PSID	Problem Statement	Description
CL01	Neglect of Crop rotation or cropping pattern – alternate C3 and C4 plants	Food crops such as food grains, sugarcane and other beverages and non-food crops such as fibres and oilseeds make an array of cropping patterns. Depletion of nutrients of one crop can
CL02	Seed quality analysis	Post-harvesting seeds and their optimum germination in another cycle is key to success in farming. Seed quality can change due to several
CL03	Soil nutrient analysis	Soil nutrient analysis is key determine the use of natural or artificial fertilizers for farming. Soil nutrient analysis can also determine the extent of the crop yield. A systematic evaluation of all
CL04	Programing plants for Tolerance to Abiotic Stresses	Abiotic stresses is one of the factors that significantly limit crop production worldwide with an
CL05	Increase the shelf life of fruits and vegetables & Postharvest Processing	Food waste and loss is an important issue worldwide with 20% of dairy products, 30% of cereals, 20% of oilseed and pulses, 20% of meat, 45% of fruits and vegetables, 35% of fish and seafood, 45% of roots and tubers are lost or wasted. Biotech intervention to decreasing postharvest losses to ensure food supply, the
CL06	Rapid detection of bacterial and fungal infections in plants	Infections are detrimental for successful cropping practices. Infections can differ during various stages of growth and at different parts of the plants. These will have a significant impact on the crop yield. Identification of
CL07	Identification of food adulterants	The current estimate of more than two million people, including children, face fatality due to the consumption of unsafe food and impure water annually. The different forms of food adulteration with diverse forms and chemical combinations without direct tracing affect the food integrity and authenticity in developing countries. The need for proper identification of
CL08	Vaccine candidates	The development of vaccines by conventional methods for a specific pathogen is labor intensive, time consuming, poor immune responses, need of adjuvants, and susceptibility to enzymatic degradation and expensive. It also has high failure rate and becomes trickier for
CL09	Drugs from plants for infectious microorganisms	The microbial resistance to classical antibiotics and its rapid progression has raised serious concern in the treatment of infectious diseases. The phyto compounds have exerted potential antimicrobial activities against a large number of pathogens via different mechanisms of action.

CL10	Targeting microorganisms as antifouling agents	The problem of biofouling by the undesirable colonization of surfaces by fouling organisms, including micro-organisms and macro-organisms cause huge material and economic loss. Currently, other toxic and non-targeted
CL11	Microorganisms for bioremediation	Today, environmental pollutants are one of the primary concerns all over the Globe, which in turn affects human health. The Domestic and industrial waste generated with non-degradable pollutants progressively deteriorate the environment, and current technologies are insufficient to clean up the vast mass of trash. The individual
CL12	Cell factories –The single-cell programmed differentiation artificial red blood cell	The demand for blood transfusion remains high in surgical interventions and other hematologic malignancies, and there is an imbalance in blood demand and supply. Can we create a roadmap for how specific features of genomic architecture
CL13	Nanobubbles application for plant and human cells – take an example	Micro- and nanobubble (MNB) technology is an emerging technology to solve multi domain problems, an effective alternative for current treatment technologies. It proves a wide level of applications in agriculture, Industry,
CL14	Stem cells for infectious diseases	The multipotent mesenchymal stem cells currently focused by innovators for its therapeutic impact due to the immune-modulatory effects, through a variety of bioactive factors, which actively contribute to mitigate with tissue damage, inflammation, and infection associated with bone, cartilage, lungs, pancreas, the central
CL15	Biofuels	Biofuels offer an excellent alternative for fossil fuels and currently contributing in a small amount to the growing global demand, and biological alternative sources of renewable energy exploration are the need of this hour. Biochemical and Bioinformatics understanding
CL16	Biodefense development of a multi-dimensional antidote platform	Nextgen biodefense is a need of time. It includes measures to restore biosecurity against pathogenic organisms, bacteria, viruses, fungi, and biological toxins potential warfare to exploit and eliminate biological threats in the context of bio-war or bioterrorism. Rapid detection of biological threats or infectious diseases by forensic and intelligence operations

CL17	Precision Medicine	According to Food and Drug Administration (FDA), Precision medicine, sometimes known as 'personalized medicine' is an innovative approach to tailoring disease prevention and treatment that considers differences in people's genes,
CL18	Antibody Engineering- Building better antibodies	Antibodies have been used in various therapies. The Recent technological innovations provide insights on various markers, receptors, ligands, and other biomolecules, which are part of cell signalling that trigger immune reactions. The structural modification of antibodies based on the target can influences/ trigger an action on a
CL19	Biosensors – development of electrochemical detection system for Wearable Devices & paper microfluidics detection kits	Biological receptors are integrated into a biosensor to selectively capture a target of interest detection capabilities with the gold standard method. Antibody-based medical diagnostic biosensors, biomarkers based on body fluids
CL20	Biotech Nanobots - Hybrids Nanorobots	Innovative designing of nano-sized robots that are enough to enter the bloodstream and perform certain precise tasks such as targeting and killing cancer cells, delivering drugs to infectious sites. Nanorobot designs may include biomolecules/DNA-based structures containing cancer fighting drugs that bind only with a specific biomarker found on cancer tumours/ target cells. Once it attaches, the robot releases its drug into the tumour/ target cells

