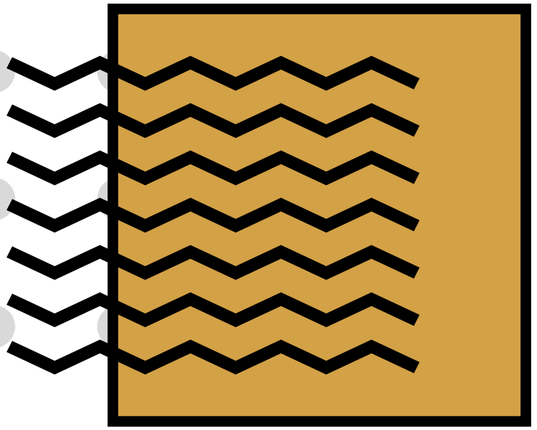
USELESS 28



CONCEPTUALIZATION

CAPTAIN : VIRAJ VEKARIA

VICE-CAPTAIN: NEERJA KASTURE

BROAD PROBLEM STATEMENT

To battle the scorching heat on construction sites which affect the health and productivity of construction workers.

SPECIFIC PROBLEM STATEMENT

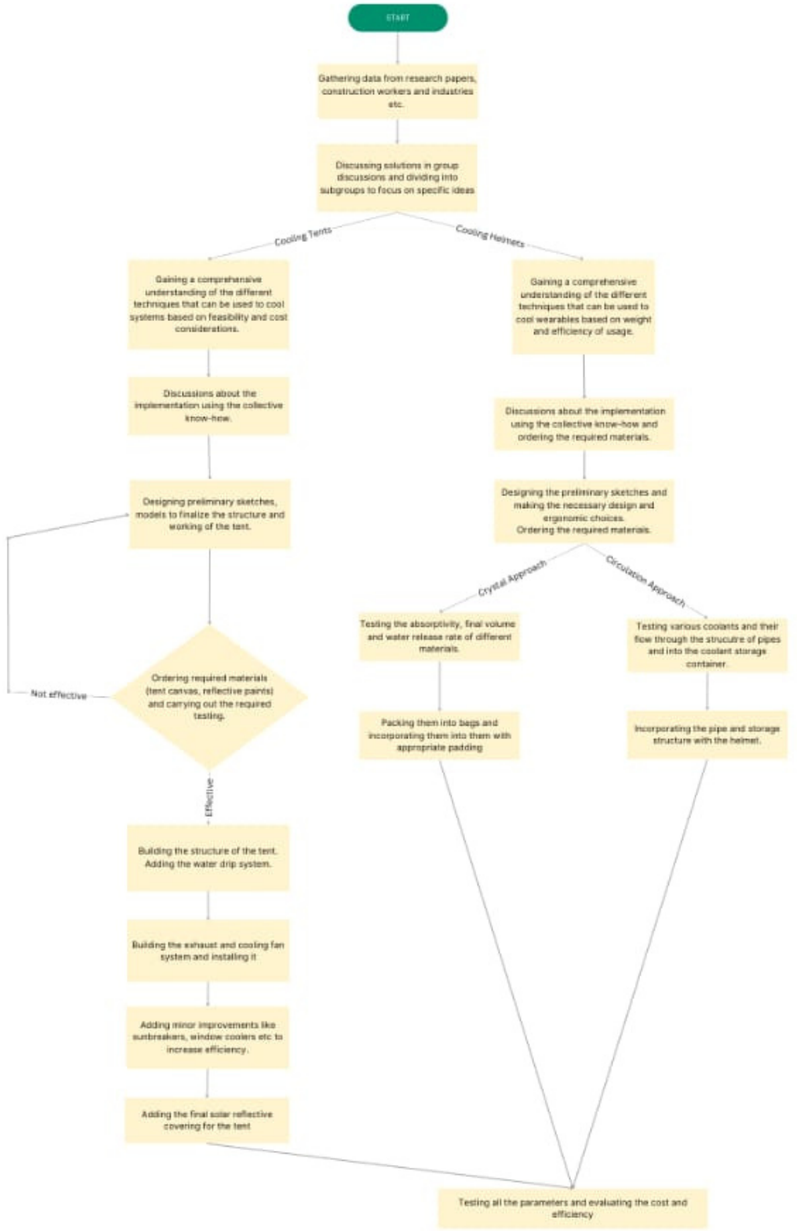
01

Lack of an adequately cooled resting place for tired workers.

