SIH2020

List of Software Problems

1. **Organization:**Airports Authority of India
   Domain Bucket: Software - Web App development
   Title: Developing a Software Tool to aid Search and Rescue by Calculating and Plotting Search Area from the Last Known Position of a Missing Aircraft.
   Description: Search and Rescue (SAR) is an operation to find and rescue the people in distress. SAR operations aim at finding missing objects with minimum time in a determined area. There are fundamentally two problems in these operations. The first problem is assessing highly reliable probability distribution maps, and the second is determining the search pattern that sweeps the area from the air as fast as possible. SAR operations benefit greatly from the GIS technology. The area, determined by the search planner, that is to be searched is called Search Area. This area may be sub-divided into search sub-areas for the purpose of assigning specific responsibilities to the available search facilities. The International Aeronautical and Maritime Search and Rescue Manual (IAMSAR) Vol. II (ICAO DOC 9731) provides all necessary information and guidance. Projecs intends to achive: • Determining the size of the search area from the Last Known Position (LKP), including speed, heading and attitude, of aircraft. • Determining the desired area coverage • Selecting appropriate search patterns.

2. **Organization:**Airports Authority of India
   Domain Bucket: Software - Web App development
   Title:rating an Airport Mapping Database
   Description: An Airport Mapping Database (AMDB) is a Geographic Information System (GIS) database of an airport describing the spatial layout of the aerodrome in terms of features (e.g. runways, taxiways, and parking stands) with geometry described as points, lines or polygons and with attributes (e.g. Surface type). AMDB is intended primarily to improve the user's situational awareness and/or to supplement surface navigation, thereby increasing safety margins and operational efficiency. AMDB represents a collection of aerodrome information that is organized and arranged for ease of electronic storage and retrieval in systems that support aerodrome surface movements, training, charting, and planning. Project intents to Create Aerodrome Maps and Charts using feature extraction from Satellite Imagery and blending that with existing Aerodrome Maps and provide an interactive 2D map containing a spatial layout of the aerodrome in terms of features (e.g. runways, taxiways, parking stands) with geometry described as points, lines or polygons, and with attributes (e.g. surface type). The aerodrome map, charts and data is available in Aeronautical Information Publication (AIP India) uploaded on website https://aim-india.aai.aero/eaip-v2-01-2019/index-en-GB.html.

3. **Organization:** Airports Authority of india
   Domain Bucket: Software - Web App development
   Title: A web based software is sought for fail-free operations of various CNS/ATM facilities, preventive maintenance is carried out on daily, weekly, monthly, six-monthly and annual basis.

Description: As current practice, various CNS/ATM facilities, preventive maintenance is carried out on daily, weekly, monthly, six-monthly and annual basis have following limitations: a.) paper based, subject to manipulation b.) localized - station based, c.) non-standard compliance d.) missing linkage to equipment maintenance history e.) centralized monitoring not possible f.) storage for stipulated time is cumbersome. Project intents to achieve the below objectives: • Automating the existing manual reports into digitized reports. • Data warehousing for central monitoring and leakage detection. • Ensuring the operational data collected comply the required Standard.

4. **Organization:** Airports Authority of india
   Domain Bucket: Software - Mobile App development
   Title: An Mobile based Inventory Management System using QR code application
   Description: A mobile application is required that is capable of a.) Have all the details of the equipment like S/N, Date of Installation etc. by scanning a QR code/ barcode. b.) Readily access the past service record by scanning a QR code/ barcode. c.) Entering the details and updating service history on the spot, just after maintenance

5. **Organization:** Airports Authority of india
   Domain Bucket: Software - Web App development
   Title: A visual Dashboard based on data analytics for percentage utilization of Airport facilities and utilities using IOT.
   Description: A web application is required that is capable of projecting analysed data through visual tools like bar graphs, pie charts etc on a web dashboard. Airports facilities includes Arrival baggage belts, boarding gates, Parking Stands, Trolleys etc. The application must have a separate API to have a visual representation of the analysed data which can be integrate with any other web/desktop application. Project intents to achieve the below objectives: • Classification of data based on nature of facility used by a passenger and available facility utilization. • Data visualization at Airport and Pan India Level. • A centralized Dashboard containing visual data representation of the % utilization of Airport services used by passengers.

6. **Organization:** Airports Authority of india
   Domain Bucket: Software - Mobile App development
   Title: An Mobile based Dwell time Management System using IOT.
   Description: Whenever a passenger enters into an airport, their credentials are checked at check in Kiosks, Entry Gates, SHA, Immigration & customs and boarding gates to validate their journey. Usually a passenger is instructed to come two hrs before for a domestic travel and four hours before an international travel. This instruction is given to passengers as their validation process might take more time than usual due to long passenger queues at each check point. The time taken by passenger to stand in a queue at a particular touch point and gets its credentials validated is called dwell time of that touch point. Hence, a mobile application based dwell time data collection and analysis at touch points of airports including check-in counters/Entry Gates/SHA/Immigration and customs/boarding gates using IOT. The Automated system needs to prompt necessary alert messages as per escalation matrix for

dynamic allocation of manpower and facilities for a particular check point. What we want: • Monitoring Effective Utilization of Airport touch points • Central data base record for each dwell time data collection. • An external API integration facility to connect with existing Airport Software's.

7. **Organization:** Airports Authority of india
   Domain Bucket: Software - Web App development
   Title: Knowledge Management System through Block Chain
   Description: A web based application using Block chain technology is sought from Airport Licensing to retrieve important and relevant Project Related information from pool of data source i.e. SAP, E-mail, E-office, Scan documents and Database. Below features are desired in an application: a.) Concerned Officers can upload relevant data related to Airport Licensing from Airports. b.) Seamless Approval process, Centralized Monitoring and Suggestion Mechanism. c.) Relevant information should be fetched from data source, linked to a particular project which can be used in the hour of need.

8. **Organization:** Airports Authority of india
   Domain Bucket: Software - Mobile App development
   Title: Mobile Application based Passenger facilitation System using Artificial Intelligence and Machine learning
   Description: A mobile application needs to developed to track the registered passengers from resistance to home. The application will register passenger mobile number only for those who are willing to take this service. Passenger will be provided customized offers for Taxi, concessionaires etc. based upon passenger history and facility choices opted by the users. Further a separate module dedicated to VIP passenger facilitation needs to be incorporated. Projects should also have • User friendly UI/UX for Airport passangers. • Digitally Storing and Monitoring overall project related data.