CL21	Artificial Intelligence-Solve drug design, discovery, vaccine innovation and Precision medicine	AI enables innovators to automate a wide range of processes, helping them scale up their operations. For instance, Innovators can leverage AI to speed up the screening of drug discovery process, screening of billion molecules that don't exist in nature, biomarkers screening to discover novel, innovative products. Currently, Big data is complex, so noisy & sparse and heterogeneous available in biological and clinical data streams. Unique AI algorithms allow to solve these problems by exploring the raw data from medical scans, drug database, and crop disease patterns/symptoms, biomolecules, microbiomes, screen phenotypes, and develop rapid solutions.
CL22	Revolutionizing the Biotech Industry through Big Data	The unprecedented amount of data available in virtual libraries with Millions of compounds, Biomolecules, Bio-markers, genetic, ethnic, medical, microbial, bioinformatics and other biological data capable of integrating and transform into innovative solutions. These unexplored Big data & analytics solutions allow BioTech innovator to tap into this wealth of data to drive innovation for a wide array of problems through real investigation of this massive data. Innovations based on artificial Intelligence, augmented machine learning and deep learning for Predictive Analytics, Prescriptive Analytics and other technologies that assist in resolving the challenges surrounding big data.

CL23	Biochemical smell Sensors. Rapid detection	Development of Olfactory biological sensor System/ technologies based on the biological nose as a model that mimics human/Animal olfaction that capable of detecting different types of odour components highly accurate high sensitivity with support of AI technologies to detect health, diseases, mixtures of gases, environmental risks, including COVID-19, etc. with a wide range of other possible applications in medicine, lifestyle, fragrance research, biosafety, industry, environment, agriculture, food industries etc,.
CL24	Drug Delivery Systems	Develop formulations or devices that enable the delivery of the therapeutic substance to selectively reach the site of action without causing issues in the non-targeted sites
CL25	Drugs and biomaterials from Oceans	To explore the biodiversity of seas and oceans and to explore potential molecules which can be further developed as potential drugs as well as useful biomaterials for many applications. Novel applications for characterized biomaterials also would increase the usability of the molecules from oceans.
CL26	Handheld device	An innovative portable device that can be carried and held in one's palm as a replacement for heavy instruments, especially those needed in field studies, rather than taking samples to labs. There are several such devices, including smartphone-based devices, targeting various applications.

CL27	Smart agriculture	It integrates the information and communication technologies along with the machine/devices. It includes sensors, software, data science, robotics, connectivity. Innovative with Sophistication of agriculture would be an asset that ensures a high yield with less human labour.
CL28	Call for Toilet technology	affordable, sustainable with low Oandamp;M and environment friendly technologies. However, our country being vast with quite a variation in the geographical and biogeographical features the variation in water table, dryness and aridness or rains is observed annually. This is especially true for areas which receive high rains with low percolation in soil, rocky hills, fragile hillocks prone to landslides, arid and areas with poor connectivity and infrastructural setup.andquot; Solutions invited for innovative toilet technologies from the participants for the following areas: · Hard rocky areas · Fragile hill areas prone to land slides · Flood prone and low lying moist areas · River bed, wetlands and coastal areas · High rainfall areas · Containment of and onsite treatment of faecal sludge in septic tanks in such areas without the seepage to avoid ground water contamination · Specific local solutions by any innovation Any solutions for the upgradation of single pit to the twin pit system are also welcome. It was expected that the technology should be cost-effective, sustainable, reliable and durable, user- friendly, weather proof, environmental-friendly, and preferably uses locally available material (locally implies the

CL29	Technological solutions for safe disposal of menstrual waste	With increase in education and awareness levels around Menstrual Health and Hygiene, more and more women and adolescent girls in the country are switching to safe sanitary options to manage their menstrual cycles. However, there is still no formal waste management system of sanitary waste. Often these are disposed off in fields, water bodies, flushed in toilets or dumped along with the regular solid waste. Solutions to manage and dispose of sanitary waste. The solutions should be: · Safe for the environment, and not cause any air, water or soil pollution · Cost-effective · Scalable across villages and institutions such as schools, colleges, etc.
CL30	Technological solutions for Early decomposition of fecal matter	In large parts of rural India, onsite treatment is preferable over sewer system owing to the ease of implementation and cost- effectiveness. Any solution which helps decompose faecal matter quickly will enable easy and safe emptying of the toilet pit/septic tank. This will reduce the turn-around time for re-use of the pit/septic tank and will lead to sustained use of the toilets. Solutions to expedite the process of decomposition of faecal material. It was expected that the technology should: · Decompose the faecal material in the shortest possible time · Cost-effective · Scalable · Easy to implement · Safe treatment · Manure · Weather proof and environmental-friendly
CL31	Call for low-cost desalination technology for Lakshadweep and Inland saline water sources.	Desalination of seawater and brackish water will play an important role to meet the drinking water for Lakshadweep. A cost effective technology for desalination for Lakshadweep and inland saline water is required to meet the water supply demand at every rural Households. The technology should focus on : · Higher fresh water recovery. · Quality water supply as per BIS 10500. · Low energy cost. · Preventive scaling measures. · Low Operation and maintenance.

CL32	Web /Mobile based tool for mapping of Water supply network	al Jeevan Mission was launched with the vision of providing drinking water in adequate quantity of prescribed quality on regular and long-term basis to every rural household. A cost effective technology is required for providing web/ mobile based tool for mapping of water supply network through creating geospatial database of all major structure of Water supply system with provision with grievance redrassal and IoT system for alert monitoring.
CL33	Call for cost-effective ways of making water source for piped drinking water supply sustainable in Rural areas	Jal Jeevan Mission was launched with the vision of providing drinking water in adequate quantity of prescribed quality on regular and long-term basis to every rural household. A comprehensive cost-effective technology is needed for the assessment of groundwater recharge done by source sustainability technology which is positively affecting the ground water-based source under consideration and predicting the longevity of the drinking water source to serve at the design discharge in the long-term considering the effect of drawl by the irrigation tube well. The technology should focus on the following: a. Monitoring of data for monitoring of drinking water source for a village. Generation of alerts in case of rapid deterioration. b. Innovative cost-effective technology for Rain Water Harvesting and Recharge. c. Innovative means to improve source sustainability. d. Re-use of Grey Water: Utilize non-toxic wastewater from households(with/without basic treatment) e. Accurate measurement of the capacity of the Aquifer and the actual water demand. f. Citing correct locations for recharge and discharge of ground water. B. Potential condition of Water Quality.

