



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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meddeal.in/90007-small-cold-box-short-range-capacity-15-litres.html?utm_source=chatgpt.com

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» Cold Chain Equipment » Cold Box » Cold Box Short Range with 32 Ice Packs, Capacity 16 Litres



IndoSurgicals

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

★★★★★ 1 Reviews

Write A Review

M.R.P.

₹18,999.00 (inclusive of all taxes)

Price:

₹13,570.00

Availability:

In Stock

SKU:

90007




- 1 +

ADD TO CART

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10% Off Radiation Protection Gear!

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Enjoy EMI options on orders above ₹3,000 with select credit cards.

Fast Delivery!

Get your order delivered quickly, usually within 3-4 days.

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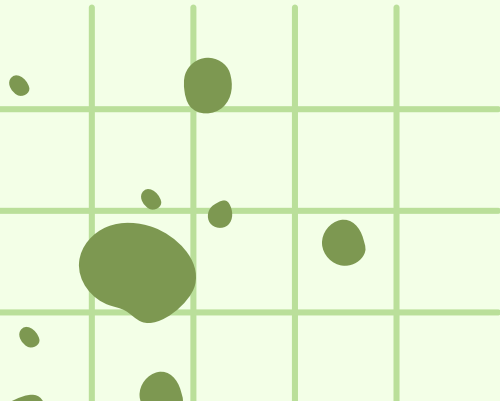
WhatsApp

Windows taskbar with icons for various applications and system tray showing time 23:11 and date 31-10-2025.

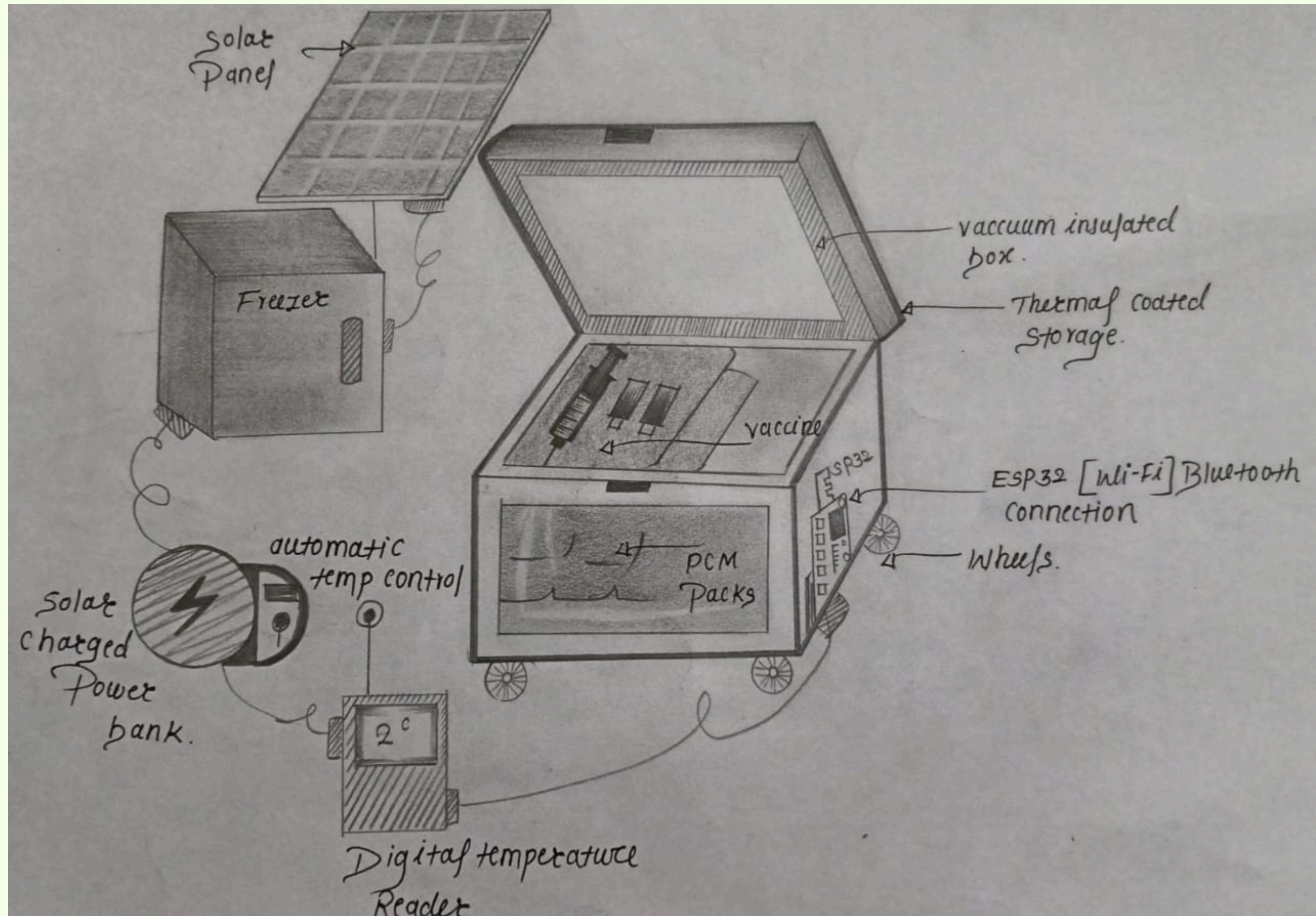


OUR OBJECTIVES

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.”
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SYSTEM DESIGN




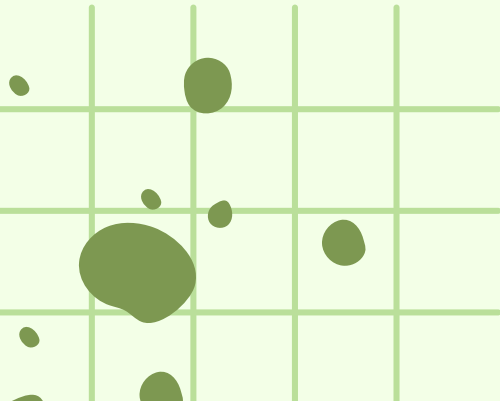
ADVANTAGES

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.
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CONTRIBUTING TO SDGS



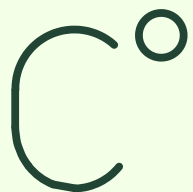
SDG 3: Good Health & Well-Being

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