9. **Organization:** Department of Financial Services
   Domain Bucket: Software - Mobile App development
   Title: Upgradation of Jan-Dhan Darshak App
   Description: The Department of Financial Services (DFS), Ministry of Finance and National Informatics Centre (NIC) have jointly developed a mobile app called Jan Dhan Darshak as a part of financial inclusion (FI) initiative. As the name suggests, this application acts as a guide for the common people in locating a financial service touch point at a given location in the country. Have a look at the additional application and develop an more featureful application that provides more insights and better recommendations.

10. **Organization:** Department of Financial Services
    Domain Bucket: Software - Mobile App development
    Title: Development of Information App for Alert on Financial Matters
    Description: "The Department of Financial Services (DFS) oversees several key programs/initiatives and reforms of the Government concerning the Banking Sector, the Insurance Sector and the Pension

Sector in India. Therefore it's very important for the concerned officials to be updated in respect of any news or changes that happen in these financial matters which should be available on mobile/email. Hence the department seeks to develop an information application that can send link or news related to these financial matters immediately to the concerned officials and can provide link to various circulars of the financial institutions like RBI, Banks, PFRDA etc. as per the user's will. Design an app to allow broadcast of information by senior officials, and reporting of issues by all other officials to respective authorities."

11. **Organization:** Ministry of Women and Child Development
    Domain Bucket: Software - Web App development
    Title: Management Information System (MIS) software for IMOs
    Description: 1. RashtriyaMahilaKosh (RMK), established as an autonomous body in 1993 is a national level organization under the aegis of the Ministry of Women and Child Development, for socio-economic empowerment of women. The operating model currently followed by RMK is that of a facilitating agency wherein RMK provides loans to NGO-MFIs termed as Intermediary Organizations (IMOs) which on-lend to Self Help Groups (SHGs) of women. These micro-credit loans are provided to women micro-entrepreneurs in both rural & urban areas, organised in Self-help groups (SHGs) / Joint lender groups (JLGs). 2. Eligible Intermediary Organizations (IMOs) are Non-Government Organizations (NGOs), Section 8 Companies registered under Companies Act 2013, Urban / Rural Women Co-operative Banks, Co-operative Societies etc. 3. Management Information System (MIS) software for IMOs – The software needs to capture information related to women beneficiaries (i.e. women micro-entrepreneurs) such as loan account information, repayment track record, economic activity, personal information (Aadhar Card, Bank Account Details, Age etc.), Income level, Savings, Demographic details (no. of family members, caste, religion, literacy level etc.)

12. **Organization:** Ministry of Women and Child Development
    Domain Bucket: Finance
    Title: Book-keeping and Accounting software for IMOs
    Description: 1. RashtriyaMahilaKosh (RMK), established as an autonomous body in 1993 is a national level organization under the aegis of the Ministry of Women and Child Development, for socio-economic empowerment of women. The operating model currently followed by RMK is that of a facilitating agency wherein RMK provides loans to NGO-MFIs termed as Intermediary Organizations (IMOs) which on-lend to Self Help Groups (SHGs) of women. These micro-credit loans are provided to women micro-entrepreneurs in both rural & urban areas, organised in Self-help groups (SHGs) / Joint lender groups (JLGs). . 2. Eligible Intermediary Organizations (IMOs) are Non-Government Organizations (NGOs), Section 8 Companies registered under Companies Act 2013, Urban / Rural Women Co-operative Banks, Co-operative Societies etc. 3. Book-keeping and Accounting software for IMOs – Software to be developed as per standard accounting standards and practices which will help the IMOs to view the overall financial position. This will enable the IMOs to take informed decisions related to expenses and also help IMOs in identifying activities which are generating income and

activities which are loss making and accordingly in taking corrective actions. The software must also enable IMOs to pay various statutory dues and taxes on time with zero error.

13. **Organization:** Ministry of Women and Child Development
    Domain Bucket: Finance
    Title: In PFMS implementation, NGOs registration may be approved by the concerned Ministry within a specific period. Otherwise, it should be deleted/rejected automatically by the PFMS portal itself. So that fresh registration can be done again by the implementing agency. For committed expenditure like salaries, pensions etc, direct link for sanction and release of funds to the Autonomous bodies to be made on quarterly basis. However, while considering final release UC/Account and UB be taken care of.
    Description: In PFMS implementation, there are new NGOs registration applications. We looking for software module which would achive below desired objective. (1) NGOs registration may be approved by the concerned Ministry within a specific period. Otherwise, it should be deleted/rejected automatically by the PFMS portal itself. So that fresh registration can be done again by the implementing agency. (2) For committed expenditure like salaries, pensions etc, direct link for sanction and release of funds to the Autonomous bodies to be made on quarterly basis. However, while considering final release UC/Account and UB be taken care of.

14. **Organization:** Ministry of Women and Child Development
    Domain Bucket: Sustainable Environment
    Title: Rain harvesting facility may be made compulsory in all the Govt./Govt. funded buildings. Funds for this purpose may be made allocated/released
    Description: In recent days, we have observed water scarcity especially during summer days. Rain harvesting facility can be used in different Govt. organisations/Govt. funded buildings. We are looking for software solution where (1) feasible rain water harvesting solutions can be provided to organisation as per their requirement (may or may not be by third party vendors) (2) Implementation work progress can be monitored (3) vendors providing such solutions can be connected with organizations.

15. **Organization:** Ministry of Women and Child Development
    Domain Bucket: Software - Web App development
    Title: In GeM Portal, provision for customization of terms and conditions for Annual Maintenance Contract of services as per the need of the services required by the organisation may be created.
    Description:GeM portal is a dedicated e market for different goods & services procured by Government Organisations / Departments / PSUs. It facilitates online procurement of common use Goods & Services required by various Government Departments / Organisations / PSUs. In GeM Portal, we are looking for provision of customization of terms and conditions for Annual Maintenance Contract of services as per the need of the services required by the organisation may be created. It could be module which would (1) provide facility to review terms and condition of services between concern persons (2) facility to add comment against particular point/add/remove particular point

16. **Organization:** Ministry of Health and Family Welfare

Domain Bucket: Healthcare & Biomedical Devices

Title: Digital tracking of children of migrant population to follow-up on their health status and immunization services received/to be given.