CL34	Estimation of inflow to a reservoir from the rainfall considering soil moisture in its catchment and releases from upstream reservoirs and automatically opening of reservoir gates for moderately releasing the water to avoid the flooding in a basin.	automation to optimize reservoir gate operations and mitigate flood risks. Key Challenges: Accurate Inflow Estimation: Developing a robust and accurate method to estimate the inflow to a reservoir by considering multiple parameters, including rainfall intensity, soil moisture conditions within the catchment area, and potential contributions from upstream reservoir releases. Real-time Data Integration: Integrating real-time data from weather forecasts, soil moisture sensors, and upstream reservoir releases into a centralized system for inflow estimation and decision-making. Model Complexity: Designing sophisticated models that can effectively capture the complex interactions between rainfall, soil moisture, reservoir levels, and inflow dynamics, while remaining computationally feasible. Optimal Gate Control: Developing an automated gate control mechanism that can regulate the release of water from the reservoir in a manner that prevents flooding downstream while ensuring optimal utilization of the stored water. Flood Risk Assessment: Incorporating flood risk assessment models that consider downstream vulnerability, historical flood patterns, and potential impacts of various release strategies.

CL35	Automatic regulation of valves for release of water based upon soil moisture availability in the root zone of the crop, using artificial intelligence, in a piped and micro irrigation network of irrigation system.	[illegible] management plays a critical role in achieving optimal crop yields, conserving water resources, and maintaining ecological balance. However, existing irrigation systems often lack the precision required to deliver water tailored to the actual needs of crops, leading to water wastage, suboptimal plant growth, and environmental degradation. This problem is particularly pronounced in piped and micro irrigation networks, where traditional methods of manual control fail to adapt dynamically to varying soil moisture conditions within the root zone of crops. The core issue lies in the absence of an automated mechanism that can regulate the release of water based on real-time soil moisture availability. The inconsistency in water distribution and the inability to synchronize irrigation with crop water requirements result in detrimental outcomes for both the agricultural yield and water conservation efforts. To address this problem, there is a compelling need for an innovative solution that leverages artificial intelligence (AI) to enable the automatic regulation of valves for water release in piped and micro irrigation networks. By incorporating AI-powered soil moisture monitoring and decision-making processes, this solution aims to
CL36	AI-enabled water well predictor	The web-based system is expected to help common users in making decisions regarding water well in a particular location. The system will be driven by NAQUIM data of CGWB like lithology, geophysical logs, water levels, water quality, aquifer maps, etc. On a user-selected point the AI-based predictor should be able to provide the following information: i. Whether the area is suitable for water well construction or not? ii. At what depth water-bearing zones are expected to be encountered; iii. What is the expected discharge of the well; iv. what is the most suitable drilling technique in the area; v. What is the expected quality of groundwater in the area and other relevant information? There should be a user-friendly graphical user interface. Provisions should also be there to obtain the user feedback in a structured manner.

CL37	A mobile app that crowd sources water-related problems from around a community, open sources data, etc. and display them on a map.	The use of social media data in disaster and crisis management is increasing rapidly. Particularly in connection to flooding events, water quality issues in ponds/lakes, urban flooding, and drainage problem, etc., geo-referenced images shared by citizens can provide situational awareness to emergency responders, as well as assist with financial loss assessment, giving information that would otherwise be very hard to collect through conventional sensors or remote sensing products. Discussion about such events can also be found on various social media platforms. Further, recent advances in computer vision and deep learning can perhaps support the automated analysis of these data. In this problem, software/ algorithm to be developed focusing on ground-level images taken by humans. Considering distinct datasets from different sources, the algorithm of the developed mobile app should be able to categorize water-related problems at different administrative. Further, the mobile app should serve as a valuable tool for the administrators for planning and managing water-related problems.

CL38	Projection of the extent of inundation corresponding to the forecasts of flood levels in a river.	flooding especially in monsoon season. Central Water Commission (CWC) issues flood warnings in all flood-prone districts based on the regularly measured water gauge level. Flood warnings are issued by CWC to the state administration, whenever the gauge levels cross the danger mark. In all such cases, the severity of the problem is essentially indicated in terms of flood levels. However, the major concern of the state administration is regarding the difficulty faced in assessing the spatial extent of flooding for mapping rescue and relief works. Large volumes of imagery corresponding to varied flood inundations are expected to be available with NRSA and other freely assessable sources. The past imageries corresponding to a specific forecast site can be collected and each imagery be stamped with the observed water level of that particular date and time. An AI-ML-based GIS application can be developed to process the available imageries for projecting new imageries using suitable interpolation/extrapolation of 2D information corresponding to specific flood levels within a given range. The participants of SIH are expected to develop the above-mentioned application using open-source software and demonstrate its utility for any one

