SMART INDIA HACKATHON 2022

Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation: ITBP/MHA

PS Code: RV-1249

Problem Statement Title: All weather good quality clothing for troops

Team Name: ACHYUTAM

Team Leader Name: : Pratham Tiwari

Institute Code (AISHE): C-28294 Active

Institute Name: Dronacharya College of Engineering

Theme Name: Disaster Management

Idea/Approach Details

Describe your idea/Solution/Prototype here:

- We are designing an all-weather jacket for troops which would keep them warm in low temperature regions keeps them cool in high temperature regions.
- It will keep them dry in rainy season as it's water resistant.
- Thermo-electric coolers are being used in our clothing system, , they increases/decreases the temperature according to situation that will keep them dry in rainy season as it's water resistant.
- Our insulation layer prevents mosquitos or other insects.
- Light weight clothing to increase flexibility & adjustment to all weather.

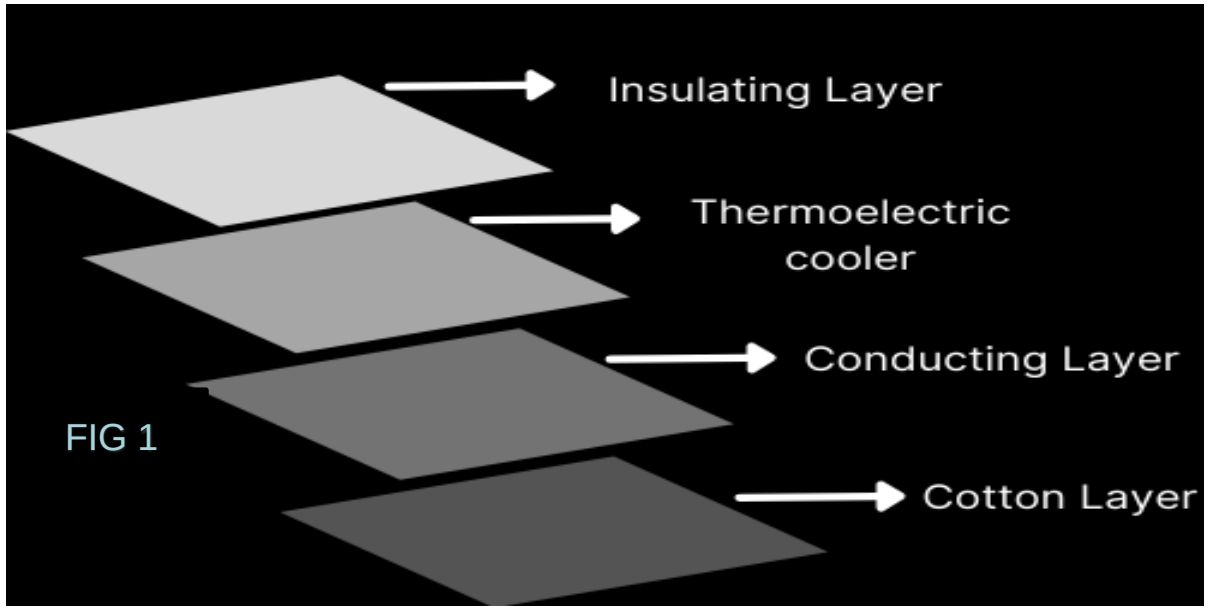


FIG 1

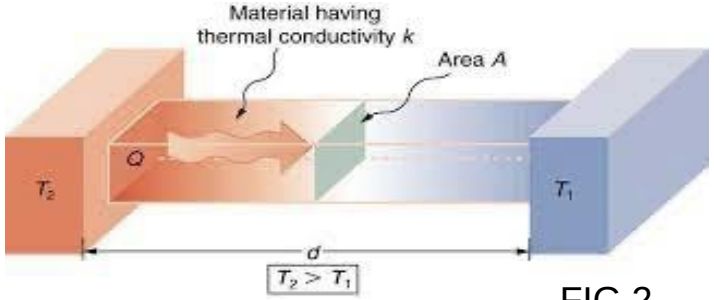


FIG 2

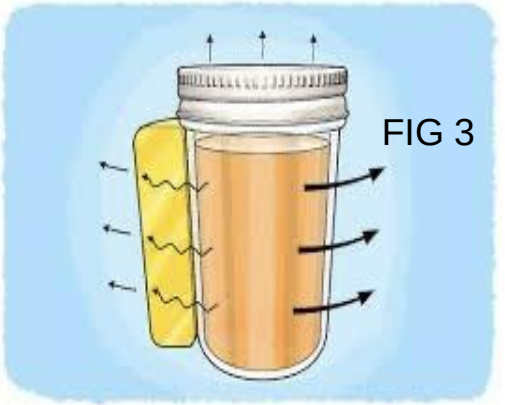


FIG 3

FIG 4

Describe your idea Technology stack here:

- Thermo-electric coolers are used in our jacket (AWCS) to increase and decrease the temperature of the jacket.
- Thermal conduction, for regulation of temperature i.e, being generated by thermo-electric cooler,
- Thermal insulation, for retaining inner temperature of the jacket.
- Battery, to adequate power supply for thermo-electric coolers.