02

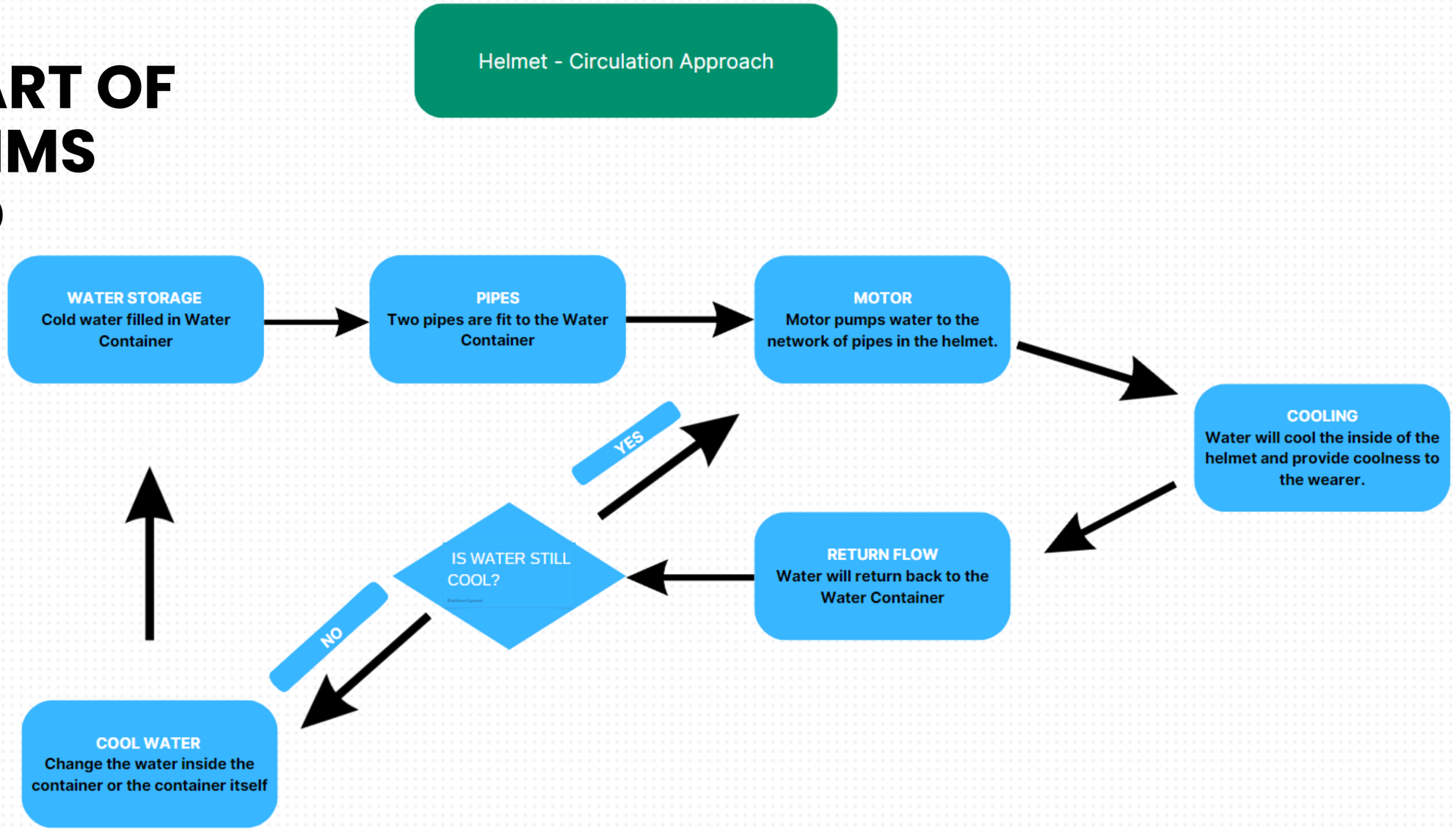
Workers often skip safety gear as it can feel hot and inconvenient.

