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Fresh Smoothie Bike

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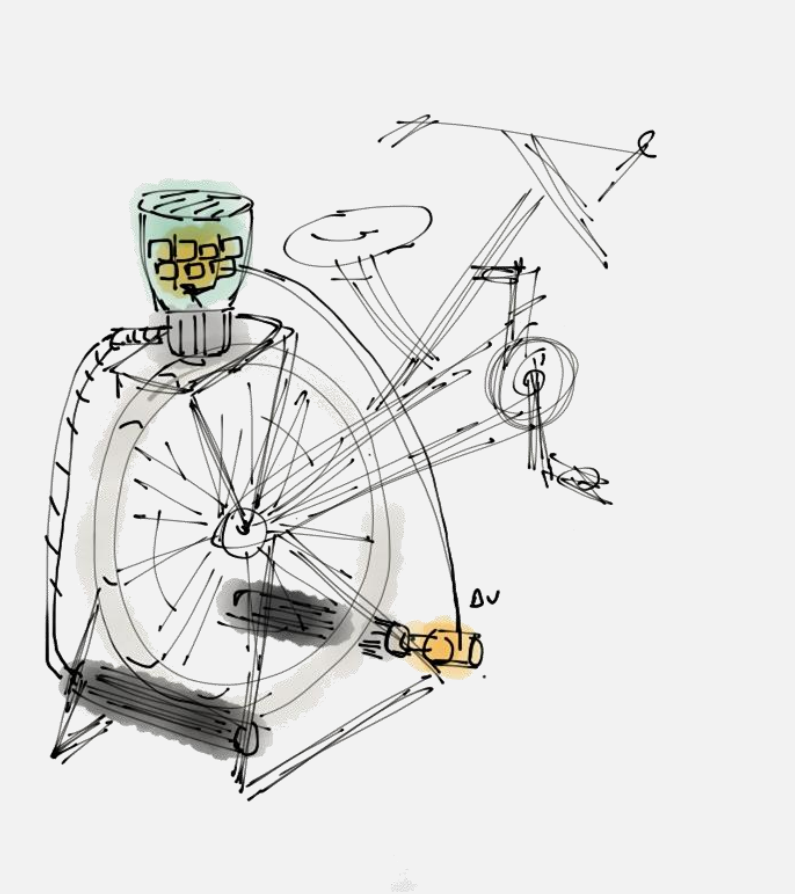
Fresh Smoothie Bike



Would you like some cold juice?

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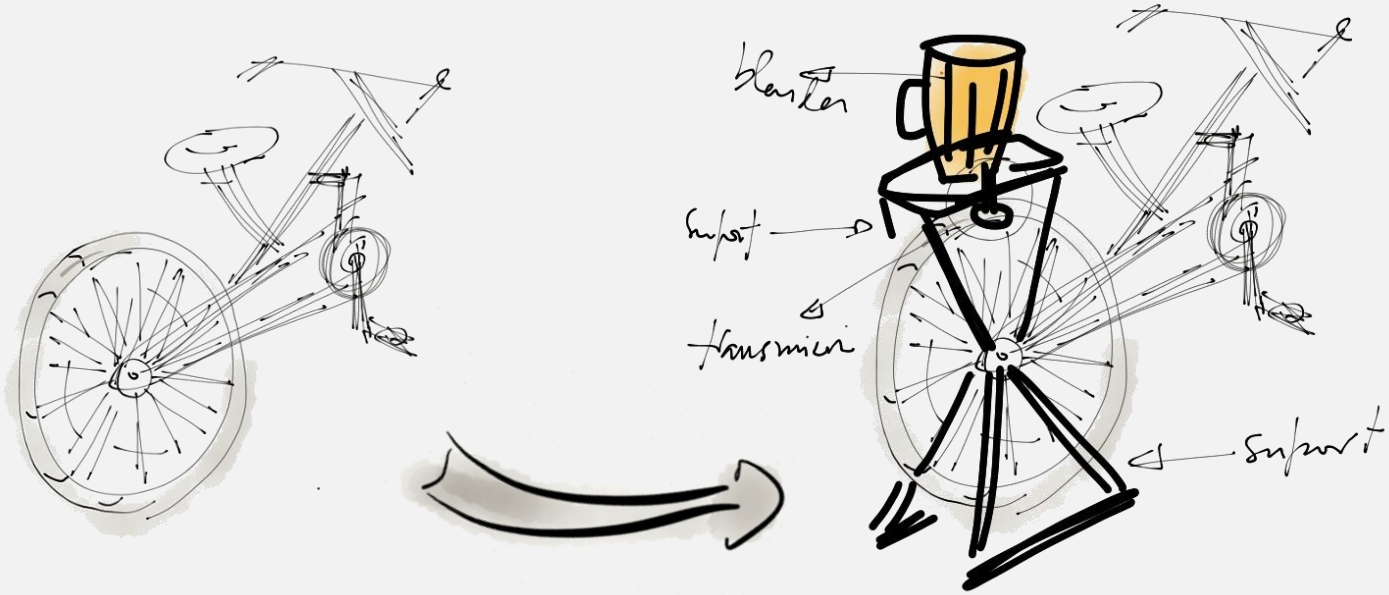
Initial Concept:



We want to do some workout.
Why not make ourselves some juice while at it?

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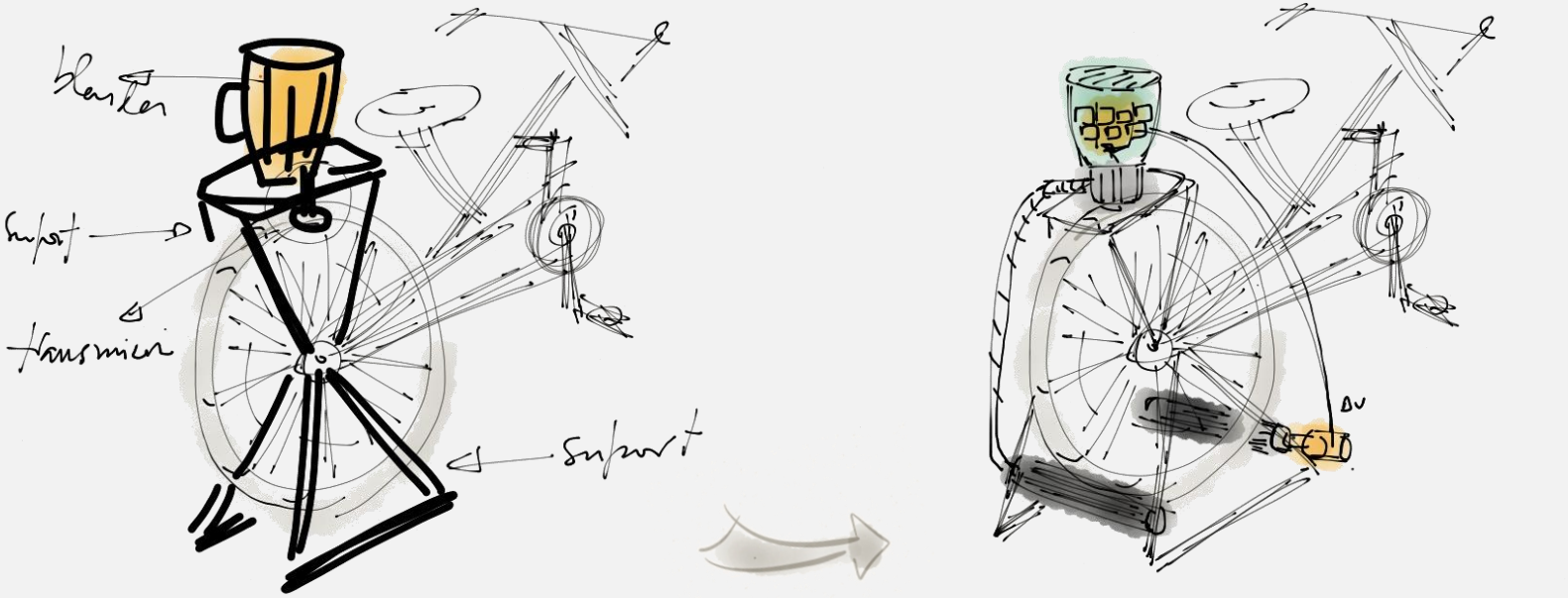
The Next Step:



First, we made Juice.
*Now, we make it **Colder**.*

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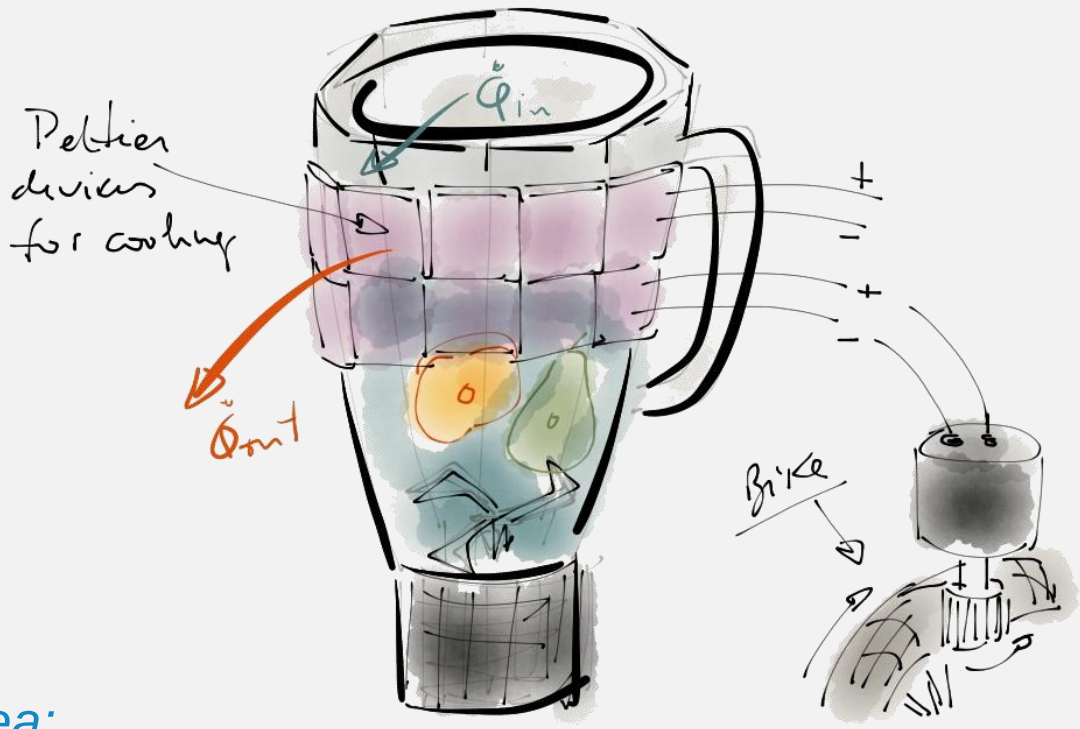
The Next Step:



The idea:

By using several Peltier Cells and a small DC Generator…

*We can **cool** our drinks.*

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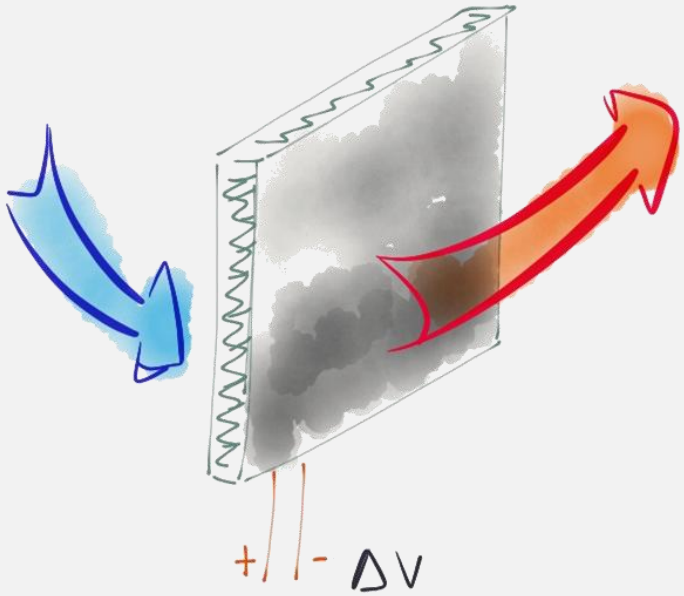
The New Detail



How it works:

Uses Electrical Power to Extract Heat from the Juice

(Effects Present: Peltier Effect; Seebeck Effect; Joulle Effect)

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Coolness Factor

How cold can the Smoothie get?

An average person, on a Bike, produces up to 240 W in power.

So we can extract up to 240 W in heat from the Smoothie.

On a 10 minute workout: we generate 144 KJ and to cool the Smoothie to 10^{o} Celsius, we need: Q = mC(23-10) [J] = 54.47 KJ (for 1 kg of Juice)

(C = 4.19 kJ/kg^{0}C)

How long will it take to make?

If we extract 240 W from the fluid, and want to make it fresh

Lets say we want our juice at 10^{o} Celsius, so we need to pedal for:

Q / (60 x Power) = 3.78 minute ~4 minutes (If the Power is constant)

Will it taste good?