

1. Problem Finding

(The beginning...)

- There has been an increase in injuries and deaths related to heat recently
- Construction workers are working in these hot conditions

You should have selected a problem based on some considerations. Identify and justify these considerations.

- How urgent is the problem?
- How impactful is the problem?

List some problems your group would like to solve. List also the considerations for selection of problems in the evaluation grid below. Score the considerations, against the problems, with points 1 (least significant) to 5 (most significant). Sum up the total points for each problem. Identify that problem you would like to solve.

Problem Evaluation Grid

*add more columns and rows where necessary

Considerations for Selection	Problems	
	#1 Construction workers are dying to heat-related problems	#2 Poor working conditions
Urgency	5	2
Impact	4	4
Total Score	9	6

2. Defining the Problem

Extent of problem (Research and discuss the problem and write down the problem statement)

Construction workers comprised 36% of all heat-related deaths on the job over a recent 25-year period – and global warming may be a contributing factor, according to a recent study from the Center for Construction Research and Training (also known as CPWR).

What existing or similar solutions are there?

- Most construction workers bring their own mini fans to cool themselves down
- There are some cooling jackets with built in fans but these are bulky and expensive, which will not
- be suitable for construction workers.



3. Our BIG IDEA

Write down your proposed invention and why you want to do it. State also how you think your proposed invention is better.

Description

Our prototype will be made of a light green vest. It will have many tiny holes and a mist sprayer attached to it. It will also have a temperature sensor.

Our jacket is equipped with a temperature sensor to sense the body temperature is rising or is too high, a small vibration would be sounded (vibration device comes with heating pad) to remind the user to spray the mist and drink some water.

When the mist sprayer is activated, the mist will be sprayed into the user's shirt, and will then evaporate off the user's shirt, and escape through the little holes in the vest.

Purpose and benefits for users

- Our targeted audience, construction workers, will be able to feel cooler and the mist from the mist sprayer evaporates
- It will keep the users cool and reduce the number of heat related deaths and injuries

How is it better

- It is lighter and easier to wear than other products
- The current vest that the constructions workers are using are for protective purposes. However, our vest will be able to cool them down too.

What problems did we face

- The mist sprayer might be too big and heavy
- The mist sprayer might move around the vest, causing the user to be uncomfortable
- The user may forget to refill the mist sprayer when it is empty
- The mist sprayer may be hard to remove when it needs refilling

4. Proposed Construction or Modelling Process

You are now onto the fabrication of your prototype/ product. You need to select material and understand how to put them together so that your prototype/ product can perform its function.

Why did we choose this material

- It is light and will be more comfortable for our users

How will we develop this prototype

1. We got a green safety vest/shirt like this so it would be lighter and more cooling for the user. We then made some very small holes in the suit.
2. We got a simple but good mist sprayer. We then cut a small hole in the pocket of the vest/shirt. We then insert this sprayer into the pocket in the vest/shirt and placed the head of the sprayer at the hole.
3. We stuck our temperature sensor to the back of the vest/shirt and placed the battery pack which is needed for the temperature sensor inside the other pocket.



1.



2.



3.

References

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