

Last-Mile Cold Chain System for Vaccines in Remote Regions

Team Enneagon

PROBLEM STATEMENT

VACCINE PRESERVATION

Temperature Sensitivity

Vaccines lose potency outside the critical 2–8°C range.

Remote Region Gaps

Lack of reliable electricity in remote areas hinders continuous refrigeration.

Cold Chain Failures

Traditional systems frequently break down in last-mile delivery, leading to high wastage.

Cost & Maintenance

Existing solutions are often expensive, non-portable, and difficult to maintain.

MARKET STUDY & GROWTH POTENTIAL

Significant market demand exists for portable cold-chain solutions in India and global rural areas.



Target Customers

Rural health centers, NGOs, disaster-relief teams, and vaccination drives.



Expected Growth

Anticipated growth in vaccine cold chain and solar-powered medical devices.



Addressing Gaps

Our solution fills critical gaps in affordability, portability, and durability.

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IndoSurgicals

Cold Box Short Range With 32 Ice Packs, Capacity 16 Litres

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M.R.P. ₹18,999.00 (inclusive of all taxes)

Price: ₹13,570.00

Availability: In Stock

SKU: 90007

- 1 +

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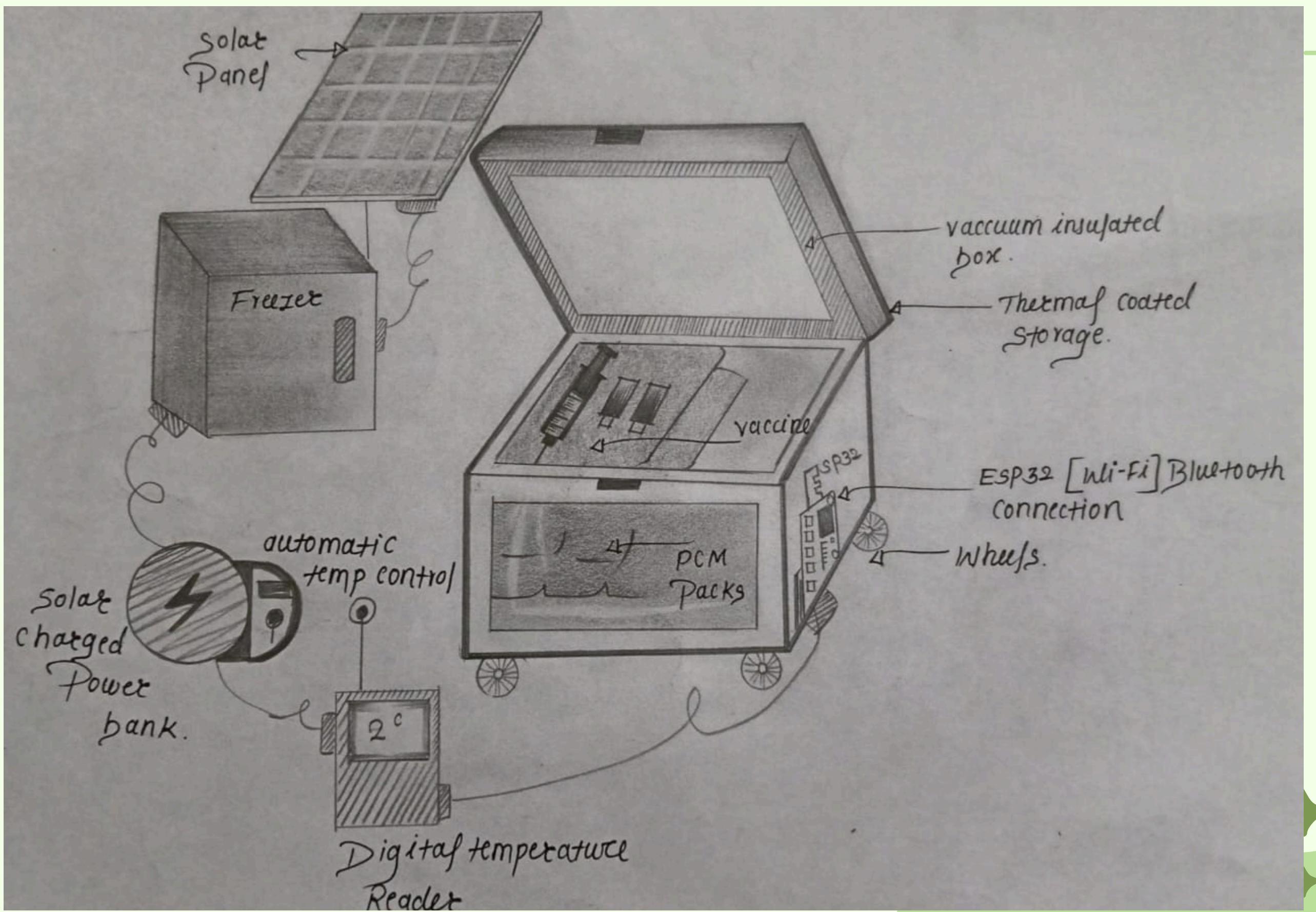
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OUR OBJECTIVES

Our key objective is to design a solar-powered cold chain storage system with thermal energy storage.

1. Maintain the temperature constantly
2. Operate independently of grid electricity.
3. Provide a reliable, sustainable solution for vaccine storage.”

SYSTEM DESIGN



ADVANTAGES

Our proposed solution offers several advantages:

1. Sustainability: Uses clean, renewable solar energy.
2. Reliability: Continuous operation even in power outages.
3. Low Operating Cost: Minimal recurring electricity cost.
4. Scalability: Suitable for clinics, vaccination units, and rural health centers.
5. Improved Vaccine Safety: Reduces spoilage and ensures effectiveness.

IMPACT & SCALABILITY

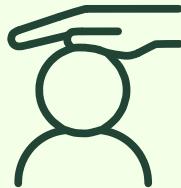
- Our system significantly enhances rural vaccination reliability, ensuring vital medicines reach those in need.
- The design prioritizes affordability and scalability, making it a viable solution for widespread deployment.
- This innovation can transform last-mile vaccine delivery, saving lives and improving global health equity.

CONTRIBUTING TO SDGS



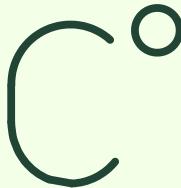
SDG 3: Good Health & Well-Being

Ensures safe immunization and reduces vaccine wastage, improving public health outcomes.



SDG 9: Industry, Innovation & Infrastructure

Builds resilient, low-cost cold-chain systems for underserved areas, fostering innovation.



SDG 13: Climate Action

Reduces reliance on diesel-powered refrigerators, contributing to a lower carbon footprint.

Thank You