Description: Harnessing the power of digital technologies is essential for achieving the Sustainable Development Goals, including universal health coverage. To reduce the inequities in health in population with the migration either because of occupation, shelter or some other reasons, migration among cities, states, rural to urban, it is essential to track their health record so that health services can reach up to such people in the form of continuum of care. lmmunization of children is an important field where we can provide full immunization coverage to such community who are often left behind.

17. **Organization:** Ministry of Health and Family Welfare

Domain Bucket: Healthcare & Biomedical Devices

Title: Emergencies and disasters impact population health. Public health plays a critical role in working with health and non-health sectors responsible for preparing for and responding to emergencies. In emergencies, large numbers of people may require medical attention. Health care systems may be over-stretched, and public order may be threatened. Hence use of social media in public health emergency response.

Description: Emergencies and disasters impact population health. Public health plays a critical role in working with health and non-health sectors responsible for preparing for and responding to emergencies. In emergencies, large numbers of people may require medical attention. Health care systems may be over-stretched, and public order may be threatened. Hence we want software solution such that social media can be used in public health emergency response. Such tool/page/plugin should have below capabilities. (1) Alarm message during emergencies (2) Providing Precautinary steps to be taken during emergency/disasters (3) Help in finding nearby available healthcare systems (4) Providing First aid/primary steps to be taken/provided to patients, in case of emergencies/disasters.

18. **Organization:** Ministry of Health and Family Welfare

Domain Bucket: Healthcare & Biomedical Devices

Title: Use of Al based Chat bots for providing health related information

Description: Chat bots in health care may have the potential to provide patients with access to immediate medical information. Health care chat bots could help patients better manage their own health, improve access and timeliness to care. We require: Use of Al based Chat bots for providing health related information.

19. **Organization:** Ministry of Health and Family Welfare

Domain Bucket: Healthcare & Biomedical Devices

Title: Leveraging block chain technology for creation of Electronic Health Record (EHR)

Description: EHR generally contains highly-sensitive and critical data related to patients, which is frequently shared among clinicians, radiologists, healthcare providers, pharmacists, and researchers, for effective diagnosis and treatment. Hence, may use block chain technology for accessing and managing the privacy and security of patient data and history in clinical practices.

20. Organization: Department of Scientific and Industrial Research

Domain Bucket: Waste Management

Title: Smart Management of Food Storage and Waste Reduction

Description: India is a developing country with a steep rise in population but a fall in the cultivable land area. India is able to produce enough food to feed the people. However, it stands 97th in Oxfam's Food Availability Index, and 103rd in the 2018 Global Hunger Index. The major cause could be the wastage of food produced at various levels. With the constant rise in population, India will have to smartly manage its food resources. We have to develop smart management techniques for food storage and reduce the wastage. Develop an application to provide a network of ware houses and farmers. Engage a logistic provider network to enable farmers directly use the network to sell their produce. Additionally provide facility to access warehouses and cold storages. Such a network will also enable judging whether enough storage capacity is available and also provide optimal usage of the facilities available.

21. Organization: Bureau of Police Research & Development

Domain Bucket:Security & Surveillance

Title:Identify Solution with respect to Inter State & Inter Country Criminals e.g. Using Identity Inputs

Description: Identifying Solution with respect to Inter State & Inter Country/Continent Criminals e.g. Using Identity Inputs i. e. name, email, Photo, address, present/permanent address, mobile number, ID cards etc. Also to design tool to generate some alert in facilitating effective policing.

22. Organization:Bureau of Police Research & Development

Domain Bucket: Security and Surveillance

Title:Criminal Navigation System/Extractor

Description: Extract Geo Location/ Criminal Navigation using Mobile/Email based Tracking System

23. Organization:Bureau of Police Research & Development

Domain Bucket:Security & Surveillance

Title:Community oriented policing (Digital Policing)

Description: Suggestions for community oriented policing (Digital Policing) / how to improve police and public relationship using technology i.e Mass Media, Social Media, Social Network Apps Connectivity, Community Radio, Interactive SMS System for senior citizens and authorities.

24. Organization:Bureau of Police Research & Development

Domain Bucket: Security & Surveillance

Title:Digital Solution to Combat Bribery & Justice Restoration System

Description: With our aim to fight against bribery, we seek Digital Solution to Combat Bribery & Justice Restoration System for better policing and improved public delivery system. Solution should (1)

Provide efficient ways of public delivery system for combating bribery (2) Reporting bribery incidences to authorities. You may add value addition features to your solution.

25. **Organization:Bureau of Police Research & Development**
    Domain Bucket:
    Title:Cyber Crime Prevention
    Description: With our aim to fight against bribery, we seek Digital Solution to Combat Bribery & Justice Restoration System for better policing and improved public delivery system. Solution should (1) Provide efficient ways of public delivery system for combating bribery (2) Reporting bribery incidences to authorities. You may add value addition features to your solution.
26. **Organization:Bureau of Police Research & Development**
    Domain Bucket: Bureau of Police Research & Development
    Title:Interactive map application for real time crime reporting
    Description: Interactive & user friendly map application for the public to inform police about the crimes and emergencies in real time.

27. **Organization:Bureau of Police Research & Development**
    Domain Bucket:Smart Communication
    Title:LEA & Judiciary Interactive Case Management System
    Description: Smart and efficient Judiciary Interactive System: We often come across scenarios where stakeholders for a particular event (presentation, meeting, discussion, etc.) are at remote location. In such cases, we observe many problems in flawless conduction of presentation or meeting, etc. We are looking for software solution for smart and efficient judiciary interactive system. It should cover (1) facility for presentation to all the attendees (2) facility for discussion between Judiciary panel. Additional useful features are welcome.

28. **Organization:Bureau of Police Research & Development**
    Domain Bucket:Software - Web App development
    Title:Efficient Chatbot Designing
    Description: Efficient and user-friendly Chabot Based Crime Registration & Crime Awareness System
29. **Organization:Ministry of Micro, Small & Medium Enterprises**
    Domain Bucket:Waste Management
    Title:Development of business models for collection and utilization of single use plastics and various other industrial wastes
    Description: Industrial waste is the waste produced by industrial activity which includes any material that is useless during a manufacturing process. It is hazardous to human health and environment. We are looking for a software solution which would help in development of business models for collection and utilization of single use plastics and various other industrial wastes by using items like: a. Ceramics b.