FLOWCHART OF WORKFLOW AND CONCEPT



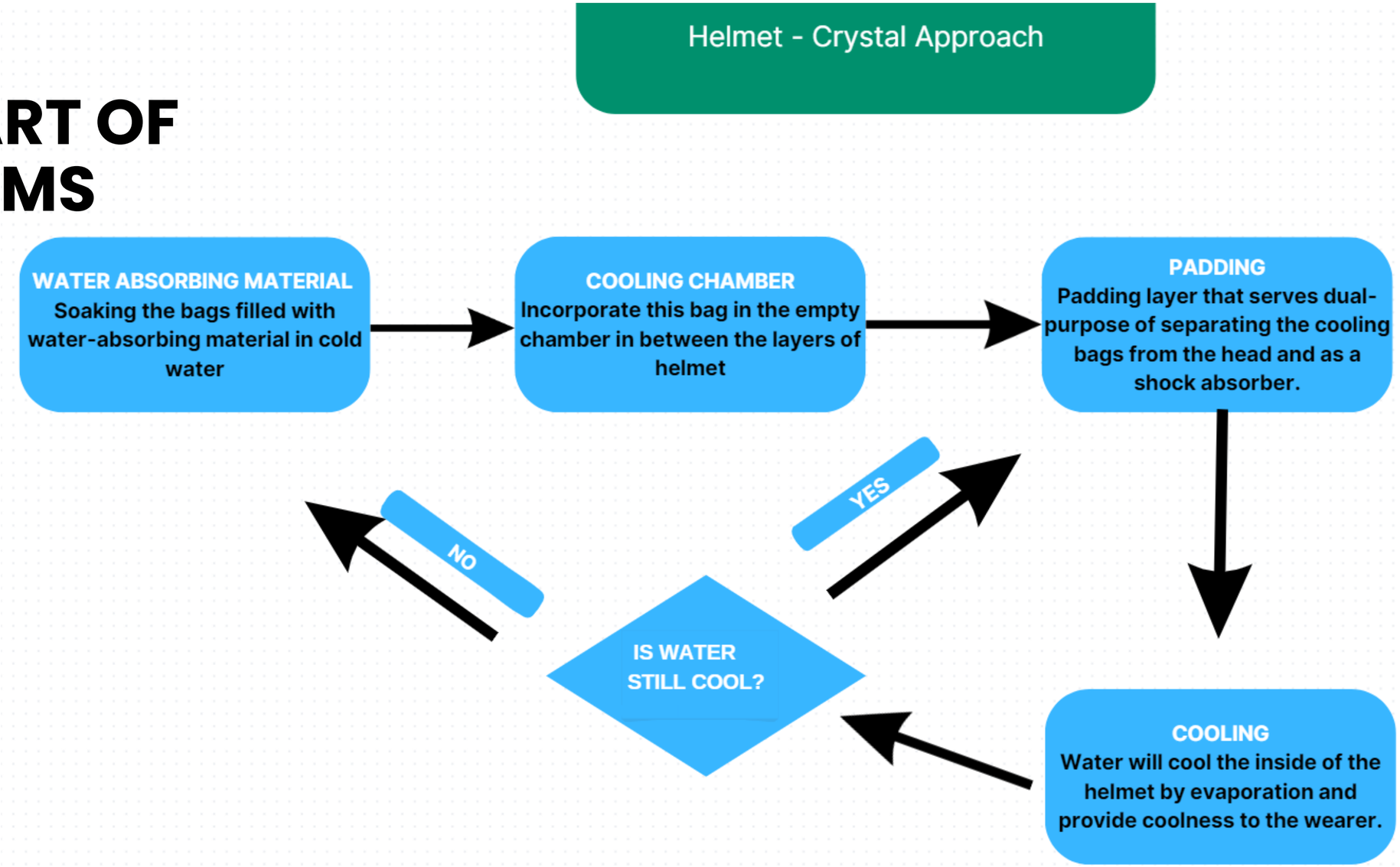
[3] Link for the Flowchart

FLOWCHART OF ALGORITHMS INVOLVED



[4]Link for Flowchart

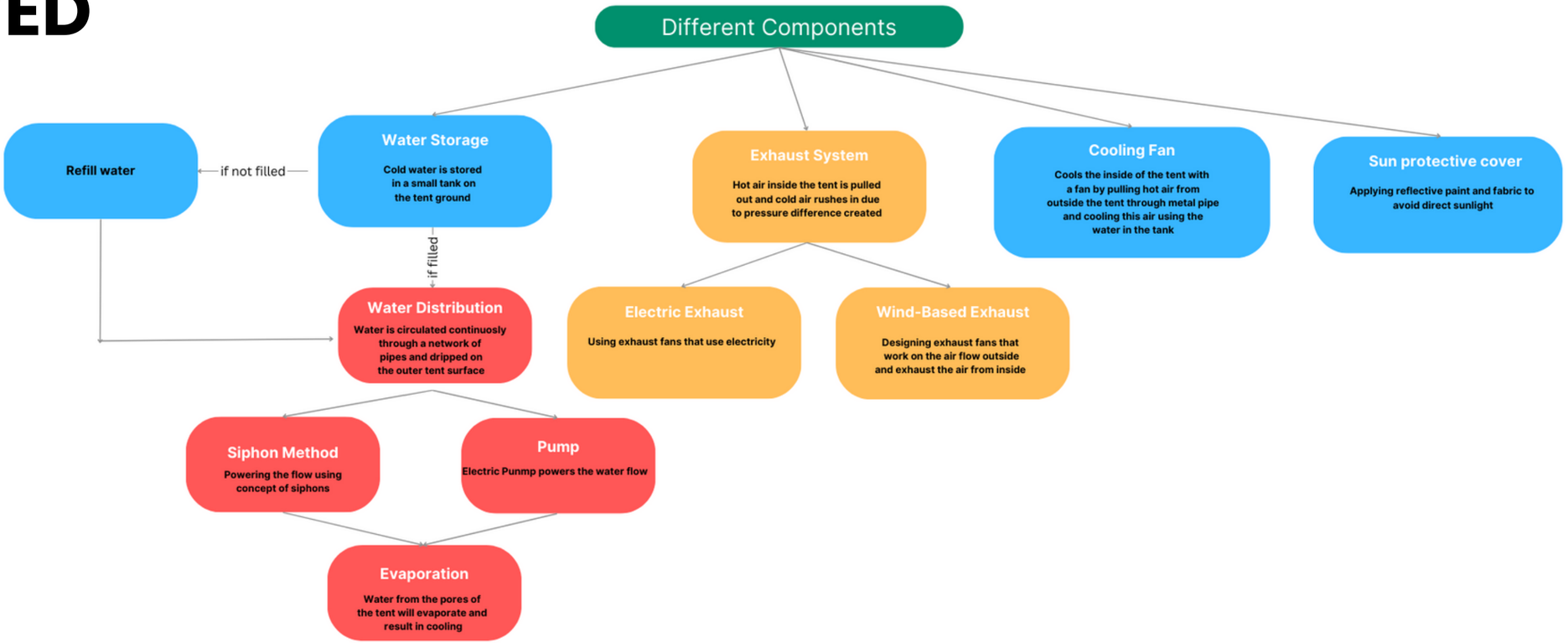
FLOWCHART OF ALGORITHMS INVOLVED



[5] Link to the Flowchart

FLOWCHART OF ALGORITHMS INVOLVED

COMPONENTS OF TENT

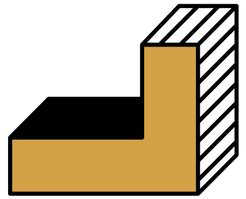


[6]LINK TO THE FLOWCHART

QUANTIFICATIONS YOU PROPOSE TO DO?

