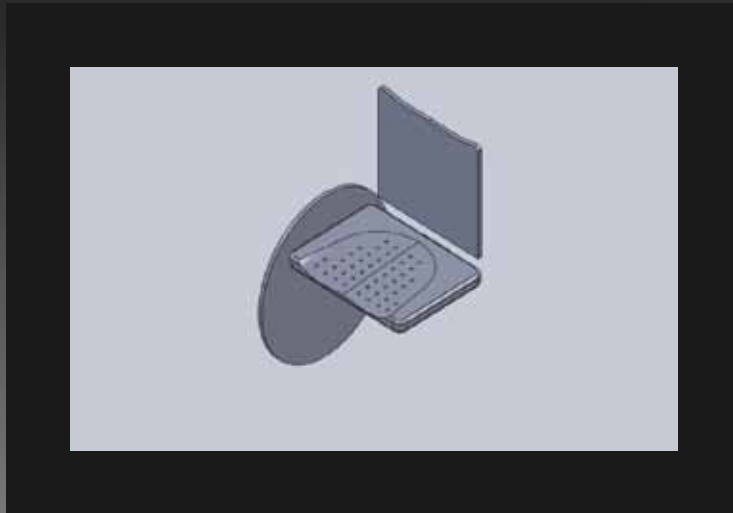
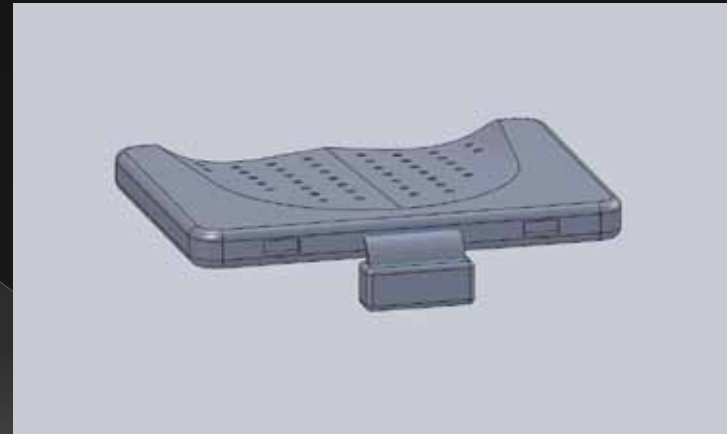


WHEEL CHAIR THERMAL SYSTEM



RED
B

MARKET

11,000 new spinal cord injuries occur each year

18% of spinal cord injuries lead to complete quadriplegia

Key user need: controlled heating and cooling

RED
B

SKETCH MODEL QUESTION

How much power consumption for cooling?

RED
B

SKETCH MODEL IDEA

Three experiments:



- Water cooling (Peltier)
- Conductive cooling (Peltier)
- Forced air convective cooling (Fan)