Bamboo c. Wood d. Jute e. Cloth g. Tetra packs, etc. It should lead to utilizing the industrial waste at appropriate place, generate some revenue stream/business model and cause less harm to environment.

30. **Organization:Ministry of Housing and Urban Affairs**
    Domain Bucket:Smart Cities
    Title:Development of business models for collection and utilization of single use plastics and various other industrial wastes
    Description: Our cities are expanding and most of the people have to travel more than 2 hours daily to commute between their place of work and stay. How can we reduce this time?
31. **Organization:Ministry of Housing and Urban Affairs**
    Domain Bucket:Software - Web App development
    Title: Cities have issues of safety. There is data available in cities, which indicates a particular section being more unsafe than others. What should be done with these unsafe parts of any city to increase the safety of our citizens.
    Description: Cities in India are growing fast. Cities have safety issues. We often come across news and available data, which indicates a particular area being more unsafe than others. We are looking for a software solution for ensuring the safety of citizens in these unsafe areas. Safety measures, Warning messages, Asking for help, etc. can be features. Additional features are welcome.

32. **Organization:Ministry of Housing and Urban Affairs**
    Domain Bucket:Software - Mobile App development
    Title:NO TITLE
    Description: Every part of our country is very rich in its heritage and culture. However, awareness about the same can be increased among the local residents. What needs to be done increase the ownership amongst the citizens towards the heritage (both tangible and intangible).
33. **Organization:Ministry of Housing and Urban Affairs**
    Domain Bucket: Healthcare and biomedical Medical Devices
    Title: People come to cities because of better health facilities. What should be done to improve the health facilities in the city and also provide equitable access for all?
    Description: There exist good medicle facilities across city in India. But due to higher migration rate and other factors, some people are not aware of these facilities. Moreover, eligible people are unaware of government schemes for availing medicle facilities. We are seeking software solution for (1) checking availability of nearby medical facilities, based on search criteria (2) facility for checking related medicle government schemes, as applicable. Additional features are welcome.
34. **Organization:Ministry of Housing and Urban Affairs**
    Domain Bucket:Smart Cities
    Title:Disasters act as a shock to density. Considering the Cities of tomorrow, what should be done?
    Description: Various kinds of disasters such as earthquake, wildfire, flood, heatwave, Tsunami, fire, hazardous material spills, disease outbreaks, etc. cause life as well economic losses. We are looking for a software solution which would be useful in disaster management. Objectives for the solution are: (1)

Facility for real time tracking of disaster (2) Facility for updating disaster related information and sending precautionary messages by authorities. Additional features for solution are welcome.

35. **Organization:Ministry of Housing and Urban Affairs**
    Domain Bucket:Finance
    Title:Cities provide more opportunities for people to grow economically. However, these opportunities are unequal because of knowledge asymmetry. How can we ensure that people have more equal access to better economic opportunities/ jobs?
    Description: Cities provide more opportunities for people to grow economically. However, these opportunities are unequal because of the knowledge asymmetry. How can we ensure that people have more equal and wider access to better and relevant economic opportunities/jobs? However, people's access to these opportunities varies due to various factors. We are looking for a software solution where all the relavant opportunities including jobs, tenders in public domain, freelancing work, etc. would be listed & visible. Sectors can be but not limited to Opportunities in Govenment Sector, Private Sector, Technology, Science, etc.

36. **Organization: Central Ground Water Board**
    Domain Bucket:Title:Assessment of land holding pattern, source of irrigation, cropping pattern and depth of the wells in different parts of the country
    Description: In the country, groundwater caters to 80% of the irrigation water needs since 1970. Water availability is not uniform and varies from state to state. Dugwells and tubewells are the major sources for groundwater extraction. The construction of dugwells and tubewells has been an expensive affair and has been a dream for the farmers. The affordability for construction of deep wells to get the water and its socio-economic impact needs to be studied. Agriculture census and minor irrigation census data are available at an interval of 5 years. In order to get a clear picture of the land holding pattern, irrigation source, cropping pattern and depth of the wells in the different parts of the country, a comparative assessment is required in micro/macro level i.e., block/district/state/country for the previous two census.

37. **Organization: Central Ground Water Board**
    Domain Bucket:Miscellaneous
    Title:Data analytics to provide complete solution for groundwater management for the country
    Description: Groundwater is the major source of freshwater for drinking, irrigation and industrial purposes and has always been a hidden treasure because of its dynamic nature. The health of the groundwater system is reflected in the groundwater levels of the region. There is a need to develop a robust application to understand the groundwater scenario and its resources of the regions. Representative groundwater level data needs to be analysed using statistical and arithmetical solutions along with the groundwater resources of the country to identify the blocks/district/state which has been critical compared to previous decade.

38. Organization:Department of Atomic Energy

Domain Bucket:Healthcare & Biomedical Devices

Title:Fiducial localization for pre-operative planning in neurosurgery

Description: Preoperative planning is a phase before actual surgery procedure in which the surgeon can take all the time needed to define the surgical problem, to identify fully all the anatomical and technical aspects of the procedure, and then carefully plan the solution. In order to facilitate this, the patient is assumed to be located in a coordinate system refered to as the 'Patient Coordinate System'(PCS), whereas the surgeon has access to pre-operative medical scans(like CT/MRI etc.) of the subject in the coordinate system refered to as the 'Image Coordinate System'(ICS). Any procedure planned in medical scans under ICS can be transfered to patient domain by utilizing this mapping. The challenge of accurately establishing this mapping (or registration) between PCS and ICS plays a critical role in influencing the reliability of the surgery procedure itself. Currently accepted practice involves the use of special markers called the 'fiducials' for the purpose of estimating PCS-to-ICS mapping. Apart from establishing correspondances between the appearance of fiducials in both patient and image coordinate systems, autonomas and accurate localization of these markers in image coordinate system is an open-challenge. Currently, surgeons manually annotate and localize these fiducials or utilize semi-automatic tools provided by their treatment planning suite. The goal of this challenge is therefore, to develop fully autonomas algorithm for detection and localization of fiducials in pre-operative scans. Concretely, the participants will be provided with MRI head-scans with fiducials affixed on the skull surface and the task will be to estimate 3D coordinates of the center of these fiducials with respect to the image coordinate system. Accuracy of their algorithm will be tested on the corresponding ground-truth values and generalization will be evaluated based on unseen test data.

