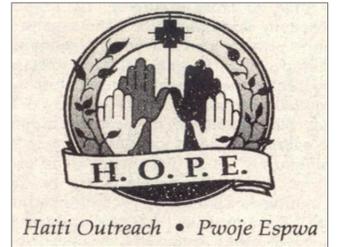


# Cook Stove for Haiti

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## Problem:

Haitians use lump charcoal as part of their cooking practices, which has led to significant deforestation as well as widespread illness from exposure to biomass smoke.

## Goal:

Improve the lives of Haitian people by developing an affordable, cleaner cook stove that is capable of charging cell phones.

## Key Objectives:

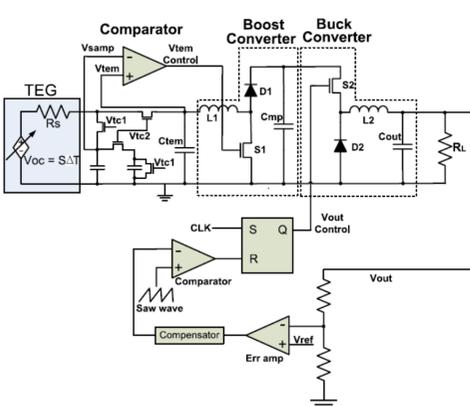
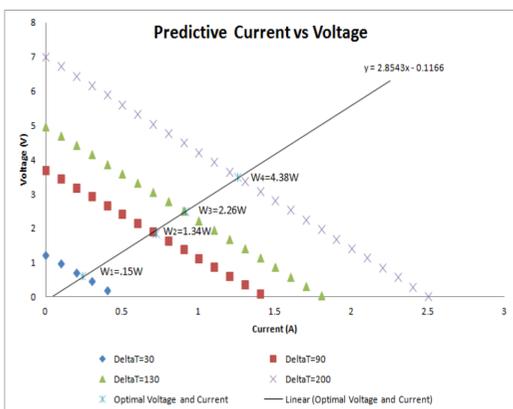
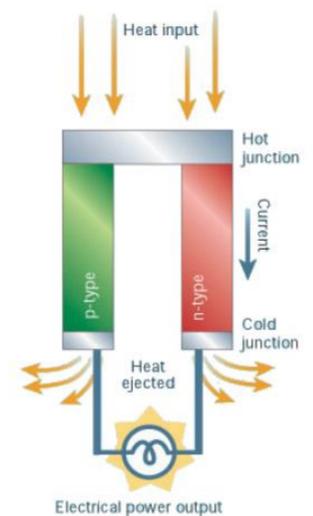
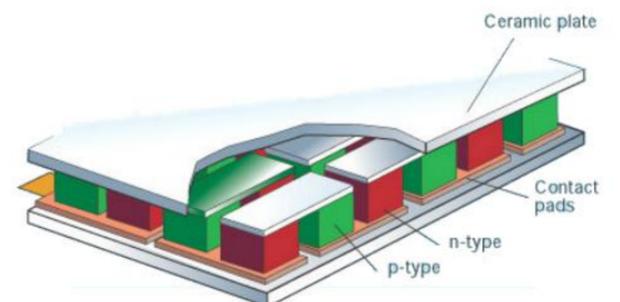
The stove was designed to improve the quality of life for Haitians by:

- Reducing the cost of cooking by reducing the fuel use by 50%
- Reducing the CO emissions and particulate matter (PM) by 75%
- Allowing locals to easily manufacture and sell the stove
- Being intuitive and enhance conventional Haitian cooking techniques
- Providing an electrical power source capable of charging cell phones
- Improving air quality by reducing harmful emissions and particulates

## System Integration – Thermoelectric Module (TEM)

### How it works:

1. Heat from the stove is absorbed on the hot side of the TEM while cold air from the fan cools the other side
2. A temperature differential (hot side temp – cold side temp) is created across the TEM
3. When a temperature differential is reached between the cold and hot side of the TEM, electricity is generated using the Seebeck Effect.
4. The electricity can then be used to charge electronics such as cell phones

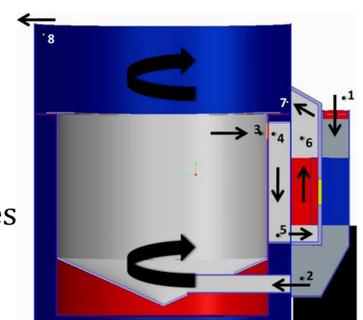


### Electrical System Design:

1. Track one half of open circuit voltage and ensure maximum power output from thermoelectric module.
2. Set output voltage for charging battery and running subsystems like Fan and USB charger.

### Mechanical System Design:

1. Increase fuel efficiency and reduce harmful emissions through innovative stove design
2. Design a convective heat transfer system that generates electricity through the use of thermoelectric module



## Acknowledgements:

Special thanks to Dr. Robert Stevens, Professor Sarah Brownell, Dr. Christopher Hoople, Andrew Phillips, Dr. Michael Schlau, Mr. Robert Krainik, Mr. David Hathaway, Sean Murnan, and H.O.P.E. for Haiti

