Software Problem Statements

The Rs. 2 Lakh Prize money from alumni is **not** applicable for **BharatX** and **Tezos** Problem Statement submissions. Choose your problem statement accordingly.

[Tezos] Blockchain

1. Demonstrate token gating using Tezos smart contracts. - (**Rs 25,000 reward**)
2. Replicate ERC721 Standard on Tezos and build your own collection using it - (**Rs 50,000 reward**)
3. Perform whitelisted ICO of 15 addresses using a Merkle Tree. Only a whitelisted wallet should be able to do the transaction on the smart contract - (**Rs 75,000 reward**)

[BharatX] Family Tree - (Apple MacBook M2 Pro)

Create a Family Tree of all families in India (Pan India) using Electoral Roll Pdf with the data available at nsvp.in.You are free to use any technology or any hack to crack the following problem statement. (Link to elaborated problem statement)

[Campus Development] Placements portal

Design an efficient portal for facilitating the placement process in the college. The whole placement process should be smoothly integrated within the portal.

[Bluelearn] Relocation Guide

Moving to a new country is no small task. Globalization has opened doors to new countries for people from all walks of life with the largest part of the immigrant population being students or young professionals like ourselves, moving for education or work. Develop an application to help ease the relocation of these people to another country.

[GMetri] Speech Recognition

GMetri is a No-Code Metaverse creation and Management platform. Interactivity in GMetri is added using “Rules” which are simple english sentences of the form “When” <an event> occurs, “Then” <an action> should occur. Currently customers choose the rules by selecting in the form. We want the customers to be able to speak out the rules instead. Create a feature to use speech to Generate Rules for GMetri Experiences.You are free to use any speech recognition library for this. (Link to elaborated problem statement)

Hardware Problem Statements

[Campus Development] Smart waste management

We generate a lot of trash that is not disposed of properly every day. Disposal of organic and inorganic waste would reduce the harmful effects of these wastes on the environment. Proper waste management ensures repurposing waste into valuable products, such as manure from organic waste and recycled plastic. Develop a system whose end goal is to separate organic and inorganic waste along with an efficient way to store them for up to 10 days without it affecting the area it is stored in (odor, visuals, harmful gasses, etc.).

[Campus Development] Energy saving solutions

Electricity is an inevitable resource; one cannot imagine a day without it. Thus it must be used sustainably. Averting the wastage of electricity is another way to save it. Design and develop a system that(either replaces the existing method or adds to it to improve the current approach) to help mitigate wastage of electricity for a location/use case(s) on campus. (Example: people leaving Orion classroom without turning the lights and fans off, using lights and fans even when the hostel room is not occupied).

[Campus Development] Landscaping

Our campus covers an area of 800 acres which includes various terrains. The grass landscapes around buildings and weeds around roads need to be trimmed regularly to ensure road safety and visual appeal. Develop a tool/system that accomplishes the task of landscaping various terrains on campus that is better than the current method for landscaping.

[Campus Development] Drinking water

We have around 300 water dispensers on the campus overall. It is hard to monitor the quality and functioning of these dispensers simultaneously. This leads to inefficiency in the process, leading to the water dispensers' downtime. Develop a system/device that monitors the necessary parameters from water dispensers and reports it to a central station. The goal is to make it easier for the water treatment provider to identify and fix the problem as soon as possible.

[Campus Development] Open Problem statement

Our campus has a lot of scope for innovation. Identify a prevalent issue or problem on our campus that you feel could be solved using technology. Develop a model/prototype/system that accomplishes the task of the chosen problem. Keep the scalability, feasibility, and cost in mind while designing the problem's model/prototype/system.

[Boeing] Drone Navigation

Drone technology has become more prominent than ever in commercial and defense applications. One of the main challenges of this technology is the navigation and control of these drones autonomously in various terrains. Design a model/prototype/system for controlling the drone's flight path via ground markers. You are free to choose the specifications of the ground markers while keeping in mind their practicality.

[Boeing] Environment Building

The army deals with unidentified objects in hostile and treacherous regions that are strategically important to the country. They cannot get a clear view with their current visual system due to the presence of other objects around them. Develop a model/prototype/system that detects the foreign objects among object clusters from multiple drone vantage points and constructs a compound object view.

[Campus Development] Unmanned delivery

We can now get groceries and food deliveries from places of our choosing via companies like Zomato, Swiggy, Amazon etc., but these services are still very limited when it comes to options and delivery time on our campus. This is mainly due to the proximity of the vendors and the logistical complexity of delivery inside the campus. Develop a model/prototype that enables delivery of standard food and grocery packages anywhere inside the campus without human intervention.