenomenon is called as thermoelectric effect.

Connecting a uniform type of semi-conductor to form a cell in series within a battery will reduce the output because the wire connecting the cells will again be a metal that would produce voltage in the wrong direction opposing the voltage that's originally produced by the cell, so we use a combination that generates voltage using electron and positive particles which in other words can be said as "p-type" and "n-type" semiconductors. Combining cells in this combination to form a series will help us create efficient voltage without any loss in the transition as the one conductor that carries electrons will have positive end in the hotter side and negative end in the colder side whereas the conductor that carries positive particles will have negative end on the hotter side and positive end on the colder side enabling us to connect them in series without any reversal of voltage in the process.

Having understood the concept, let's look into some of the considerations that we need to make while constructing the conversion unit.



- ▶ Materials chosen to construct the heat absorbing medium and heat insulating medium should be such that the temperature difference it could create for the shuttling of particles in voltage production between the both must be higher, durable and constant.
- ▶ The material used for the cell construction needs to have higher electrical conductivity properties and lower thermal conductivity properties. For instance, the output got through aluminium-graphite combination cells is the highest amongst the combination of Aluminium -Iron and Aluminium-copper.

When the conversion device is constructed taken care of the above said criteria, we can attain maximum efficiency. The generated electricity will be connected to 4 batteries, 3 batteries to power the car and one to power the accessories.

Moving on to the last part, let us now look into how the converted energy is stored and used,

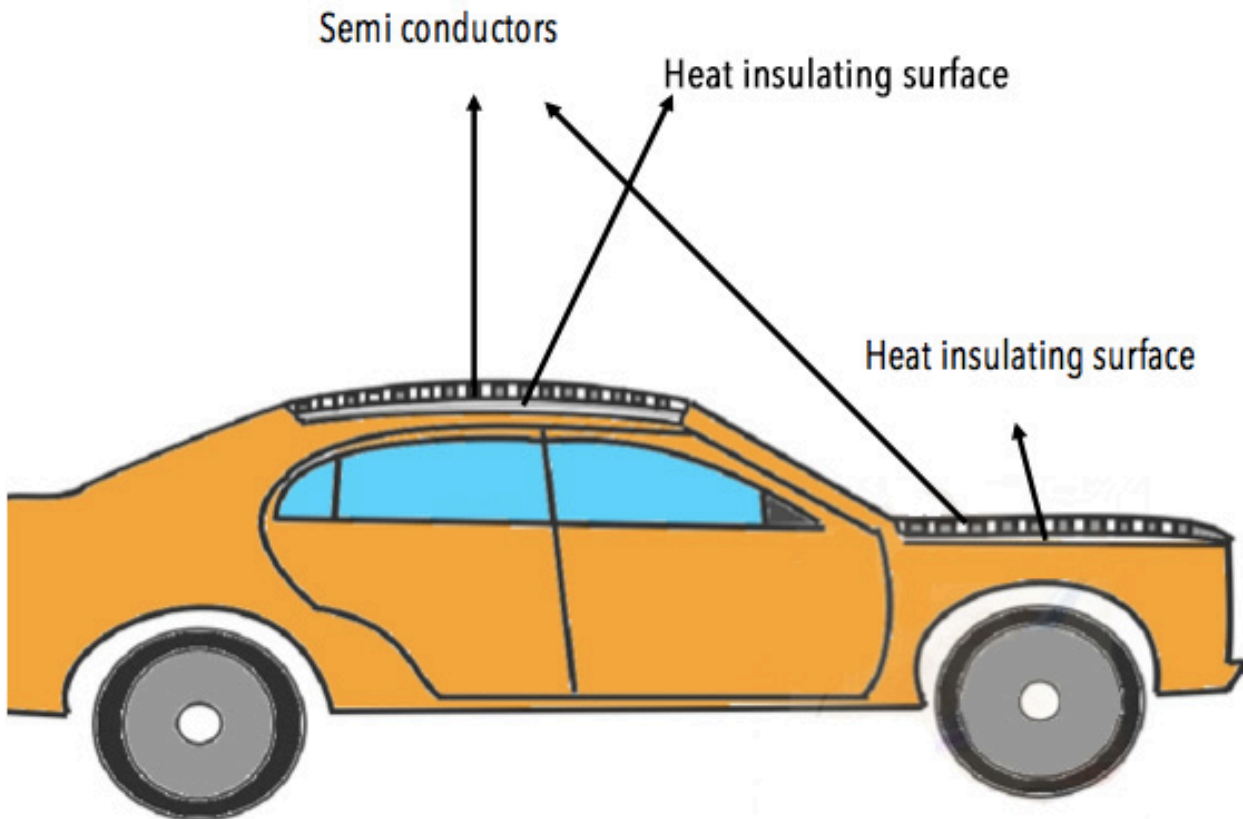
The voltage produced is connected to 4 batteries through a power stabiliser. One battery that is dedicated to the accessories is connected directly to the respective accessories and the other three batteries that's been kept to power the car is connected to the motor through automatic battery switch that uses stored energy to power car and switch when the energy in one drains to the other automatically letting the drained battery receive the energy from the stabiliser to get it charged.

