

Name of the startup: ZedBlox Logitech Pvt Ltd

Incubator: CCMB-AIC

Advisors: Dr. Madhusudhan Rao Nalam, Dr. Ramjee Pallela of CCMB-AIC

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Type of Intervention: Proposal on battery powered, ultra portable, last mile cold chain solution for Covid vaccine distribution

Details of intervention:

#### Last Mile Cold Chain

All vaccines, diagnostic samples, reagents and about 6% of all pharma products require strict temperature control to avoid wastage and remain effective. While the primary cold chain from manufacturer to distributors is reasonably well developed, last mile remains a weak link due to complex process which workers find hard to adhere to, passive carriers without any monitoring and lack of viable, alternate solutions. This is resulting in over \$3 billion worth of vaccines wasted globally, every year. More importantly, the vaccines are used without knowledge of damage, causing under- or ineffective- vaccination putting people's health at risk.

#### Covid 19 Vaccination

In the prevailing situation of weak last mile cold chain for vaccines, effective Covid 19 vaccine distribution becomes an even bigger challenge for three reasons:

One, the scientists have not had time to mature the new Covid vaccines to tolerate minor excursions of temperature.

Two, these vaccines are in short supply compared to the population size. So, wastage should be prevented as much as possible.

Three, any failure of vaccination due to damaged vaccine puts that patient at immediate risk due to the presence of the virus in the population. More importantly, this can undermine the public perception of the effectiveness of the vaccination program. Recurrence of disease after vaccination results in magnified damage not just to that patient but the larger population. We cannot afford that.

#### ZedBlox ActiPod

ZedBlox ActiPod is a patent pending, innovative last mile cold chain solution that maintains the desired target temperature of Covid vaccines under all conditions. With ActiPod, our workers

- Do not need to figure out how many ice/gel packs to pack based on distance, time of day, weather, load size etc
- Do not need to spend time to wait for ice/gel packs to be ready
- Do not need to wait for conditioning the ice/gel packs to initiate ice melt
- Do not need to be careful to make sure that the vaccine vials are not in close contact to ice packs.
- Need to make sure the device is charged similar to their smartphone
- Need to just load ActiPod and go (device can be kept switched on all the time). Easy enough to carry at <6 kgs empty.

ActiPod is packed with smart electronics and sensors to make sure the cargo stays at the right temperature always or will send mobile alerts to users in case there is something wrong like door left open etc. The onboard rechargeable battery lasts for full 12 hours of operation. The onboard

rechargeable battery lasts for full 12 hours of operation on a single charge. Device can be charged using any electrical or vehicle power outlet even while being used.

ActiPod is a smart device with live remote monitoring that sends GPS location tracking info, temperature data along with other device data using cellular data to a central cloud server. The cloud server allows managers to review the devices at a glance, has AI/machine learning models running to generate analytics monitor the larger vaccination efforts. It also generates alerts for ZedBlox in case any failures of mechanisms occur so that ZedBlox service technicians can visit and rectify the problem.

#### ActiPod Status

Current status:

- Product has been validated for biological safety under the supervision of Dr. Madhusudhan Rao Nalam and Dr. Ramjee Pallela at CCMB-AIC
- Product has been completely designed indigenously (Atmanirbhar Bharat).
- Manufacturing has started (Make in India) in our factory in Hyderabad. All major components are sourced from countries outside of China and sub-assemblies are made in India.
- Demoted the product to central health ministry and multiple state governments.

#### Help Sought

We are seeking funding assistance for the following in preparing to deliver 2000 units to Indian government every month starting March 1 to help enable safe distribution of Covid 19 vaccines to Indian public:

- Scale up manufacturing: Starting December 1, 2020, ZedBlox has started manufacturing of ActiPod. Being a startup, our current small scale setup has the capability to manufacture 100 units per month. ActiPod will be crucial in reaching remote communities and in extreme climate areas where current passive carriers fail to meet the needs. We need funds to scale up our manufacturing capability to meet the tremendous interest we are seeing.
- More product testing: We have been doing more tests to ensure confidence in our product. We are incubated at CCMB-AIC which has been helping us validate our product for biological safety. More tests are needed to instil confidence in the product.
- Working Capital: ActiPod is an important weapon in our government's arsenal in the war against Covid 19. We need financial help (listed below) to equip ourselves to deliver 2000 units per month. We have applied for a bank loan but it has not been approved yet. If approved, the need can be reduced accordingly. It is important for us to get INR 60 Lakhs to start the preparation in advance of orders from Government and Private sector due to time sensitivity for Covid vaccine distribution.

Heads	Amount (Rs lakh)	Basis
Product Testing	10	5 lakhs per each of the two variants of ActiPod to perform temperature cycling and physical tests in a lab
R & D costs	7	Costs to make minor corrections to the product design and the tooling (including moulds)
Working capital	60	15% advance payment on raw materials for 2000 units @ 20,000 per unit

Machine tooling	80	Need injection mould, equipment for pressure filling of insulation foam, refrigerant, jigs for assembly, battery testing equipment and bulk testing of electronics
People costs	8	Additional manpower for assembly, testing and support for 6 months
Factory setup	25	Lease and setup expenses for our own factory with minimum capacity of 2000 units per month and expandable to 5000 units per month
Contingency	10	To account for increased input costs, duty rate changes, working capital issues and unforeseen expenses
Total Ask	2 Crores	