RED
B

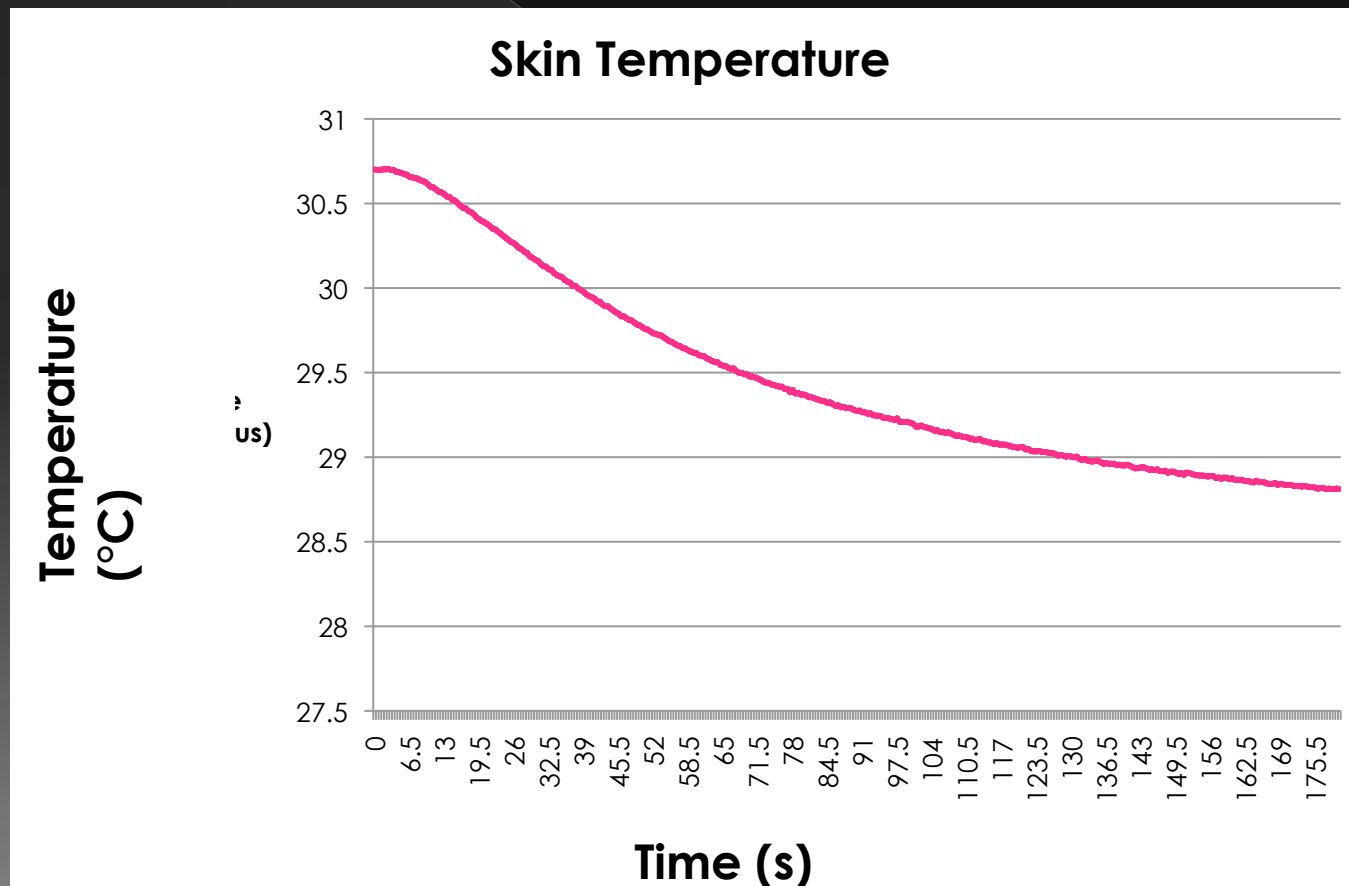
DATA AND POWER ANALYSIS

- Power available to fan 36 W
- Energy to cool 5 deg 10.8 kJ
- Energy available from a laptop battery 306 kJ,
so 3:45 hr of operation

RED
B

GRAPH : SKIN TEMPERATURE

Tested with a person sitting on the pad

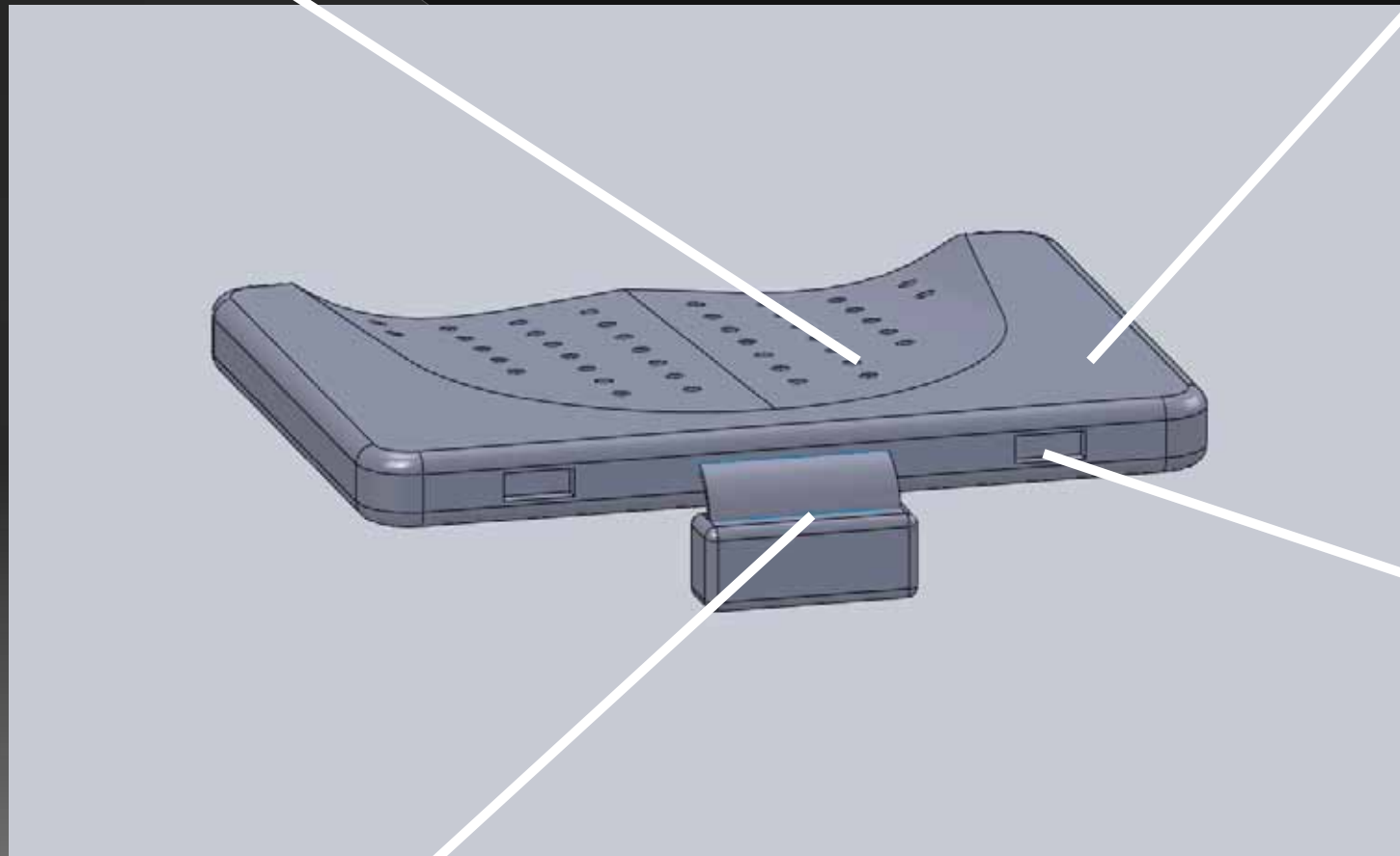


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NEXT STEPS

Air vents

Comfortable seat



Fan
intake

Controller and batteries

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