FIG 1- Layers of our jacket
FIG 2- Thermal Conduction
FIG 3- Thermal Insulation
FIG 4- Thermo-electric Cooler

Idea/Approach Details

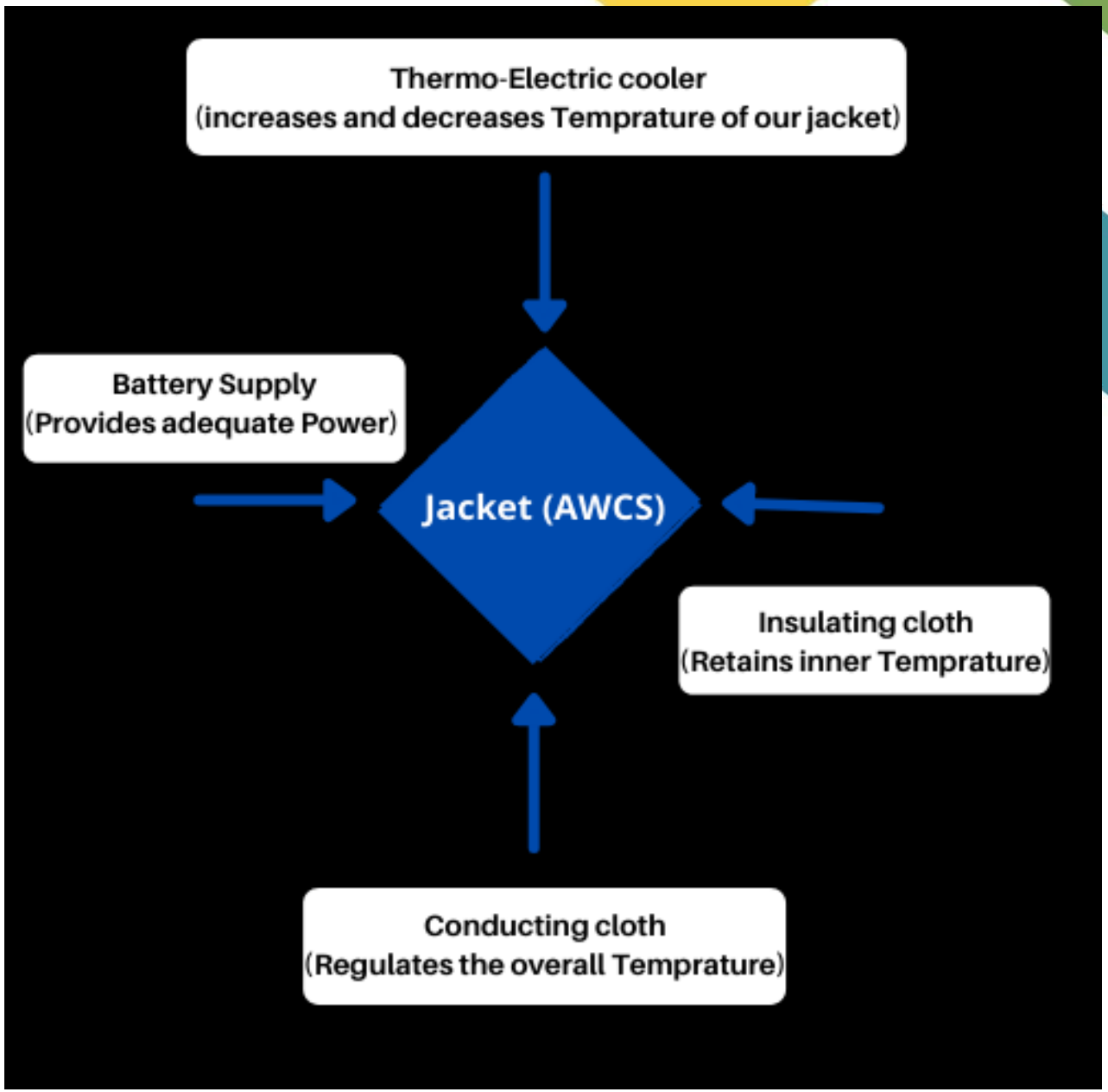
Describe your Use Cases here

- The clothing system is highly efficient in regions of high altitude like Indo Tibetan border .
- Also it is very effective in high temperature regions like our western borders.
- As well in tropical regions to tackle rain & insects.
- Easy to wear on IS duties as it's light weight & flexible.
- It has a future scope in casual clothing industry.
- They can also be used in adventure sports like mountain trekking .

Describe your Dependencies / Show stopper here

- Battery needs to be maintained properly.
- The cloth is likely to have wear and tear of fabric.
- The inner most circuit should be kept away from water.

Click on the link below: ITBP.mp4 - Google Drive



Team Member Details

Team Leader Name: Pratham Tiwari

Branch : B tech | Stream: CSE (AI/ML) | Year: II

Team Member 1 Name: Archita Jha

Branch : B tech | Stream: CSE (AI/ML) | Year: II

Team Member 2 Name: Sakshi Sharma

Branch : B tech | Stream: CSE (AI/ML) | Year: II

Team Member 3 Name: Somyantak Dwibedi

Branch : B tech | Stream: CSE (AI/ML) | Year: II

Team Member 4 Name: Akash Mishra

Branch : B tech | Stream: CSE (AI/ML) | Year: II

Team Member 5 Name: Pranav Dubey

Branch : B tech | Stream: CSE (AI/ML) | Year: II

Team Mentor 1 Name: Mr. Ashwani Kumar

Category: Academic | Expertise : AI/ML , ELECTRONIC CIRCUITS | Domain Experience : 6

Team Mentor 2 Name: Miss Bhumika Chugh

Category: Academic | Expertise : AI/ML , ELECTRONIC CIRCUITS | Domain Experience : 4