39. Organization:Department of Atomic Energy

Domain Bucket:Smart Communication

Title:Network routing protocol for infrastructure less gateway devices in man-made emergency situations

Description: In case of man-made emergency situations which disrupt public life on greater scale e.g. war, tested solutions for rapid communications among large numbers of devices is required for relief efforts as well as monitoring of environment. A Mobile Adhoc Network (MANET) protocol based on device geographical location information is conceptualized to serve as a gate way device. Problem is coding, simulation and testing of scalability. A network routing protocol is scalable in terms of number of nodes when it can accommodate additional nodes without increase of overhead for given limited area. The conceptualized MANET protocol shall establish the source to destination path similar to zone routing protocols (ZRP). The path to destination is referred at source, in terms of the geological zones therefore allowing movement of intermediate mobile devices across path without disturbing the path. The devices get assigned new zone automatically using the GPS. The simulation scenario shall be source node in searching a path to friendly destination device, exchange data (hello) and drop the link. The devices follow random mobility pattern in 2 D frame. For searching of devices there is pre condition of knowing past history or pattern or set of fixed zones where destination node can reside. This is close to real world scenario where destinations reside at known zones such as home, office, commutation route, friend's place, entertainment hub in the area, railway station, airport etc. The MANET protocol, by

nature of precondition, of knowing the possibility of location of devices; protects from spam connection and un authorized network broadcast. It is allowed to modify the protocol to certain level to improve security, privacy without diluting the basic principal. The simulation is required to test the claim of scalability level in terms of N devices in simulation. A set of software codes will be required to be developed for simulation of the routing protocol. The simulation can be done using open source network simulator. It is required to test and simulate the concept of this routing protocol and its scalability. The metric of scalability will be success in search, establishment and dropping the links between pairs of devices and amount of information shared when not having links. The largest possible MANET size is required to be in order of 1000s. All MANET devices shall be interchangeable and there will not be any infrastructure dedicated node. All devices shall be replaceable without affecting MANET performance. Fixed location nodes can be used. An example application can be MANET for police cars or disaster relief providers to enable connectivity in them without having to connect to any public network.

40. **Organization:Dr. B R Ambedkar Institute of Technology**
    Domain Bucket:Travel and Tourism
    Title:A Mobile App with Virtual Reality Based Gallery for Heritage Museums of Andaman & Nicobar Islands
    Description: Andaman Nicobar Islands is a place of historical as well as tourist importance. Tourism being the only prime industry in these Islands has lot of potential and opportunity and technology can play a major role in attracting tourists to a large extent. Immersive real-life experience through technology like Virtual Reality of the scenic extravaganza and under-water wonders of vivid flora and fauna which are displayed in the museums, would certainly give a new dimension to the tourists in realizing the beauty of these Islands. No such VR App is being used as on date for the tourist visiting Islands.
41. **Organization:Gov of Uttarakhand**
    Domain Bucket:Healthcare & Biomedical Devices
    Title:Primary health care in remote areas using Cloud medicine and Diagnostic Services
    Description: There is an acute shortage of health care in smaller towns and villages. The objective is to scale up of the existing telemedicine /call centre for doctors network to all subcentres using DTH or similar technology that allows two way communication and is not dependant on Internet Service Providers. All data to be held in a cloud server, Integrating cloud tech with Patient MIS and Aadhar authentication, in order to make it easy for patients belonging to low socio economic and educational backgrounds for safe keeping of medical records and also for accessing the databases by emergency medical technicians by merely using biometric / thumb impressions.
42. **Organization:Gov of Uttarakhand**
    Domain Bucket:Software - Web App development
    Title:National Web Portal is used for designing Job oriented courses with the help of Human Resource data and desirable skill sets from industries.

Description: National Web Portal is used for designing Job oriented courses with the help of Human Resource data and desirable skill sets from industries. Design a system to read the job description from the pdf and word document provided by government officials. Provide facility to review and edit the generated job description and publish on the portal. This portal should also provide facility to apply for job and further management of interview and selection process.

43. **Organization:Gov of Uttarakhand**
    Domain Bucket:Agriculture and Rural Development
    Title:
    Theoretically the bridges are designed to have a life span of 50 years. However, practically the life span of bridges varies between 30 to 40 years. Therefore, it is required to redesign the bridges of length 50 m based on geomorphic condition. The solution must be of low cost and long lasting.

    Description: Theoretically the bridges are designed to have a life span of 50 years. However, practically the life span of bridges varies between 30 to 40 years. Therefore, it is required to redesign the bridges of length 50 m based on geomorphic condition. The solution must be low cost and long lasting. Design a software system to predict life of a bridge depending on various conditions of environment, take inputs as design of bridge, latitude and longitude of bridge, access some API to get information about predicted environmental conditions and use that data to predict life of the bridge. This system should be used to modify the design to increase the life of the bridge.
44. **Organization:Gov of Uttarakhand**
    Domain Bucket:Smart Cities
    Title:Smart intelligent traffic accident monitoring systems
    Description: The objective is to develop a smart intelligent traffic signal system based on various image processing and artificial intelligence techniques to collect the real time traffic data and monitor accordingly to avoid big jams and accidents. Use inputs from tools like Google maps and design an app that can be installed on devices to track and report such traffic jams. Ensure appropriate trust mechanisms are enabled to trust an reported incident of traffic jam depending on number of inputs. Provide verification mechanisms to ensure that it can be verified by other users on the same route.

45. **Organization:Gov of Uttarakhand**
    Domain Bucket: Smart Education
    Title:Predicting the trends of quality-oriented jobs
    Description: The objective is to develop a software solution to predict the future jobs based on location, sectors, package and eligibility. Big data analysis can be useful to collect and analyse data from different job sites and predict the future requirements applying machine learning /deep learning techniques.

