Proposal Template

Name of the institute: Indian Institute of Technology Indore

Incubator: IIT Indore

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1. **Objective: Development of a marketable product from a tested prototype of portable, standalone vaccine carrier with temperature maintenance, remote temperature monitoring and location tracking system**

Type of Intervention: (Choose one)

1) Proposal on Vaccination drive community engagement

2) Proposal on Cold storages and Cold chains battery or solar operated for last mile connection

3) Last stage Vaccination development

**4) Post Vaccination studies.

Details of intervention:

(Should cover details about the product/ technology, methodology, milestones, timeline, Line-item wise financials along with tentative cost of transportation, annual maintenance etc.)

The vaccine delivery systems are based on passive cooling, using well-insulated containers and ice packs, making the systems heavy, and restricted by the duration of the ice life. Furthermore, ice packs introduce the risk of freezing vaccines, which greatly reduces their effectiveness. Maintaining Vaccine quality and cold chain is vital in any vaccination program. Storage and transport of vaccine to end user in remote areas is a difficult, but essential part of universal vaccination program of Government of India. Potency of vaccine is reduced every time the vaccine gets exposed to a temperature outside the recommended range of temperature. Once potency of the vaccine is lost, it can not be restored and vaccination becomes futile effort. recommended requirement of a robust temperature monitoring and mapping system at end user level .

In view of the above observations, it prototype is developed. It is a portable, standalone vaccine carrier box with temperature recording, maintenance, remote temperature monitoring and location tracking

system. The prototype has been tested for the results under varying conditions. A portable vaccine carrier box with a cooling system is developed for maintaining the temperature in the desired range of 2degree to 8 degree for longer duration. It can also be modified for lower temperature requirement of the vaccine. Present vaccine container area capacity is 1 litre. A module has a power backup provided with a rechargeable battery which can be charged in a vehicle or with a charger. It is a portable, standalone vaccine carrier which can be carried easily by peripheral health care worker or an Anganwadi or ASHA worker to the remote location.

Specifications:

- A vaccine carrier with volume capacity of 1.0 L prototype is developed as a lightweight, easy to carry portable box with compartments as per need.
- In-built temperature control module
- Temperature recording system which records temperature, display it on box and send reading to nearest sync/ attached mobile and will send a beep if temperature crosses set limit.
- Temperature controller system which helps to maintain the temperature of the vaccine carrier box in desired range. Once the set limit is crossed, the thermoelectric module will start functioning to cool the system.
- A GPS tracker system is being attached for location tracking of the device.
- A module to send temperature monitoring record and GPS tracking.

Milestones to be achieved

- More compact, lighter weight, and economical product
- More testing on battery to reduce weight
- Simpler packaging for easy maintenance

Timeline

S. No.	Steps Months	1	2	3	4	5	6	7	8	9
1	Development of first labscale prototype									
2	Development of microcontroller									
3	Testing and optimiztion of prototype in laboratory									
4	Development of first deployable product									
5	Deployment of vaccine box in primary health care centers and testing									
6	Result analysis and report preparation									

Tentative Cost of final product:

Rs. 10,000/- (The cost may reduce on mass production and further optimization)

Maintenance cost: Rs. 500 per year in case of any failure.

Funding required:

Item	Rs.
Manpower	180000
Consumable and sensors	350000
Travel	50000
Institute Overhead	116000
Total	**696000**

Do you have State Government connection, or will you require support from CSR –

Will require CSR support to conduct more field trials.

States that you can provide technology to –

We can provide technology to all states nationwide

Please answer following questions depending on the intervention you choose and if applicable to you:

Can you do the Community engagement yourselves or will need help by CSR-

We will require CSR support.

If you have a Market ready technology available,

- **How do you plan to deploy:** We plan to deploy it in Public Health Sector. We will approach Health Care companies for support and testing of the product.
- **Number of unites available:** The prototype is ready. It is tested with various configuration under various conditions. The product need to be made compact for size and weight to make it easy to carry and packaging simpler for easy handling and servicing if required.

Do u wish to partner with an NGO? If yes, name the NGO and provide details on how u will partner? (item wise costing should include cost to NGO for their scope of work)

No.