The power from the battery will be sent to the vehicle motor that will force the motor to spin converting the electrical energy into mechanical energy that will be sent to wheels through transmission.

This is how the entire technology works.

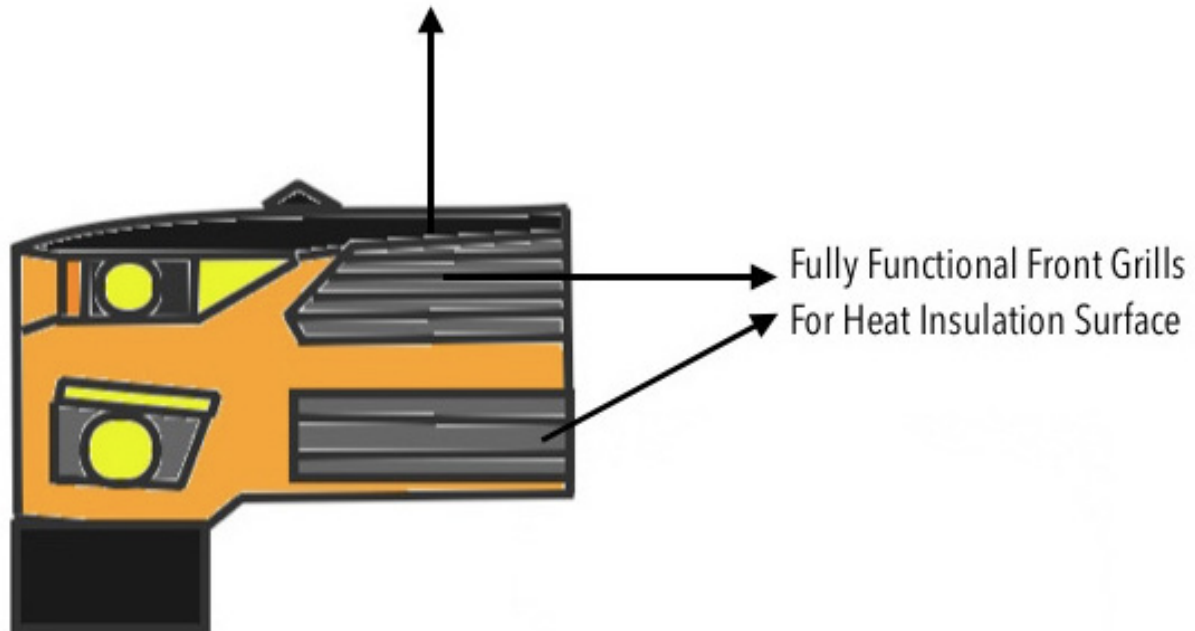
Diagram of how a Thermo Energy Conversion Vehicle would look like visually:

Side View:

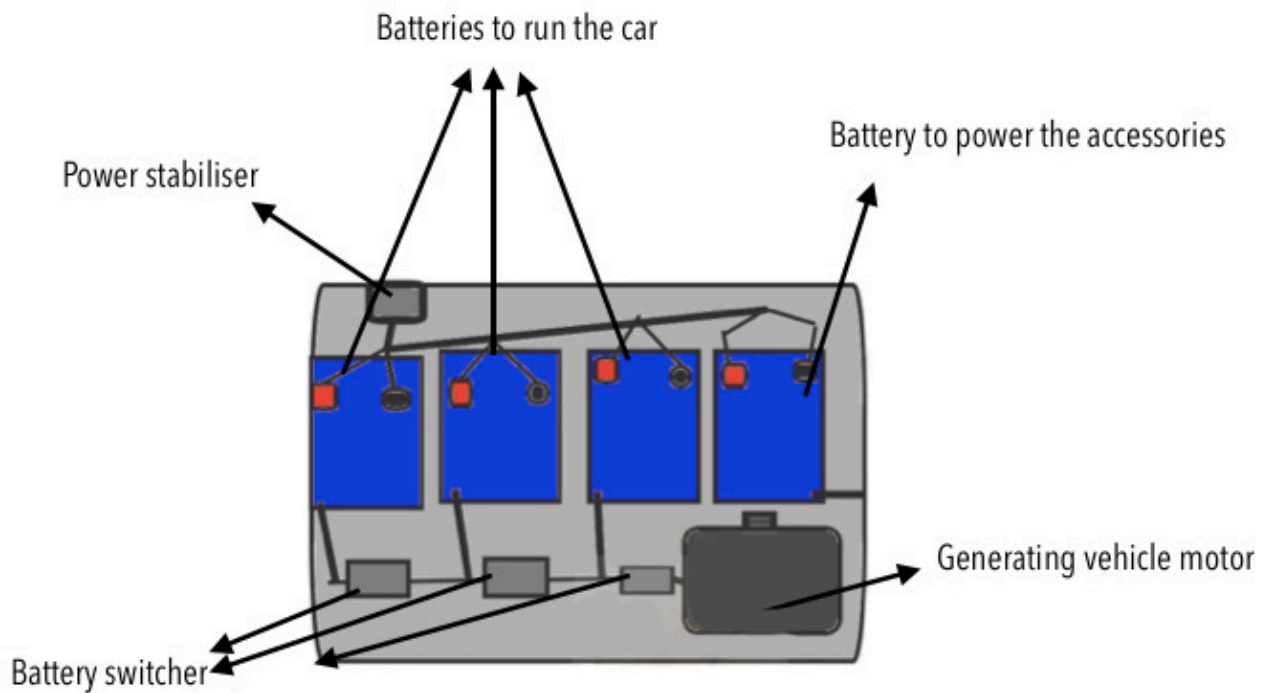


Front View:

Black Painted Hood For Heat Absorption



Under Hood:





BENEFITS OF HAVING THERMO ENERGY CONVERSION SYSTEM:

Pollution free: Using of thermo energy can resolve the existing disadvantage and make electric cars and alternative automobile mechanism more popular that will reduce further contribution of pollution caused by fuel burning in the traditional combustion mechanism.

Reducing Climate Change: By absorbing the atmospheric warmth and converting it into electrical energy, we are reducing the accumulation of heat that's contributing to global warming which would eventually reduce

No power shortage: As the car generates power for itself there is not need for a plugin charge function so there won't be any additional power consumption.

No fuel bills or additional expense on you're Electricity bills: As mentioned above the car's electric motor generates power for itself, so there will be no fuel bills.

More practical and user-friendly: Can still carry 5 people, still Perform well because its an electric motor the torque is available right when you give some throttle, Same time can take you to places with you not worrying about charging the car on long drives.

Overall low cost of maintenance: As it is an Electric motor which can charge itself you don't have all those complicated parts that a combusted engine has so no worries on service bills considerably cheaper to maintain than a combusted engine.

Instant traction: As it is an electric motor the power and torque delivery would be instant compared to a combusted engine, so it adds to the effortless drive-ability and performance.



No engine noise: As it is an electric motor is will be no noise inside the car that you used to hear from a typical combusted engine car.

Can be used as a secondary engine too: While this thermo electric vehicle technology can keep the car moving by itself, you can also use this technology as a secondary power plant of the car.

CONCLUSION:

So the thermo energy conversion system for an electric car is something that will benefit not only the automotive industry but also the world to have a greener and pollution free environment, I hope this paper helps designing electric cars in a more user-friendly and practical way.