46. Organization:Gov of Uttarakhand

Domain Bucket:Agriculture and Rural Development

Title:Lack of technological intervention in value addition of agriculture products produced by SHGs /FPGs

Description:"Uttarakhand is primarily an agricultural state. The contribution of agriculture to the states domestic product is about 22.4 percent and the population dependent on agriculture for their livelihood is about 75 -85 percent. For instance, As per Uttarakhand state planning Commission, 2007, the productivity of wheat in the hills is 13.2 quintals/hectare and rice is 12.36 quintals/hectare. Thus, agricultural opportunities are developing rapidly in the state. Especially, in sector of organic agriculture, Uttarakhand Is highly accessible because of largely rain-fed agriculture and very low use of chemical fertilizers and pesticides, the produce grown by farmer in the area are not only rich in nutrients but also have high medicinal value and provides an opportunity to develop and farmer friendly environment of organic farming that provide better value in the market to Small and Marginal Land holder. The various project of Department of rural development and agriculture are continuously in the process of enhancing farmer and self-help groups (SHGs) livelihoods by adding value in their produce and providing favourable markets. Provide technology based interventions like Techniques of Value addition to agriculture produce, Packaging, Logistic movement, Farmer Branding and marketing avenues. This platform should enable direct movement of farmer to the consumer and reduce the intermediates who take away a lion's share of commission."

47. Organization:Gov of Uttarakhand

Domain Bucket: Smart Education

Title:Developing a scientific career counselling software

Description: The objective is to develop a psychometric and aptitude test software for different levels of students like school, graduates and dropout students applying artificial intelligence tools, which will help to identify the current status of students and help them for future career counselling purpose. Use existing research papers to understand types of questions to be asked to students and prepare a questionare. Then design a software tool to evaluate the aptitude of the students for each discipline. This questionare needs to be verified by professional psychometric analyst.

48. Organization:Dte of IT & Cyber Security, DRDO

Domain Bucket:Security & Surveillance

Title: Video based dynamic human authentication system for access control

Description: Though there exists a technology for face recognition based authentication, dynamic human recognition based authentication is highly challenging. For a given entrance gate a hardware-software solution is needed to identify every unique person who enters or exit the gate, with log of all previous entry/exit time, photo/videos recorded. That means there will not be a previous history of an

individual on the first entry. The system should immediately alert the security if it is a new person and the security will decide to allow/restrict that person entering inside the premises. Whereas, the system should learn from its previous history of videos/images dynamically to allow a known person. For a given size of the gate, the number of cameras with optimal resolution required is also to be worked out as part of solution. The solution should be scalable and preferably based open source.

49. **Organization:Dte of IT & Cyber Security, DRDO**
    Domain Bucket:Security & Surveillance
    Title:Clustering of Air objects based on trajectory
    Description: The position of an object in the air can be indicated by latitude, longitude and altitude for a given time. A trajectory is a stream of such quadruples (time, latitude, longitude and altitude). Given a large set of such trajectories, without any other information, problem is to cluster them into meaningful objects such as Helicopter, Fighter/civilian Aircraft, UAV, Cruise Missile, dropped bomb, etc. An optimal scalable solution is desired using open source tools. Design a system to estimate location of flying object based on its trajectory, provide guidance to missile to shoot them depending on their location when missile will meet the object on its trajectory.
50. **Organization:Ministry of Agriculture cooperation and Farmer Welfare**
    Domain Bucket:
    Title:IT Solutions for precision based irrigation, fertigation, crop growth, crop maturity in Horticulture.
    Description: There is a requirement for developing IT solutions for precision based irrigation, fertigation, crop growth, crop maturity of major commodities in Horticulture. Design a system based on past data to provide guidelines to improve above mentioned parameters for multiple crops.
51. **Organization:Govt of Goa**
    Domain Bucket:Software - Web App development
    Title:Alumni Tracking System
    Description: The Directorate of Higher Education has 7 Government Colleges and 26 aided colleges under it. Altogether, more than 10000 students that pass out from them every year either choose to opt for further studies, work or have their own startups. Currently, there is no mechanism for the colleges and the Directorate to keep a track of the students passing out. Hence, the problem is to develop a web based application for colleges and the Directorate to keep a track of the Alumni. The said application should have the following features:- (a) allow the Alumni members to register themselves (b) allow colleges to verify and authenticate their registered alumni (c) provision for alumni members to update their details (d) allow the colleges to search details based on criteria such as year, subject, etc. (e) allow the Directorate to search details based on criteria such as colleges, year, subject, etc. (f) send messages and emails to alumni members (g) group chats, create events, publish notices on the portal (h) Security features with login for every user.
52. **Organization:Govt of Goa**
    Domain Bucket:Software - Mobile App development
    Title:Pothole Challenge
    Description: Goa has faced the rage of rains this year and potholes are the biggest problem which government is tackling. Now problem lies in the fact that concerned departments are not able to co-

ordinate to resolve the issue. ISSUES (a) Fundamentally there is disconnection between civil agencies, people and elected representatives. (b) The aim is to build a mobile based dynamic reporting system which will facilitate into flow of information among all concerned stakeholders. (c) The aim is to provide better Governance by more involvement of public.

53. **Organization:Govt of Goa**
    Domain Bucket:Software - Mobile App development
    Title:Stray Cattle Challenge
    Description: Checking the menace of stray cattle in State of Goa by involving Municipalities, Panchayats, Animal Husbandry, NGO and Civic Forum. Stray Cattle not only bad to traffic congestion but also causes health hazard to the cattle. ISSUES (a) Fundamentally there is disconnection between civil agencies, people and elected representatives. (b) The aim is to build mobile based dynamic reporting system which will facilitate into flow of information among all concerned stakeholders. (c) The aim is to provide better Governance by more involvement of public.
54. **Organization:Dte of IT & Cyber Security, DRDO**
    Domain Bucket: Security & Surveillance
    Title:Identification of optimal set of multiple interceptor launch areas to maximise the destruction of multiple air targets
    Description: The problem is to identify optimal set of land based launch locations in a given area of 100km X 100km size, to maximize the kill probability of all the targets directed to this area. The interceptors are deployed in clustered manner in multiple locations within that given area. Solution may consider following aspects .. a) Set of Ballistic Missiles Trajectories of targets, each represented by a point(Latitude, Longitude, Altitude) to be taken as input b) Set of multiple locations/areas (polygons of Latitude & Longitude) where interceptors are deployed to be taken as input. c) Minimal optimal set of locations (polygons of Latitude & Longitude) to maximize the destruction of targets to be the output, which is the subset of (b) above.
55. **Organization:Dte of IT & Cyber Security, DRDO**
    Domain Bucket:Miscellaneous
    Title:Tool to recover Flash memory data
    Description: The solution should recover more than 95% data of 250GB/500GB NAND flash memory drive after full format by host.
56. **Organization: Ministry of Women and / Child Development**
    Domain Bucket:Software - Mobile App development
    Title:**Positive psychology games (Mobile/Computer) which will help develop a. Respect for rights and dignity of women and children b. Promote objectives of BetiBachaoBetiPadao(BBBP).**
    Description: Design Positive psychology games (Mobile/Computer) which will help develop general public understanding and generate respect for the rights and dignity of women and children. This should help promote objectives of BetiBachaoBetiPadao (BBBP).
57. **Organization:Ministry of Women and Child Development**
    Domain Bucket:Software - Web App development