CL39	Use of Digital Technology to calculate water footprints for different daily use items.	water used to produce each of the goods and services we use. The water footprint helps us understand for what purposes our limited freshwater resources are being consumed and polluted. The impact of it depends on where the water is taken from and when if it comes from a place where water is already scarce, the consequences can be significant and require action. The increase in the amount of non-available water due to pollution and scarce groundwater level has added more water footprints, at the community as well as at the personal levels. An increased water footprint directly affects the health and future of the citizens. Preventing severe drought in water-stressed areas is only going to be possible if water is used with more care and efficiency, this can be done if we have readily available data on water footprints. Hence by using digital technologies like AI, Big Data, Blockchain, etc, and computer languages, a user-friendly app or website may be developed which can provide the water footprints of different items/ final products we use in daily life by feeding little inputs or just by scanning through the camera like Google lens. The app should support local languages, this will ensure pan-India usage and
CL40	Student Innovation	Cutting-edge technology in these sectors continues to be in demand. Recent shifts in healthcare trends, growing populations also present an array of opportunities for innovation.
CL41	Student Innovation	Developing solutions, keeping in mind the need to enhance the primary sector of India - Agriculture and to manage and process our agriculture produce
CL42	Student Innovation	Solutions could be in the form of waste segregation, disposal, and improve sanitization system.
CL43	Student Innovation	Innovative ideas that help manage and generate renewable /sustainable sources more efficiently.

CL44	Development of suitable Software and Hardware components/sensors for springshed mapping, monitoring and management.	and hardware components for a comprehensive GIS-based mapping system to help visualize the springshed boundaries, water sources and other related data. Predictive model to forecast the water availability in the springshed for domestic and other use. Workable data management system to store and analyze data related to the springshed. A good decision-support system model to guide and help stakeholders make informed decisions related to springshed management. An automated alert system to inform stakeholders of changes in the springshed landscapes. Methodology; Hardware: 1. High-resolution airborne LiDAR systems: This can be used to accurately measure the topography of springsheds, including surface elevations, contour lines and watershed boundaries.2. Water quality sensors: These sensors measure various water quality parameters such as temperature, pH, dissolved oxygen, salinity, nutrients and other contaminants. 3. Stream flow gauges: Which measure the volume of water flowing through a nalaÃƒÂ¢Ã¢â€šÂ¬Ã¢â€žÂ¢s, streams or rivers. 4. Weather stations: measure the parameters such as temperature, humidity, wind speed, precipitation and solar radiation. Software: 1.
CL45	Number of persons benefitted from using the Water Harvesting Structures (WHS) created / rejuvenated in the project areas under WDC 2.0 for economic activities like fisheries etc for alternate source of income generation.	Creation / Rejuvenation of WHSs are one of the major activities under WDC-PMKSY. Besides being a source of protective irrigation in the rainfed areas, contributing towards improvement in soil moisture, increase in water table etc, the WHSs are also utilized for livelihood activities like fisheries, aquatic vegetable cultivation etc providing substantial incomes to the project community. Methodology: Computing of Incomes generated by the families /community directly involved in use of the WHSs for their income generation activities. Organization: Department of land Resources (Ministry of Rural Development) Category: Software Domain Bucket: Livelihood / Income generation

CL46	Developing an algotithim / programme to measure increase in income of FPOs on account of project interventions under WDC 2.0.	With the objective to help achieve higher economic growth for the project community and collectivization of farm operations, which can be realized through FPOs, the New Generation Watershed Guidelines envisage formation of FPOs right from the planning stage of the projects. The FPO shall be the member - owned and member - managed institution. Any household dependent directly or indirectly on the natural resources of watershed can join the FPO by paying prescribed share capital amount and membership fee as defined by the organization. Methodology: Computing of Incomes generated through provision of demand based services, operation of Custom Hiring Centre (CHC), marketing of local agricultural produce through alternate market channels etc.
CL47	Student Innovation	Challenges your creative minds to conceptualize and develop unique toys and games.
CL48	User-friendly digital solutions for efficient communication between community health workers and Expert Doctors.	"Empower your community health workers with user-friendly digital solutions designed to streamline communication with expert doctors. Our platform facilitates efficient exchange of information, ensuring timely and accurate diagnosis and treatment recommendations. By bridging the gap between frontline workers and medical experts, we enhance healthcare delivery, leading to improved patient outcomes and strengthened healthcare systems."
CL49	Affordable and Sustainable solutions for rural sanitation & hygiene.	"Introducing affordable and sustainable solutions to address rural sanitation and hygiene challenges. Our innovative approach combines cost-effective technologies with community engagement strategies to promote proper sanitation practices and improve hygiene standards in rural areas. By prioritizing sustainability and affordability, we aim to create long-lasting impact, ensuring healthier environments and better quality of life for rural communities."

CL50	Alternative therapies for disease management	"Explore alternative therapies for disease management, offering holistic approaches to wellness beyond traditional medical interventions. From acupuncture and herbal remedies to yoga and mindfulness practices, these therapies provide complementary options for individuals seeking a balanced and personalized approach to managing their health. Embracing the diversity of healing modalities, we empower individuals to proactively address their health needs and enhance their overall well-being."
CL51	Next generation pharma revolution	"Experience the next generation of pharmaceutical revolution, where cutting-edge technologies and innovative approaches redefine the future of healthcare. From precision medicine and gene therapies to AI-driven drug discovery and personalized treatments, this revolution promises unprecedented advancements in patient care and therapeutic outcomes. Embrace the forefront of pharmaceutical innovation and join us in shaping a healthier tomorrow."
CL52	Management of chronic diseases	"Revolutionize the management of chronic diseases with a comprehensive approach that emphasizes proactive care, personalized interventions, and ongoing support. Our tailored solutions integrate medical expertise, technology, and patient empowerment to optimize treatment outcomes and enhance quality of life. By prioritizing prevention, early detection, and holistic management strategies, we aim to empower individuals living with chronic conditions to live healthier, more fulfilling lives."
CL53	Pharmacy Accessibility in Rural Areas	Develop a strategy to improve access to pharmacy services in rural or underserved communities. Solutions could include mobile pharmacy units, telepharmacy initiatives, or community partnerships to ensure residents have convenient access to medications and healthcare resources.