Cooling Tent

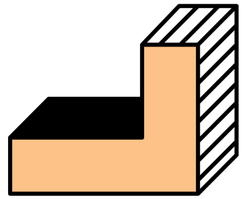
- Temperature difference between the inside and outside of the tent.
- Evaporation rate of water from the tent’s surface
- Rate of water flow from the cooling tank
- Exhaust fan speed
- Cooling fan speed
- Volume rate of water siphoned to the top for the tube network
- Frequency of filling water in the storage tank
- Amount of tent material and solar reflecting paint require
- Cost required to reduce the temperature by 1 degree
- Power provided by solar panel per sq metre



QUANTIFICATIONS YOU PROPOSE TO DO?

Helmet (Crystal Approach)

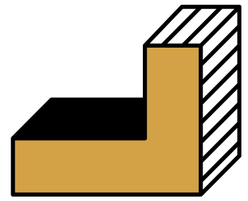
- Water absorption and evaporation rate from the water absorbing crystals
- Frequency of water supply required to the material
- Temperature difference created and monitored over time
- Cost and efficiency of different crystals and polymers



QUANTIFICATIONS YOU PROPOSE TO DO?

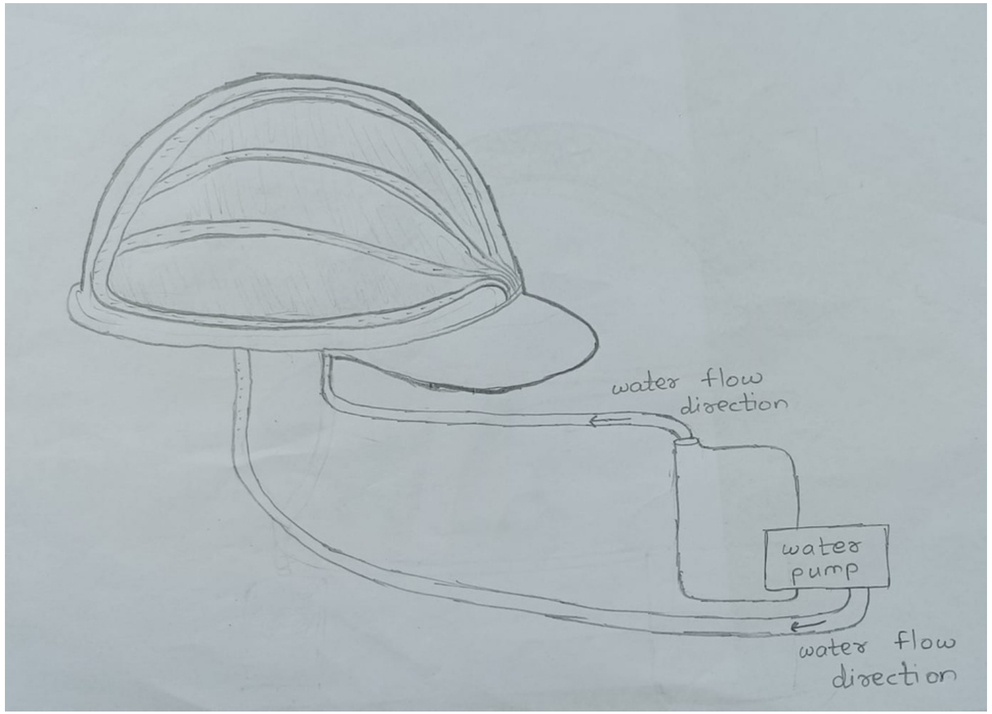
Helmet (Motor Approach)

- Power of motor required to pump the coolant for complete circulation
- Appropriate speed of the pumped coolant such that it absorbs the heat adequately
- Heating rate of the coolant that is pumped
- Frequency of changing the coolant source