Title:Disruptive innovation for women empowerment **Description:** Disruptive innovation for women empowerment. Provide open ideas for empowering women and design tools for enabling them. This is an open platform to provide ideas where best idea will win.

58. Organization:Ministry of Women and Child Development
Domain Bucket:Miscellaneous
Title:Effective use of Cyber Space and Cyber Technology to prevent violence against and trafficking of women and children
Description: Effective use of Cyber Space and Cyber Technology to prevent violence against and trafficking of women and children

59. Organization:Ministry of Women and Child Development
Domain Bucket:Software - Web App development
Title: **Innovative online tool for protection of Child Rights**
Description: Build an app for tracking and monitoring status of children that stay in government recognized Child Card Institutions (CCI) and Specialized Adoption Agencies (SAA). Design an efficient biometric tracking tool that tracks daily attendance, as well as in and out movement of children from the respective institutions. Additionally, also tracks guardian visits in the system. Design a centralized system that enables tracking attendance and guardian visit across India. Ensure that this system also works in an offline manner. For example, if database is synced once then it should allow marking of attendance and guardian visit without having to sync the database. However, the attendance should be uploaded automatically once internet connection is available. The monthly grant will be sent only if the data is synced. Provide login to District Child Protection Unit (DCPU) and Child Welfare Committees (CWC) to enable them to access the tracking information. Provide facility to transfer child from one organization to other seamlessly without losing the past tracking information. Depending on the attendance and number of visits by guardian, provide recommendation on adoption eligibility of the child based on JJ Act of 2015 and Adoption Guidelines of 2017. Based on the recommendation, flag the children with higher eligibility to be moved to the legal adoption pool. Currently, a lot of eligible children are not being moved to the legal adoption pool and hence, their right to good family is being violated.

60. Organization:Ministry of Women and Child Development
Domain Bucket:Software - Web App development
Title: **Innovative online tools for comprehensive financial inclusion of women**
Description: Child Welfare Committees (CWC) to enable them to access the tracking information. Provide facility to transfer child from one organization to other seamlessly without losing the past

tracking information. Depending on the attendance and number of visits by guardian, provide recommendation on adoption eligibility of the child based on JJ Act of 2015 and Adoption Guidelines of 2017. Based on the recommendation, flag the children with higher eligibility to be moved to the legal adoption pool. Currently, a lot of eligible children are not being moved to the legal adoption pool and hence, their right to good family is being violated.

61. Organization: Ministry of Women and Child Development

Domain Bucket: Software - Mobile App development

Title: Innovative apps for women safety specially in cyber space

Description: Innovative apps for women safety specially in cyber space. Design innovative methods to prevent blackmailing and frauds against women specific cases. Enable to detect if a woman's profile is being used somewhere without her consent.

62. **Organization:**Ministry of Women and Child Development

Domain Bucket: Software - Web App development

Title: Promoting holistic nutrition among women and children through/with the help of IT for PoshanAbhiyaan

Description: Promoting holistic nutrition among women and children through/with the help of IT for PoshanAbhiyaan. Design a system for health worker to monitor and trigger alarms if some women/child have not come for upcoming dose. Additionally, if mobile number of the patient is registered then provide notification to them to get the dose.

63. Organization: Tripura Institute of Technology

Domain Bucket :Miscellaneous

Title: Simplification of the process of e-tendering in EVC (electronic verification code) system, replacing Digital Signature Certificate by Aadhaar based OTP.

Description: In order to simplify the process of e-tendering and to make the system cost effective and user friendly, the EVC (electronic verification code) system are required to be performed through Aadhaar based OTP, instead of existing Digital Signature Certificate. Design efficient solutions that enable use of Aadhar OTP and DigiLocker for sharing the documents for eTendering. Check https://maharashtra.etenders.in/tnduploads/mah/pressnotices/FAQ.html

64. Organization: Ministry of Petroleum and Natural Gas

Domain Bucket: Energy / Renewable Energy

Title: Technological advances for Retail Outlets

Description:"We can map all the retail outlets on Google Map and can have a application connected to fuel tank sensor which will generate an automated message and path may pop up regarding the nearest fuel station with details of fuel prices and the total fuel to be top up for covering the remaining distance if the fuel level drops a particular level. Design an application to recommend when to fuel the vehicle and what petrol pump to use. Provide facility to provide ratings to the fuel station and recommend fuel station based on the ratings."

65. Organization: Ministry of Petroleum and Natural Gas

Domain Bucket: Smart Communication

Title: Technological advances for Retail Outlets

Description:A software can be developed for Dispensing Unit of petrol pump, which would have a feature to convey the customer about the actual quantity product delivered to the customer after fuelling. Similarly about the quality of product, if the product is off specification. This sensor should have a facility to meausre the fuel quality and quantity and display it along with some quality parameters too.