CL54	Patient Counseling and Education Program:	Design an interactive patient counseling and education program to empower individuals to better understand their medications, manage chronic conditions, and adopt healthy lifestyle behaviors. The program should incorporate multimedia resources, interactive workshops, and personalized counseling sessions delivered by pharmacy students.
CL55	Pharmacy Waste Reduction Initiative	Propose a sustainable solution to reduce pharmaceutical waste generated by pharmacies and healthcare facilities. This could involve implementing recycling programs for unused medications, promoting eco-friendly packaging alternatives, or educating healthcare providers and patients about proper disposal practices to minimize environmental impact.
CL56	Comprehensive Inspection and Analysis of Water Supply Distribution Lines	Water resources across the globe are slowly on the depletion and its forecasted that the ZERO water day will not be far away if water resources ate not protected well. one the the crucial area that stilp lies in the human hands is to save the watet leakages and pay a strong water distrulibution network that improves effeicient use of water.The challenge is to conduct thorough inspections of water supply distribution lines, ranging from 100 to 200mm in diameter, in order to detect leakages, pilferage, damage, and other issues. The solution requires access to a cloud_based dashboard for data analytics, visualization, and report generation. The solution enhance service delivery, improve repair work efficiency, reduce water leakage, and streamline pipeline condition assessment. The solution should enable immediate action on contamination complaints, early detection of leaks, reduction in labor_intensive breakdown management, and facilitate GIS mapping of the pipelines. Overcoming deployment constraints involving live inspections, image analytics, and laser projections will ensure accurate and efficient assessment of the water supply distribution lines.

CL57	Automatic Drug Dispenser	The never-ending queue in hospitals is a nuisance that patients have to go through. Along with the problems being faced by patients due to suffering from diseases, standing and waiting in long queues adds on as a challenge for them to face. This leads to inconvenience to patients at physical as well as mental level. Although in this direction, some steps have been taken by the hospital management system which makes it convenient for patients to consult with doctors by registering and taking an appointment prior to the visit to hospital. But, patients still face inconvenience at the mediciner Developing a QR Code drug ATM muy resolve the situation at hand, there Page 6 + ents. A QR code in the prescription will be used to dish out the right drug from the ATM. The drug ATM should be able to dispense wide range of Ayush Medicines available in a hospital/pharmacy.
CL58	Development of Augmentative and Alternative Communication (AAC) in Indian context	communication is very important for exchanging the need, Idea and feeling among others. ACC is an option for nonverbal mode of communication for the persons with communication deficit. This mode is especially used by non verbal individuals. Those who are having multiple disability and communication deficit, they must have to communicate with others but due to lack to motor coordination, intellectual deficit and sensory perceptual deficit not able to communicate with others. This is the major problem related of communication for the multiple disability or mainly those were having maximum deficit in motor coordination for communication, Due to communication deficit peoples are not able to communicate with the society. HITECH AAC is available in India which is developed in Foreign Countries that is very costly. There is need to develop an electronically low cost AAC and hardware made in Indian context. If AAC electronic device and hardware mode will be develop in Indian context, it will be easy and helpful for persons with nonverbal communication deficit. If it is developed low cost effective as per Indian context then it will be benefits the most of the population from AAC.

CL59	Develop therapy materials in Hindi for misarticulation children	Many treatments are available to treat misarticulation, speech therapy or articulation therapy focuses on pronunciation and talking. It deals with a person's ability to move the lips, tongue, teeth, and jaw to produce speech sounds. Misarticulation therapy is one of the most effective treatments for the articulation problems but all are treatments are available in English for that we need materials or treatments in Hindi version that will help individual to treat articulation problem in our Indian context. We need software in which there are number of therapy activities and techniques should be involve in which 3 to 4 domain will be included that is 1. Position level in which position of sound will be shown 2.Phoneme level (Initial, medial and final level in which all the words should be there in all three level) 3.Picture level in which word related picture should be present and last included number of correct and incorrect word individual speak, will be shown it will help individual to determine their incorrect word production. So if this kind of app should be prepare in Hindi version it will very helpful for the professional along with children and their parents. I will share some link which is in English version.
CL60	Low-cost Myoelectric Prosthetic Arm	In India the cost of a new Myoelectric/Bionic prosthetic arm can range from 1lakh - 2 lakh Rupees, putting the Myoelectric hand out of reach of many middle-class and lower middle-class patients/amputee, we decided to design and build a far cheaper and pocket friendly version of prosthetic arm with Myoelectric capabilities. We are using 3-DPrinting technology for the structure of the prosthetic hand, and servo motors and Arduino for the mechanical purpose, Myoware muscle sensor is responsible for reading the electrical signals generated by muscle. These components and microprocessor can bring the cost of the prosthetic arm much cheaper and pocket friendly for the patient/amputee.

