

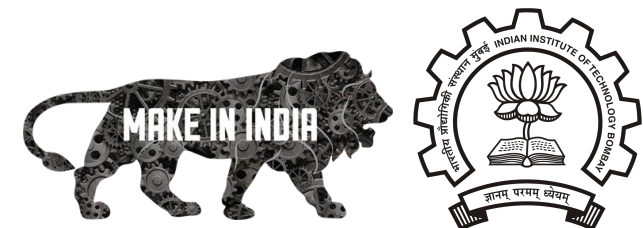
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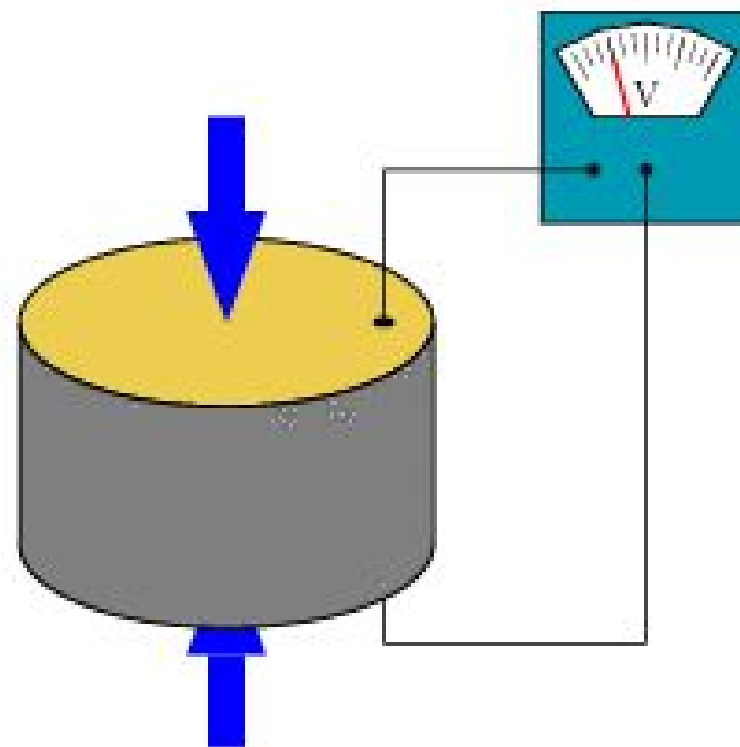
## Energy Harvesting using PiezoElectric Effect