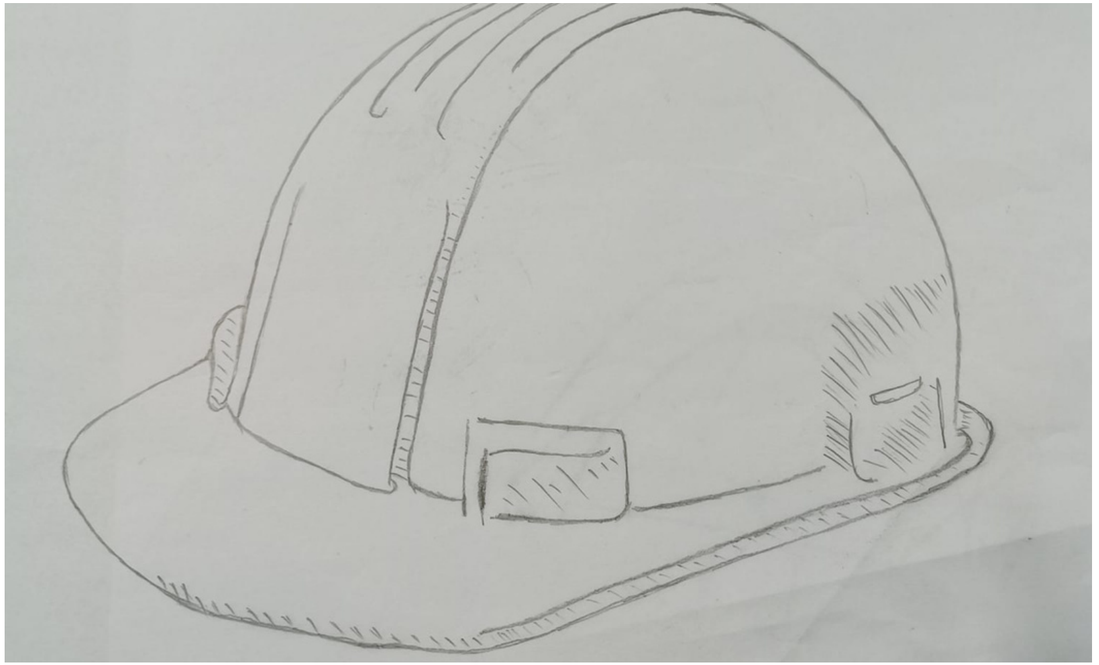


SKETCHES

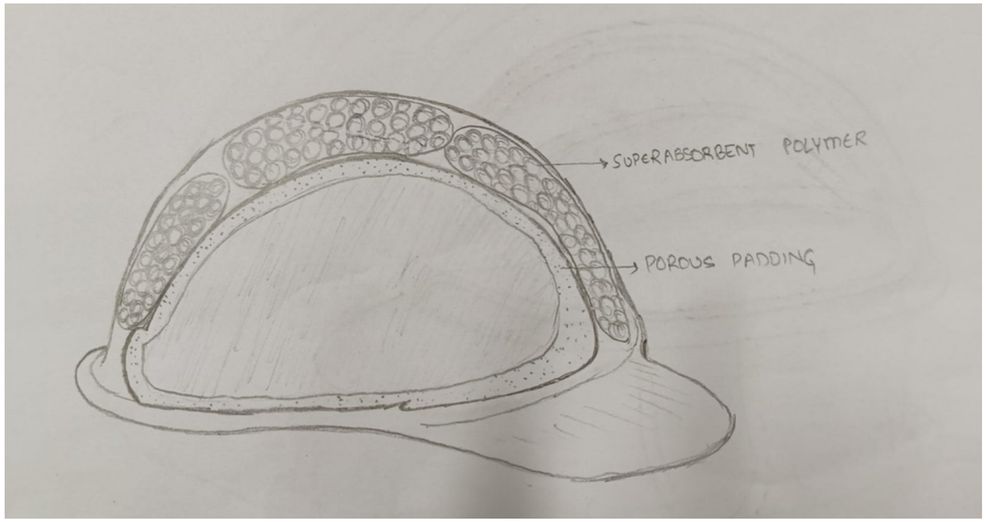
Helmet



Sketch 2:Cooling Helmet (Motor Approach)



