iDEX Innovations for Defence Excellence

PM Awardee

DEFENCE INNOVATION ORGANISATION

(Under the aegis of Department of Defence Production)

Ministry of Defence, Government of India

New Delhi -110002

Summary of Relaunch (iDEX Prime & iDEX Prime X)

Problem Statements of Indian Air Force (IAF)

S. No.	Name of Agency	Number of Problem Statements
1	Indian Air Force	2
Total		2

iDEX Prime & iDEX Prime X Problem Statements

Problem Statement (iDEX Prime)–(Indian Air Force)

Organization Name	**Indian Air Force**
Problem Statement/ Challenge title	**UAS Based ESM for SIGINT in hilly terrain and high-altitude areas**
Challenge domain	**Sensors / UAVs**
Challenge brief/definition	**1.** The system is to have five tethered drones along the IB with distance of 50 Km in between two tethered drones with ELINT payload. **2.** The drones are to be mounted on SUV class Vehicle (Each drones on one vehicle). The drone vehicle should have a modular storage space (trays) for housing drone with the purpose of storage, transportation, charging, launching and recovery. **3.** The Drone/s should be stored in tray/s, which can be extended through a suitable mechanism for launch of drone/s and the trays could be retracted after the drone/s are recovered, for changing, storage and transportation, analysis operator consoles and data link. **4.** The system inside the vehicle/s should have compact receivers for ELINT. Suitable SAG graded encrypted SATCOM to be provided with the system to transfer data in real time to the higher echelon (e-Anveshan) on AFNET. **5.** Based on the inputs received from various ESM sensors, it should be possible to localise the position of the adversary's EW systems in near real time (minimum latency). **6.** It should be possible to deploy the system for operations from high altitude areas (up to 4 km AMSL) with UAS capable of operating up to minimum 100 m altitude from drone vehicle. Higher performance for launch and operation is desirable. **7.** It should transmit the SIGINT data in real time to higher echelons. **8.** UAS based ESM system should have sensors for ELINT and Datalink.

	9. Minimum altitude of UAS above the drone vehicles is to be 100 m. Higher range performance is desirable. **10.** ELINT PDWs (raw data in .csv/.xml format) from each Sensor are to be transmitted in real time to e-Anveshan server on SATCOM.
Project Outcome	**1.** The project is expected to deliver a complete vehicle/s based SIGINT system for hilly terrain and high altitude areas. **2.** The system is expected to improve EW capability for localisation of adversary EW emitters in near real time.
Future Expectation from the prototype / Technology developed	Betterment in the sensor capability to localise and improvement in drone performance for providing higher performance.

Problem Statement (iDEX Prime X) (Indian Air Force)

Organization Name	**Indian Air Force**
Problem Statement/ Challenge title	**Development of Inflatable/Modular Sun Shelter**
Challenge domain	**Sustenance**
Challenge brief/definition	**1.** During operations, combat units are required to undertake operations from Off base sites, which involve usage of sensitive equipment in harsh weather conditions. Adequate environmental protection to the equipment will ensure optimum performance of the equipment as well as Crew operating these systems in time constrained environment. All weather Inflatable Shelters can be utilised to provide adequate protection to the equipment and Crew. **2.** Since the problem discussed above warrants its usage in harsh weather conditions and battle/ conflict ridden areas, certain design features like rapidity in deployment redeployment, extreme weather sustenance, ease of transportability in hilly/jungle/ desert terrain, compact storage capability with additional design features of integrated power and network sockets is vital. **3.** Denial of SAR update to enemy SAR satellites is another essential feature to deny any intelligence gathering from enemy / satellites/ aircraft RPA. This is quintessential to provide requisite protection to own equipment manpower from long range vectors of enemy. **4.** The overall objective of the proposed solution would be to safeguard costly and sensitive equipment as well as manpower from harsh weather conditions and enemy satellites/ aircraft/ RPA. **5.** It should be temporary and modular structure which can be assembled and dismantled by local resources. Shape of shelter should preferably be curved, similar to a blast pen. The material of shelter should be water proof and fire retardant with recognized fire certification. It should provide sufficient thermal insulation. The shelter should have Heating, Ventilation

	and Air Conditioning (HVAC). It should be able to withstand high wind speeds. It should be possible to power on the ac within the shelter and the ac should be able to taxy in/out of the shelter It should be able to work efficiently up to an elevation of 4.5 km AMSL.
Project Outcome	All Weather Inflatable Shelters for parking of all fighter aircraft and helicopters in the inventory of Indian Air Force.
Future Expectation from the prototype / Technology developed	Scaled up for use for transport class of aircraft.