CL61	APP Based Digital Audiometer	To know a person Hearing Loss, generally we use a Pure Tone Audiometer. To use this it requires a bulk of the instrument to be carried. This testing requires a considerable amount of time for testing. It was observed that during a large level hearing testing it is consuming much time. So a hand held Mobile phone operated APP BASED AUDIOMETER will be of immense useful in finding and detecting the hearing loss in children in a schools
CL62	Ear Electronic Device for Tinnitus Frequency Finding and Adjusting to Provide Relief to Tinnitus Suffering Patient	Various studies have shown that when a person suffers with TINNITUS NOISE he suffers due to anxiety or stress, as these stimulate an already sensitive hearing system which effects his day to day work performing, which has an impact on his livelihood and family. One of the effective treatment consists of using an electronic device to suppress the tinnitus noise. Which finding the frequency of the tinnitus. noise and suppressing requires a lot of instrumental support. Thus if t can be possible that by observing and analysing the tinnitus noise by the electronic device in the ear, the device itself finds the tinnitus noise frequency and suppress it accordingly, bringing benefit to the patient suffering from tinnitus.
CL63	Pro Planet Person App	A mobile application that tracks user activities and actions and tells the user if s/he is Pro Planet. Also offers suggestions on how to become a Pro Planet Person. Can use pop-ups and fun facts to nudge behaviors. The app can track behavioR across other selected apps such as food delivery, online ordering, etc. to nudge the users to choose sustainable alternatives in real time. For example, while ordering food, the app will send a pop-up reminding the user to deselect the option of disposable cutlery.

CL64	Optimizing Doctor Availability and Appointment Allocation in Hospitals through Digital Technology and Al Integration.	To develop a digital system that streamlines the appointment scheduling process in hospitals by automating the process of identifying doctor availability and appointment slot allocation. The system will utilize advanced technologies such as RFID, face detection, proximity of Mobile phone, or any other relevant technology to detect the presence of doctors in the hospital. The system will use Artificial Intelligence (AI) to allocate appointment slots based on the doctor's presence and the number of waitlisted patients. This will improve the overall patient experience by reducing the wait time. In conclusion, the proposed digital system will improve the efficiency and convenience of the appointment scheduling process in hospitals; the patients will benefit with reduced waiting time.
CL65	Vegetation measurement along the line corridor using satellite imagery	Solution is required for identifliing vegetation height below the Transmission conductor and raising alarm for lopping them. For this satellite imagery-based analysis is required along with trained machine learning model to simulate growth pattern. The growth pattern of different trees is different. The solution should be able to show the current height after adding the predicted increase in height (from the date of capturing to till date) to the height derived from satellite imagery.
CL66	Geo tagging of plantation in the catchment area of hydro project	The idea is to create a system that would keep a track on growth rate and existence of the plantation in the CAT (Catchment Area Treatment) area. It would also check illegal forest activities.

CL67	One-stop solution for monitoring dairy plant energy consumption, hygiene and packaging waste collection from consumers.	To provide a sustainable solution with regards to dairy plant operation and performance, the monitoring of plant's energy demand per unit of produce would be an essential parameter. Monitoring of plant hygiene and sanitation would play a key role through the perspective of improvements in food safety. On the consumer end of dairy product value chain, the efficient and easy mechanism for collection of packaging waste is very important aspect. It is the need of the time to have one-stop solution which would address the above mentioned aspects reliably with an integrated approach. Solution may be developed preferably based upon software integrated with associated hardware.
CL68	A software that suggests drugs and formulations for a disease/pharmacological property based on the Ayurvedic classical books/Repositories.	minerals, and formulations that have been tailormade to suit each individual, his/her psychosomatic constitution, clinical condition, comorbidities, age, region, etc. These data are spread over more than 150 texts, amidst manuscripts in multiple languages and scripts. With the rise of transcriptional and translational facilities, several traditional medicinal texts are now available in their digitized forms. But for an Ayurvedic student or practitioner, exploring this multitude of literature for identifying their ""drug of choice' often becomes tedious and impractical. Here is the need of a custom software that can identify the apt formulation that has been designed to treat a constellation of symptoms and present it to the student/practitioner along with its reference and other desired properties. For example, the two formulations Punarnavadi Kashaya and Vyaghryadi Kashaya are mentioned in texts as follows: Both these are decoctions advised in Jvara (fever) and Kasa (cough). But in a patient with upper respiratory tract infections like common cold (Pinasa), Vyaghryadi would suit better than Punarnavadi. Whereas in a condition associated with inflammatory changes all over the body. I Punarnavadi would be the

CL69	Chatbot to Known Individual Prakriti (Phenotype)	Ayurveda is a natural health care system that emphasizes the treatment of disease in a highly individualized manner as it believes that every individual is unique having a different constitution. It classifies all individuals into different 'Prakruti' types based on the theory of tridosha and each type has a varying degree of predisposition to different diseases. This is independent of racial, ethnic, or geographical considerations. Knowing which particular Prakruti one belongs to, enables them to decide the preference of food which suits them best. By following the rules and regulations regarding food and lifestyle, one can prevent themselves from getting inflicted with various diseases. But, Prakruti assessment is a tedious process that requires the individual to visit the physician followed by a long list of questions in order to reach a conclusion. In order to make this process more convenient, the development of a self-assessment tool with the help of artificial intelligence may prove to be a stepping stone. A Chatbot which has pre-recorded questionnaire may help in the Prakruti assessment depending upon the responses given by an individual.
CL70	Startup-AYUSH Portal	The key objective of the Startup AYUSH portal is to be a one-stop platform for all stakeholders (Startups, Investors, Incubators, Accelerators, Government Agencies, and Public Users) in the AYUSH system to interact and collaborate in a highly dynamic environment. The portal is directed to provide a collaborative platform for all the stakeholders of the AYUSH startups to have an interactive engagement to enhance and bolster the network. It will bring together the entire AYUSH Startup community at the global level through virtual connections, mentorship, and showcase opportunities. It will have a plethora of resources and information guides to propel everyone in their entrepreneurial journey.