Team ID: E-024

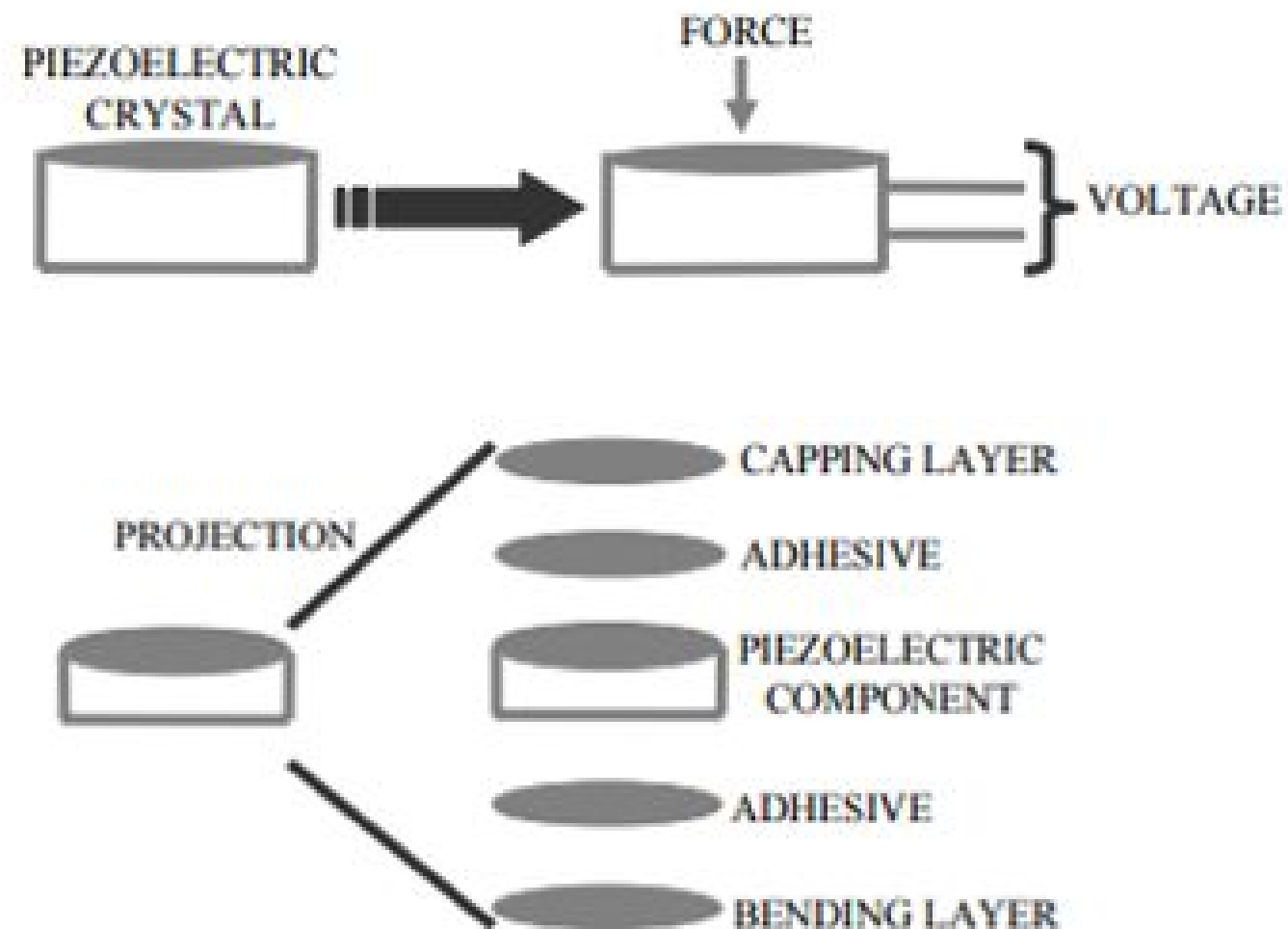


# What is PiezoElectric Effect?

When pressure is applied on an object, a negative charge is created on the expanded side and a positive charge is created on the compressed side. As this pressure is relieved, electric current flows across the substance.



# How does it work?



# PiezoElectricity

Piezoelectricity is electrical energy harvested from mechanical pressure such as walking motion.



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# Problems?



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# Remote Areas





# Bulky Batteries



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# Greenhouse Gas Emissions



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- For each unit of energy, 0.93Kg of carbon dioxide is emitted.
- On an average, thermal power plant of 2.5MWatt capacity which uses lignite coal as the source produces 55,800 Kg of carbon dioxide per day.



The global electricity demand will grow by almost 80% during the period of 2012-2040 in the International Energy Agency's New Policies Scenario.



