



SMART INDIA  
HACKATHON  
2022

# Basic Details of the Team and Problem Statement

Government of Rajasthan

PS Code: TK1045

**Problem Statement Title:** To find all-new ways to store electric energy in bigger volume and less in size and weight.

**Team Name:** ARES 007

**Team Leader Name:** Gaurav Verma

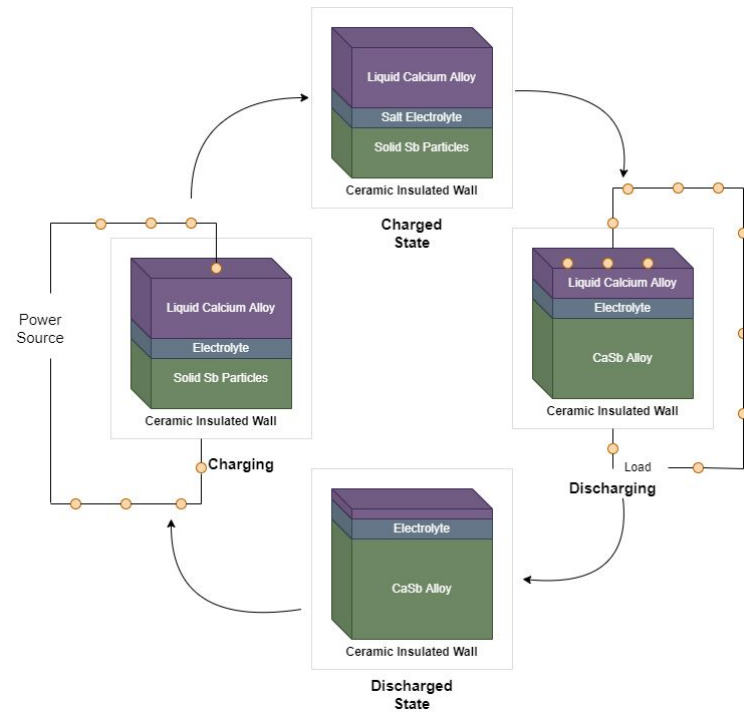
**Institute Code (AISHE):** U-1056

**Institute Name:** Netaji Subhash University of Technology

**Theme Name:** Renewable / Sustainable Energy

# Idea/Approach Details

- ❑ To use **liquid metal batteries** to store the excess energy produced by renewable sources during peak power production hours.
- ❑ To help in providing buffer big enough for renewables to act as a reliable base load source.
- ❑ To help in increasing the share of renewable sources by providing stability to the electric grid.



## Technology stack::

- ❑ Liquid metal alloy batteries
- ❑ Pure sine wave inverters

# Idea/Approach Details

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## Use Cases

- ☐ To store power to deal with power surges.
- ☐ To provide stability to the grid.
- ☐ To store energy on scale of months instead of hours to act as a reliable base load source.

## Show stoppers

- ☐ Use of molten metals that have lower material cost relative to other alternate solutions (like Li Ion cells).
- ☐ The long life and easy recyclable nature of the cells.
- ☐ Long life of batteries as they don't degrade in capacity over multiple deep discharge cycles.

# Team Member Details

**Team Leader Name: Gaurav Verma**

Branch (Btech): Stream (ME): Year (IV):

**Team Member 1 Name: Mayank Pandit**

Branch (Btech): Stream (MPAE): Year (IV):

**Team Member 2 Name: Bhavuk Grover**

Branch (Btech): Stream (ME): Year (IV):

**Team Member 3 Name: Ritesh Saini**

Branch (Btech): Stream (ME): Year (IV):

**Team Member 4 Name: Satvik Sharma**

Branch (Btech): Stream (ECE): Year (IV):

**Team Member 5 Name: Charu Singh Choudhary**

Branch (Btech): Stream (MPAE): Year (IV):

**Team Mentor 1 Name: Dr. Mohinder Pal Singh Bhatia**

Category (Academic): Expertise (Embedded Systems): Domain Experience (30+ years):

**Team Mentor 2 Name: Manu Sheel Gupta**

Category (Academic): Expertise (Principles of Engineering for Embedded wireless systems): Domain Experience (15 years):