CL71	AI-based tool for preliminary diagnosis of Dermatological manifestations	The Global Burden of Disease project has shown that skin diseases continue to be the 4th leading cause of nonfatal disease burden worldwide. These conditions are often the presenting face of more severe systemic illnesses, including HIV and neglected tropical diseases (NTD). such as elephantiasis and other lymphedema-causing diseases. Additionally, skin disorders pose a significant threat to patients' well-being, mental health, ability to function, and social participation. However, it is very difficult to provide better dermatological care to under-served or resource-poor regions in a cost-effective manner owing to unavailability of efficient diagnostic tools, lack of connectivity, and poor laboratory infrastructure etc. Moreover, there is also a scarcity of physicians with dermatological training. Even, preliminary screening of a dermatological manifestation seems to be an arduous task. Thus, developing an Artificial intelligence-based tool (through Image processing technique) for preliminary diagnosis of numerous dermatological conditions will prove to be a boon in the health care system.

CL72	Identification of Different Medicinal Plants/Raw materials through Image Processing Using Machine Learning Algorithms	ndia, with a rich heritage of floral diversity, is well-known for its medicinal plant wealth, but their identification is one of the major burning issues in Ayurvedic Pharmaceutics. Several crude drugs are being sold under the same name in the market leading to confusion and their misidentification. Even the collectors and traders are not completely aware of the exact morphological appearance or differentiating attributes of the many drugs owing to seasonal and geographical availability, and similar characteristics. Moreover, the extensive consumption to meet demand-supply ratio exerts a heavy strain on the existing resources. It further leads to the practice of adulteration, substitution, and disbelief in the curative capability of the system eventually. Thus, software capable of identifying different medicinal plants/ raw materials through Image Processing Using Different Machine Learning Algorithms will be of immense use. It will be helpful at every level viz. wholesaler, distributor, etc. of the supply chain of raw material being utilized in the system.

CL73	Development of a prototype instrument (sensor based) for assessment and quantification of rasas (taste) in crude herbs.	Every herb used in the Ayurveda possesses some Taste (Rasa) and most important of them are - Madhura (Sweet). Amla (Sour), Katu (Pungent), Tikta (Bitter), Kashaya (Astringent). The rational application of herb in management of various diseases also depends on selection of herbs as per their rasa (Taste) as rasa (Taste) has the potential to effect the physiology of human body. Further, the same principle also applied for dietary items for their use in health management In fact, management of physiological units Vata, Pitta or Kapha (Body humors) may also be done on rational application of dravyastmaterials of dietary and medicinal value) based on rasa (taste). However, it is simple to identify rasa (taste) through tongue but it is not possible to quantify Further, the potency of herbs also depends on its rasa. Thus, quantification of rasa (taste) in crude herbs is also needed for quality assessment of crude herbs. Solution Need to develop an instrument (Tongucometer) which can quantify the Taste (rasa)-(Madhura (Sweet), Amla (Sour), Katu (Pungent), Tikta (Bitter), Kashaya (Astringent)) present in the materials used as diets and medicine through a sensor-based instrument?""
CL74	AI Assisted Tele-medicine KIOSK for Rural India	Health care in rural India is still an unresolved area that demands improved and innovative solutions. The easy availability and access to expert doctors, according to the medical condition of the individual/patient can be provided by the AI-assisted telemedicine robotic Kiosk that can be set up anywhere in the village. Individuals may mark their identity through the biometric scanner. A robot may speak to the individual, enquiring about the illness. Later, the individual will be directed online to an expert doctor, via e-sanjeevani App. After the consultation, medicines and other associated services can be provided to them through the local Asha worker without any delay.

CL75	Air and water quality index and environment monitoring	Considering the importance of air and water to human existence, air pollution and water pollution are critical issues that require collective effort for prevention and control. Different types of anthropogenic activities have resulted in environmental dilapidation and ruin. One of the tools that can be used for such a campaign is Air Quality Index (AQI). The AQI was based on the concentrations of different pollutants: We are also familiar with the Water Quality Index (WQI), which in simple terms tells what the quality of drinking water is from a drinking water supply. There is a need for constant and continuous environment monitoring of air quality and water quality for the development of AQI and WQI, which in turn will enable clear communication of how clean or unhealthy the air and water in the study area is.
CL76	Development of Smart Toilet	Even in the most modern times, we are facing the problem, especially ladies, which is not having a hygienic toilet while traveling or going out. Here the problem statements aim to the development of an automatic self-cleaning, toilet system. Instead of water washing and all, the focus here is on ultraviolet disinfection, hot air drying, and smart saving of water. The final result is a toilet like that of a home. Also, there should be a provision to know the availability of the nearest toilets in working condition. In addition to the above, the smart toilet could also include the following features: A built-in air freshener: This would help to keep the toilet smelling fresh and clean. A motion sensor: This would automatically flush the toilet and open the lid when someone approaches. A built-in bidet: This would provide a more hygienic way to clean oneself after using the toilet.