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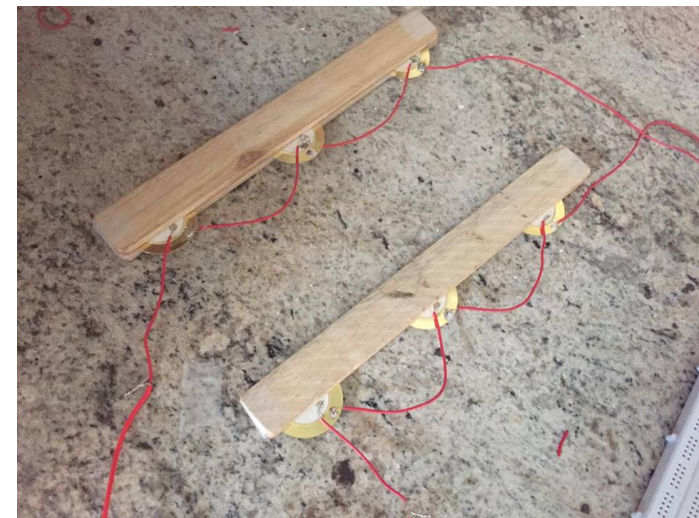
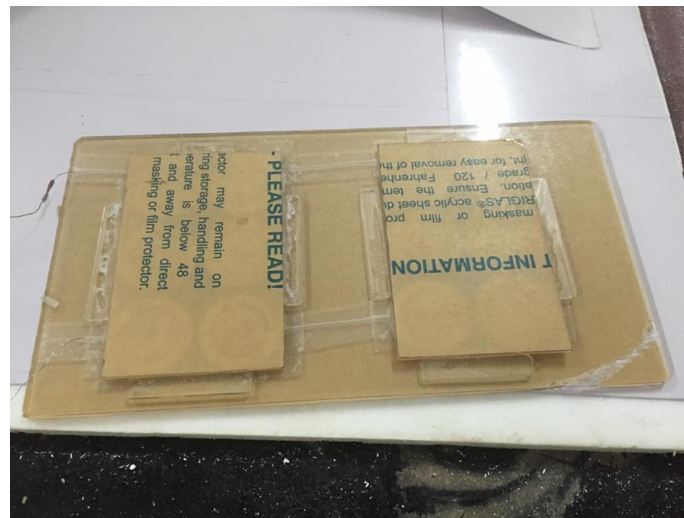
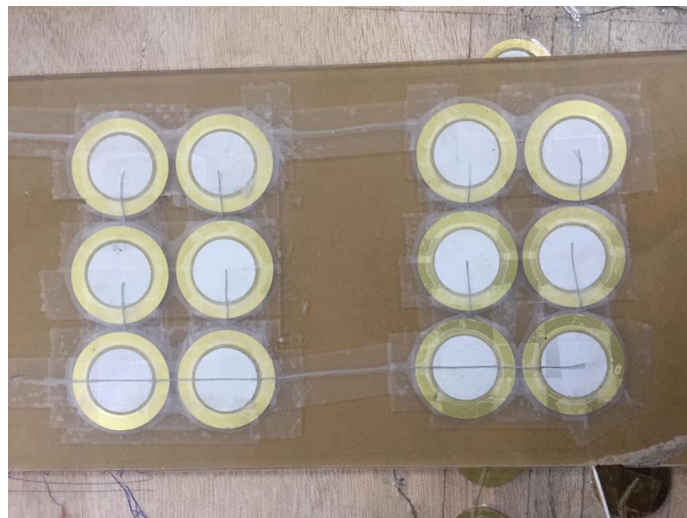
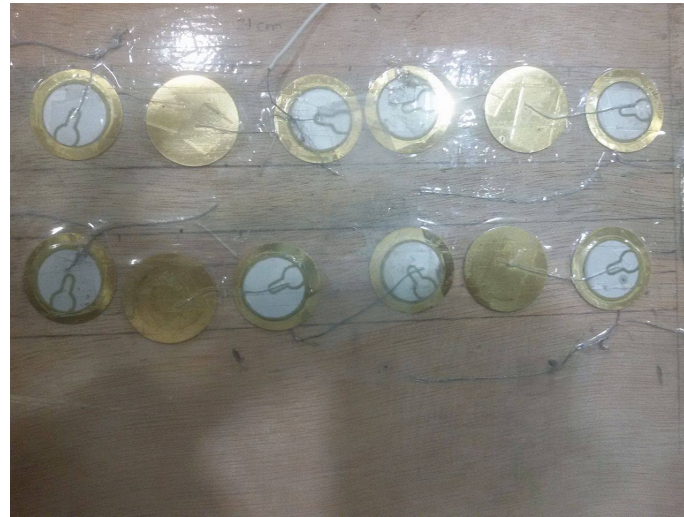