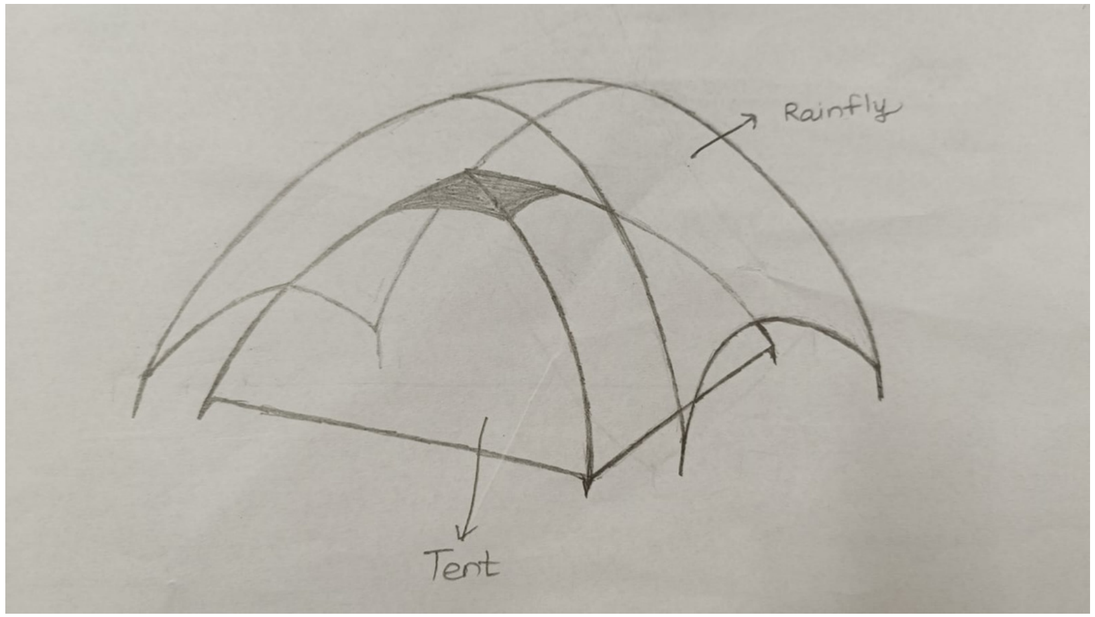
Sketch 1:Outer body



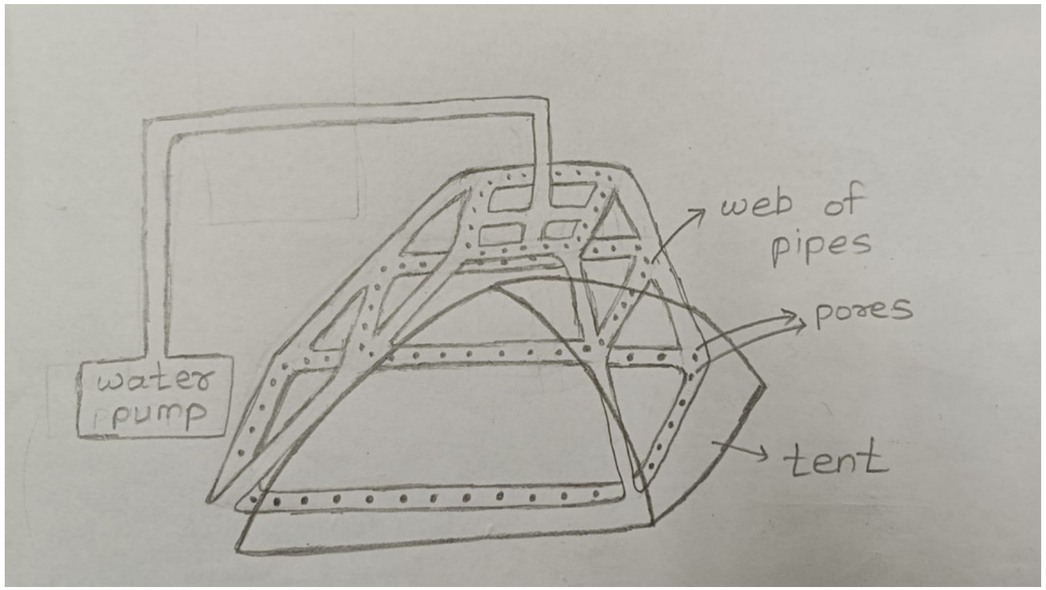
Sketch 3:Cooling Helmet (Crystal Approach)