CL77	Domestic Waste Management	improper waste disposal not only affects the environmental pollution but also affects the overall cleanliness and hygiene of a neighborhood. The challenge is to develop innovative solutions that address the specific issue of neighbors disposing of waste bags irresponsibly, causing litter and unsightly conditions. Participants are encouraged to propose and implement ideas that tackle this challenge and promote responsible waste management practices within the community. The solutions should focus on: Awareness and Education: Develop educational campaigns or initiatives to raise awareness among neighbors about the importance of proper waste disposal. This can include distributing informative materials, organizing community workshops, or leveraging digital platforms to educate residents about waste management best practices. Behavioral Change: Design strategies to encourage neighbors to adopt responsible waste disposal habits. This can involve implementing incentive programs, creating friendly competitions, or establishing neighborhood agreements that promote and reward responsible waste management behaviors. Community Engagement: Foster a sense of community ownership by engaging residents in

CL78	Analytics based on Govt. Land Information System(GLIS) Data	contains a vast amount of geospatial data related to land resources, land ownership, boundaries, land use, and other valuable information. However, harnessing the potential of this data and transforming it into actionable insights remains a challenge. The goal of this hackathon is to develop analytics solutions that leverage GLIS data to address critical societal challenges and support evidence-based decision-making. Participants are encouraged to explore and analyze GLIS data in creative ways to generate meaningful insights. The solutions should focus on one or more of the following domains: Urban Planning: Develop analytics tools that enable urban planners to make informed decisions regarding land use, zoning regulations, infrastructure development, and urban expansion. The solutions should help optimize resource allocation, improve urban mobility, and enhance the quality of life in cities. Infrastructure Development: Design analytics models that identify optimal locations for infrastructure projects such as roads, bridges, airports, or power plants. The solutions should consider factors like environmental impact, accessibility, population density, and existing infrastructure to support sustainable and
CL79	Computerized cognitive Retraining Program for Home training of Children with Disabilities.	Cognitive retraining is a therapeutic strategy that seeks to improve or restore a person's skills in the areas of paying attention, remembering, organizing, reasoning and understanding, problem-solving, decision-making, and higher-level cognitive abilities. Children with Developmental Disability have various cognitive Disabilities. It is common for children with developmental disabilities to suffer from various cognitive disabilities. Presently many therapists use manual cognitive retraining and it is also difficult to monitor home-based training. Few centers offer EEG Neuro-Feedback Training. The present proposal is the combined form of Both EEG Neuro-feedback and home training. Clinicians can easily monitor the changes based on the progress in- home training as well as changes in EEG profile with a single software.

CL80	Active Prosthetic ankle and adaptive equipment for bike riding in lower limb amputees	limb amputees can replicate normal human locomotion to a maximum extent which is considered a basic need; however, finding the ideal prosthetic solution for their desired lifestyle can be difficult. From the survey, it has been observed that there is a demand from the lower limb amputee population regarding the use of motorbikes for transport purposes. However, for lower limb amputees, this operation creates some inconvenience as there is no active ankle movement. Most importantly, the prosthetic feet currently used in the Indian context possess stationery ankles, and in some cases, more advanced feet use hydraulics or external-powered systems which don't solve the practical requirements of riding motorbikes for this patient population. The main functions when riding a motorcycle is gear selection and brake operation using the amputated leg. The right foot applies the rear brake on the right side of the motorbike. This is normally operated with ankle movements to press down the foot on the brake lever. Considering the inconveniences being caused to the lower limb amputees, there is a requirement for some modification options such as utilizing a modified brake lever. Alternatively, the left side of the bike has a gear
CL81	Use of Digital Technology in addressing Non-Revenue Water (NRW)	Water supply issues are related to sources and usage of raw water; intermittent water supply and the quality of tap water at the consumer end. One of the major challenges facing is the high level of water loss in distribution networks. Non-Revenue Water (NRW) is defined as the difference between the amount of water put into the distribution system and the amount of water recovered from consumers. NRW is a good indicator of water utility performance; In addition, available NRW data are often found problematic, suspicious, inaccurate, or provide only partial information. Hence, there is a need to develop a system or technology to trace and tackle non-revenue water and convert it into revenue water using digital methods. This will save water as well as increase profitability and improves the return on investment w.r.t water distribution networks.

CL82	Propose solutions for monitoring and conserving biodiversity, leveraging technology and biological approaches to protect endangered species and ecosystem hotspots	Our proposed solutions for monitoring and conserving biodiversity focus on leveraging technology and biological approaches to protect endangered species and ecosystem hotspots. By integrating advanced monitoring systems and genetic tools, we aim to enhance our understanding of biodiversity patterns and ecosystem dynamics. Through community-based conservation initiatives and strategic partnerships, we seek to empower local communities and scale our efforts globally to safeguard biodiversity and mitigate climate change impacts.
CL83	Develop technologies and methods for optimizing urban agriculture, enabling more efficient and sustainable food production within urban environments, addressing issues like space constraints, water, and resource efficiency.	We're developing technologies and methods to optimize urban agriculture, tackling challenges like space constraints, water scarcity, and resource efficiency. Through innovations like vertical farming and hydroponics, coupled with smart sensors and data analytics, we aim to maximize food production while minimizing environmental impact. Our focus is on community engagement and sustainable practices to create a more resilient and efficient urban food system.
CL84	Develop solutionData cleanups to improve air quality, such as using bioengineered plants or microorganisms to capture and break down pollutants in urban environments.	Our solution involves using bioengineered plants or microorganisms to clean up air pollution in urban areas. By leveraging the natural abilities of these organisms, we aim to capture and break down pollutants, improving air quality and creating healthier urban environments.
CL85	Build a low-cost green electricity solution for independent communities that mainly focus on renewable sources including solar or wind power	We're developing a low-cost green electricity solution for independent communities, focusing on renewable sources like solar and wind power. By installing affordable solar panels and wind turbines, coupled with energy storage technologies, we aim to create sustainable power systems that reduce reliance on fossil fuels and promote community self-sufficiency.