# Two Days!



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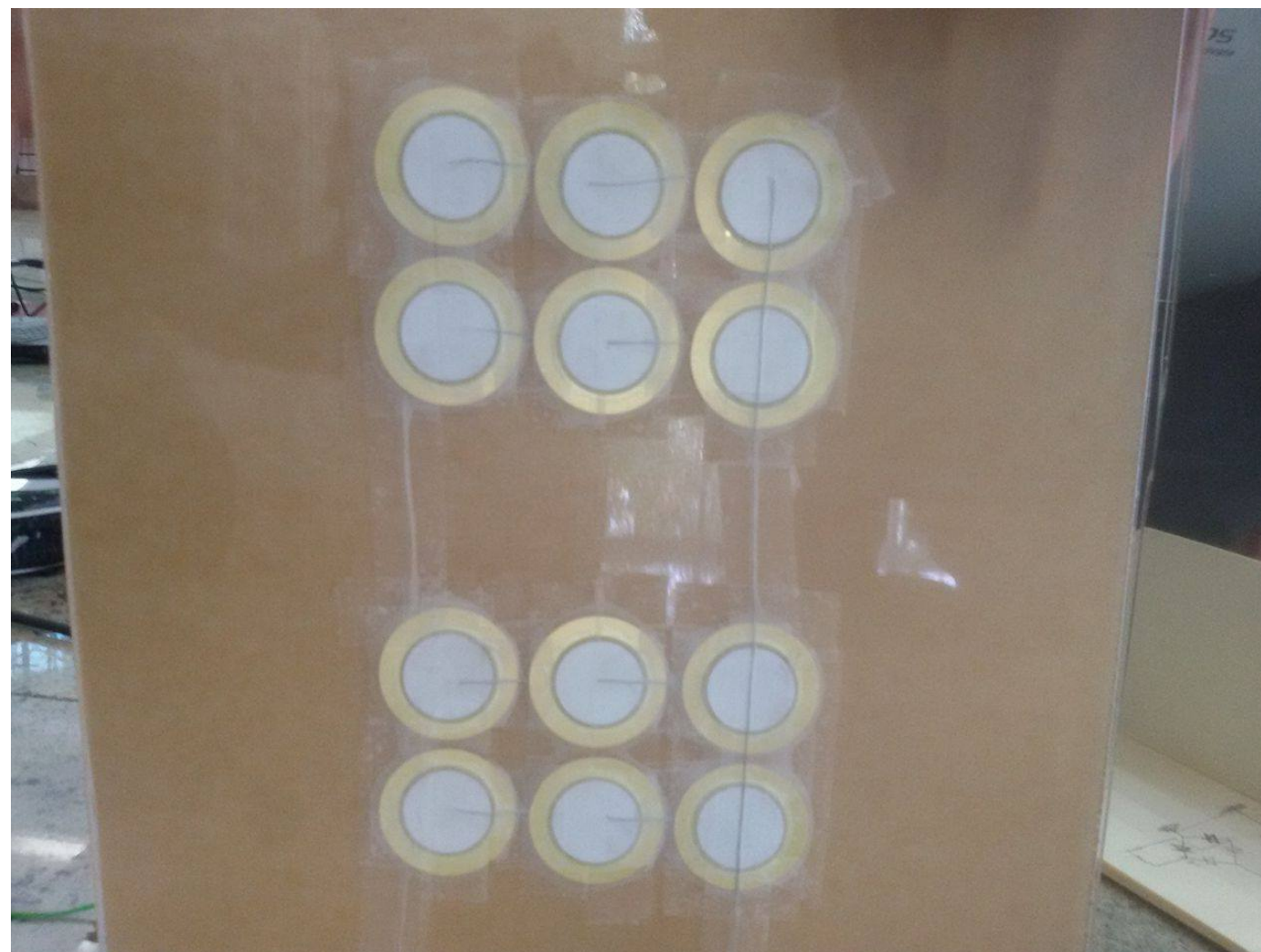




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# Present Scenario



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1. Each footfall generates up to 7 watts at 12 volts DC, enough to run an LED street lamp for 30 seconds.
2. Pavegen floor tiles, during the peak hours will be stepped upon 926-1889 times per hour which produces about **56 kWh** per weekday.



# Innowattech Energy Harvesting Systems based in Israel

Innowattech's solution is capable of producing about **400 kWh** from a **1 km** stretch of generators (assuming 600 vehicles go through the road segment in an hour), enough energy to power 600-800 homes.



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# JAPAN

1. Applied Piezoelectric effect on Tokyo Railway Station.
2. Nearly 40,000 people visit the station on an average day.
3. The total amount of floor-space will add up to around 25 square meters, and they expect to obtain over **1,400kw** per day – more than enough to power their systems.



