Solar Stove

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Background:
A proposal for funding is being reviewed to manufacture and pilot solar cookstoves in India.

Benefits:
- Health - World Health Organization estimates 4.3 million deaths per year from indoor air pollution. Solar stove would eliminate exhaust fumes from biofuel that is harmful to health
- Time –Would reduce or eliminate 1-2 hours daily women spend collecting the biofuels utilized in traditional cookstoves (wood, dung, etc.)
- Environmental – Reduces deforestation and cook fire emissions

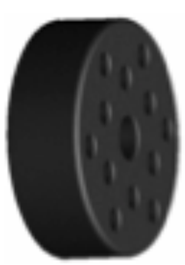
Goal:
Prototype a working solar stove that can be used by rural women in India to improve health, reduce labor, and lessen environmental impact.

Solar Stove Tech Specs (2 discs)	Value
Weight (Vessel and Two Disk)	12 lb (5.5 kg)
Max Cooking Surface Temperature	200 C
Heating Rate	350 W
Cooking Surface Diameter	6 in (15.2 cm)
Boiling Time for 1 L water	15 min
Simmering time for 1 L water (after bringing to boil)	45 min
Recharge Time in Collector @260 C	2 hours
Daily Storage Time	10 hours

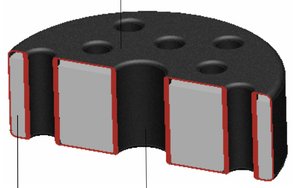
Insulated stainless steel vessel

Collapsed View

Exploded View



Heat battery



Aluminum casing

Phase change material stores thermal energy from sun

Heat battery cross section

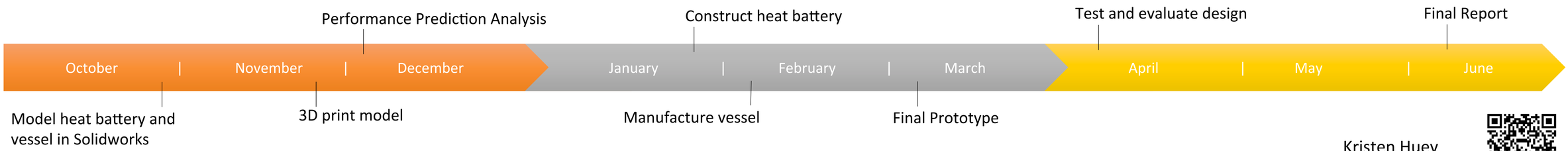
"Fins" for better heat transfer

Biomass stove, predominate cooking method in rural India

The Big Picture:
Prototyping this solar stove will be a step to improve health, save labor, and reduce stress on the environment through reduced biofuel use. This thermal energy storage may also have potential for multiple avenues of reduced biofuel use beyond the scope of cooking.

Current Status:
3D model is printing is complete. Calculations in performance predictions are currently being made to finalize dimensions and specifications of the actual prototype.

Next Steps:
Manufacture the vessel and heat battery prototype and analyze the solar stove's performance for improvements.



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