SKETCHES

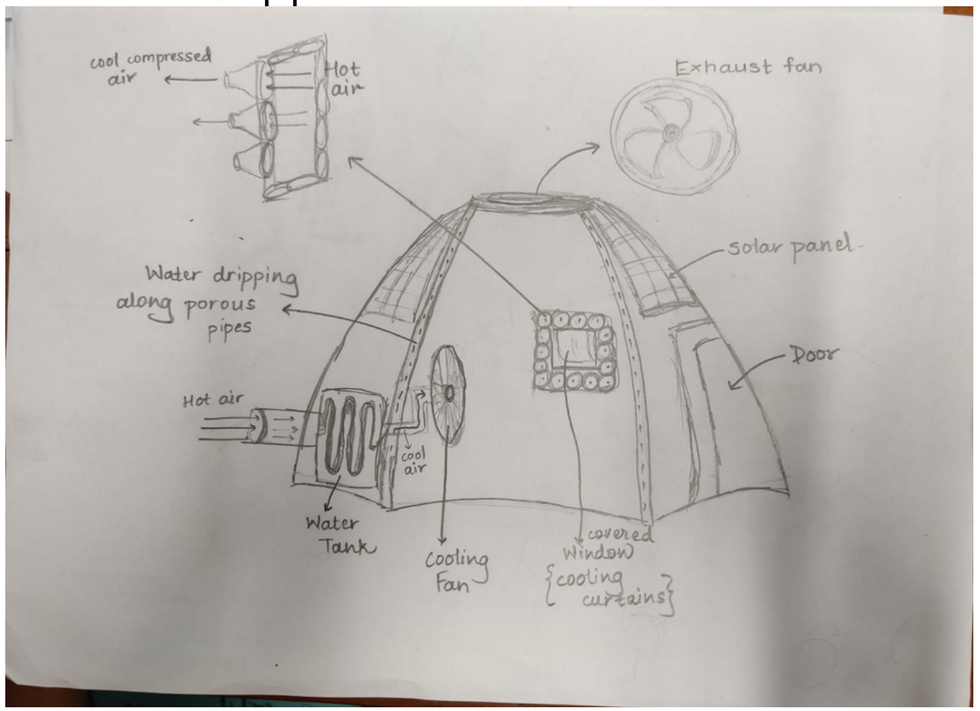
Cooling Tent



Sketch 1:Cooling Tent with protective cover



Sketch 2: Support Framework of Tent



Sketch 3:Interior of the cooling tent

Other Information

To gain insights to the problem, our team engaged in productive discussions with construction workers.

- A resting place with an comfortable ambient temperature would be preferable to an extremely chilled air conditioner.
- A tired worker would rather rest nearby than go away from the working site. Hence multiple such structures would be better.
- Any product which would have to be strapped around the body is inconvenient to work with.
- Workers seldom buy products for themselves. We should rather collaborate with contractors for providing these products.

Talking with the Workers

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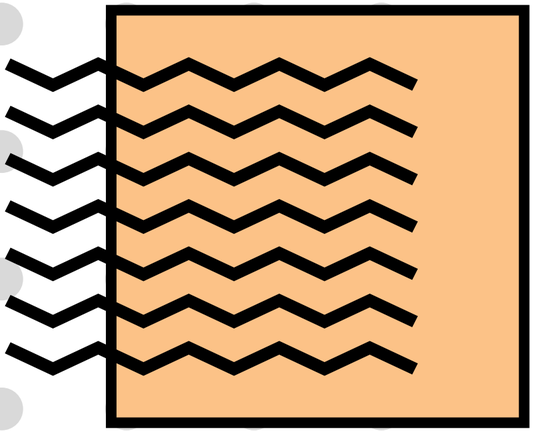

THANKS FOR READING