# Applications



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# PIEZOELECTRIC FLOOR



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# POWER GENERATING DANCE FLOOR



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# POWER GENERATING SHOES



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# GYMS



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# IoT



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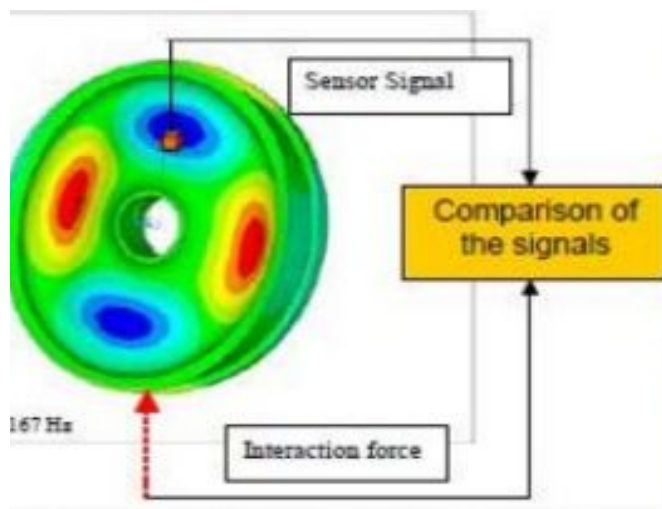
# Advertising displays



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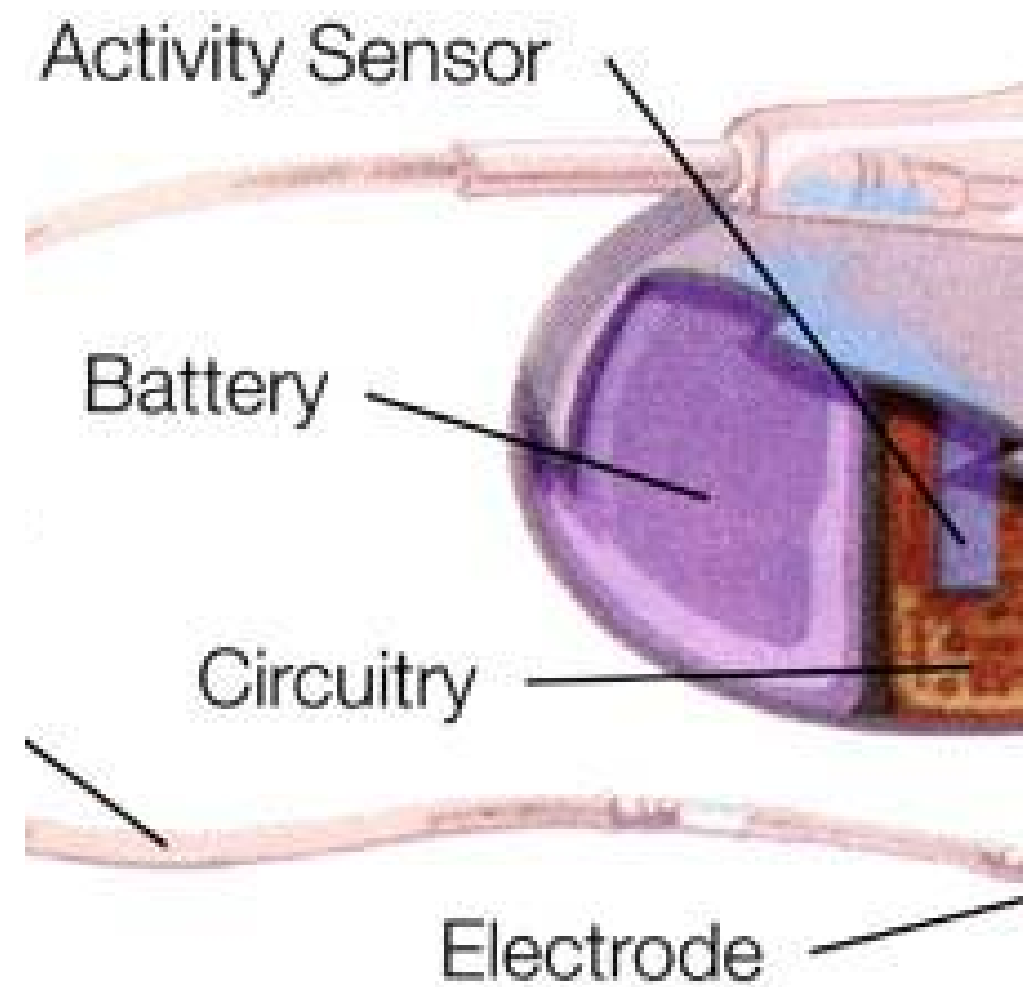
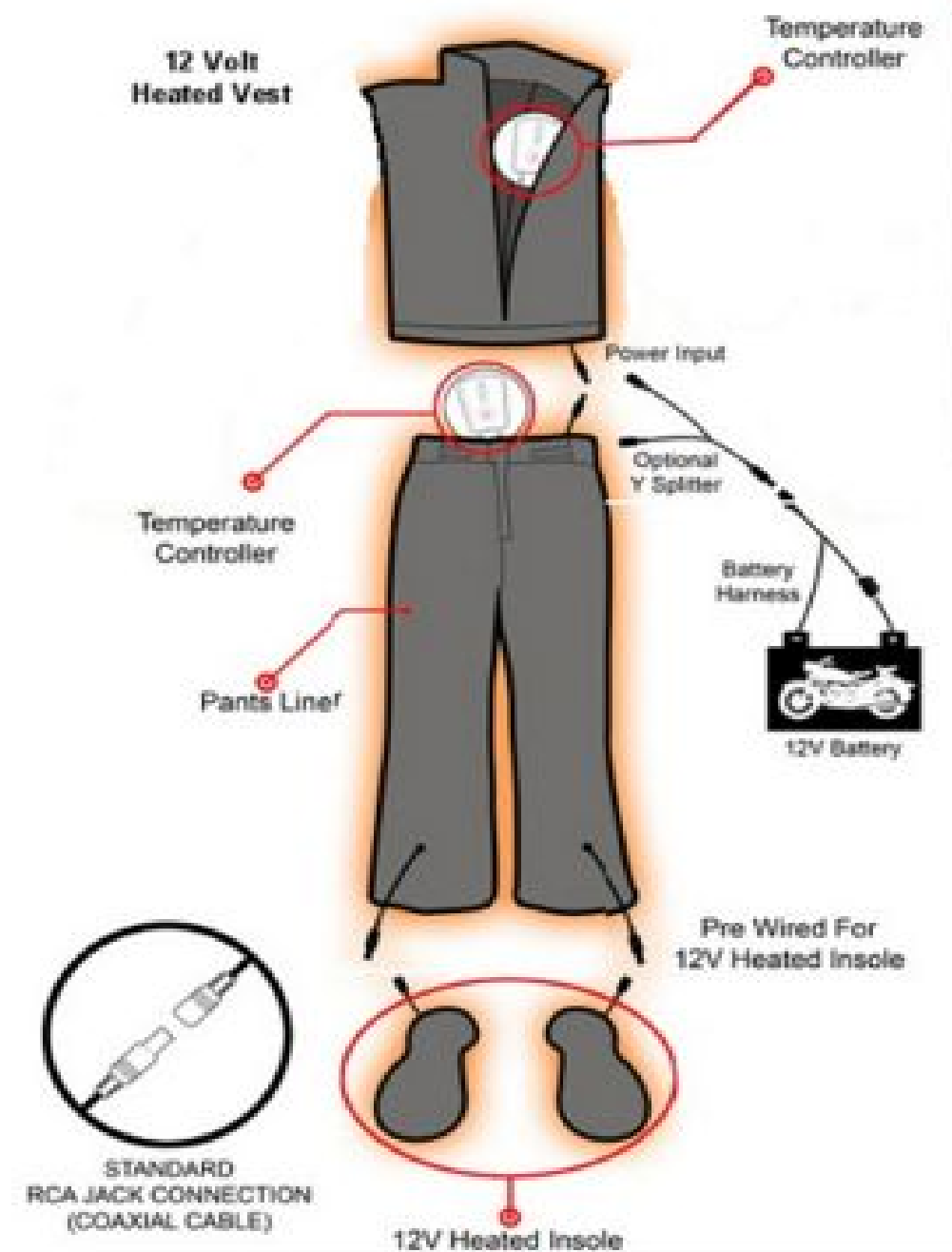


# Other Applications



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# Test Video



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# References

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# Thank You

This technology has the potential to radically change the way we source power in the future.

- *Stephen Hawking*

**This presentation bears an imprint of many people,  
We sincerely thank them for their support:**

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