66. **Organization:**Dte of IT & Cyber Security, DRDO

Domain Bucket: Smart Communication

Title: NO TITLE

Description:"Timing error estimation and matched filtering are crucial processing blocks in a communication receiver. The problem is like looking for the occurrence of a known signal in the observed/measured signal, which is noisy and distorted. This nature of problem makes it best suited for intelligent approach, as human brain invariably solves this kind of problem in day-to-day life. Classical techniques like maximum likelihood, Early-Late, Gardener and Muller approaches have been successfully implemented. However, it is perceived that machine learning techniques will outperform the classical approaches and this fact needs to be researched. The neural network shall use minimum computation and converge fast for practical and real-time implementation. If the results are promising, it can be applied for military and commercial radars. Design a proof of concept that can be used to prove that AI can be used to solve above problems and provide significant help to such radars"

67. Organization: Directorate of Technical Education Chandigarh

Domain Bucket: Security & Surveillance

Title: Tracking and Control of inmate inside the Jail

Description:prisoners are segregated in different wards as per Punjab Jail Manual.But it is the tendencies of a few bad elements to leave the barracks on the pretext of availing Medical Services,Canteen Services, telephone Services etc. and going to some others barracks to receive or to distribute or to prepare a prohibited article. prison Department wants to put some Bio-ID based gates turnstiles which can identify the prisoner ,whether he reached to the designated place of service for which he was permitted . The Bio-Id of inmates is available in web based application with Demographic detail of inmates. Technological Solutions on this issue may be developed through Living Lab.

68. **Organization:**Govt of Goa

Domain Bucket: Travel and Tourism

Title: Virtual Tourist Guide

Description: Goa is a major tourist destination which pulls thousands of tourists every year. Goa is known for its beautiful beaches and hospitality. There are a number of monuments and landmarks depicting the cultural, history and development of Goa. Due to high inflow of domestic as well as international tourists, the manpower required to guide the tourist on these landmark is not sufficient and sometimes lack in the information that need to be given and highlighted to the tourist. Hence we propose the problem of developing a mobile application which renders information about the monument or land0mark just by taking their live pictures as inputs. In other word, the application should allow the user to click a photograph and based on the picture it should display information about the monument/landmark. The application should also notify the user about such monuments/landmarks in the vicinity. The app should also allow the user to give their inputs about the object and also add to knowledge creation about the monuments/landmark. The app should also be able to keep statics about the number of users referring to the monument/landmark along with details of the users.

69. Organization: Dte of IT & Cyber Security, DRDO

Domain Bucket: Software - Web App development

Title: Indoor Navigation App

Description: Lot of navigation apps like Google map are available for navigation but none of them support navigation inside a building by taking into account rooms, corridor and floors. The challenge is to create an app that would show a navigation path in the real world on your mobile device screen. This technology is beneficial to everyday citizens because it allows one to accurately navigate to a specific location in a building they have never been to before, such as government offices,a classroom in a campus, malls/retail store to show customers the items they would want to purchase etc.

70. **Organization:**Government of Andhra Pradesh

Domain Bucket: Software - Web App development

Title: Design State Research Portal, a single point securely hosted solution to seamlessly integrate search and manage all the research activities

Description: The act of research sets the course for the development of any product or service. Without comprehensive research, all stages that follow in research activities could be greatly affected. Finding the required information for research can be difficult as the resources and information on internet and otherwise are often located in dispersed places, and accessing the right content can be time consuming. In this context, a single State research portal is needed to be designed in a manner that it can serve as a one-stop research portal for all the State Universities and colleges comprising the essential areas/parameters. Few of the areas to be incorporated are as given below: a. Navigating to information: It should be built on user experience best practices. As researchers are used to accessing websites (whether in their personal or professional lives) that respond to their screen size and are optimized for mobile, but also contain ideal user experience elements to make it easy to navigate (think single search bar front and center, clear organization of content etc.). b. Uploading research, discovery of and access to information: It should be a user-

friendly research portal wherein the researchers can search and discover the right information and content for their work. They also be able to upload their research work university/college/miscellaneous wise which may further be categorized department/areas of study wise. A discovery service is the next tool to consider integrating into research portal. Consider how metadata is used, the methodology around searching and retrieving search results, how the tool anticipates users' needs, and what can be integrated into the discovery tool. c. Authentication: As research and collection of information resources become increasingly digital, authentication will be a key component to ensurethe security of users and their content. For example, your collection may offer users access to various publisher or research platforms/portals that all have varying requirements for authentication. Entry into these resources is expected to be seamless and intuitive by researchers.

71. Organization: Government of Andhra Pradesh

Domain Bucket: Software - Web App development

Title:AI and OCR - To search Telugu & Urdu words in PDF present in Unicode as well as in image format

Description: Need to search any data from a PDF. Data present in the PDF is a combination of English, Telugu & Urdu languages. The font used for Telugu is Shreelipi and for Urdu is NooriNastaliq. Format of Data present in PDF will be in .pdf format and some data will be in image format. We need to search the data present in English, Telugu & Urdu languages which is present in Unicode as well as in image format. Sample data set has been uploaded.

72. Organization: Dte of IT & Cyber Security, DRDO

Domain Bucket: Miscellaneous

Title:CAPTCHA/alternative solution for Visually impaired

Description: Visually impaired citizens faces lot of problems with CAPTCHA authentication process. In some of the applications OTP is given as alternative but not with rest of the apps. In some of the apps audio captcha is provided but many citizens find it difficult to decipher. An effective solution for CAPTCHA or an alternative is required to address the problems faced by the visually impaired citizens.

73. **Organization:**Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment

Domain Bucket: Miscellaneous

Title: Problem Statement From PDUNIPPD (Software)

Description:"Technology or governance- related challenges/problem faced by Institute 1. Improvement in Patient care Management System (PMS) Patient care management system allows for delivery of real time services that can enable individuals to learn work, socialize and interact with community with without being subject to physical barriers, ex: ERP – (Entrepreneurship Resource Planning) software to be developed for efficient management of academic activities and service activities in the Prosthetics & Orthotics department. The department serve 4 ½ year Bachelor

degree course in Prosthetics & Orthotics and Master in Prosthetics & Orthotics. Beside that Prosthetics & Orthotics department has assessment, fabrication and fitment Prosthetics & Orthotics lab. 2. Virtual Technology Virtual Technology means the potential to try out – of - reach experience such as climbing a mountain, skateboarding or swimming in the sea perhaps for the first time. Virtual Technology is useful for Prosthetics & Orthotics. It is useful for enabling physical activities so that patient can improve impairment activities limitation and participation. Through the usage of virtual technology alike in mobile gyroscope or accelerometer. 3. Technology integration and up gradation The main challenges that face both Institute and decision maker is how they are to integrate technologies and services in everyday routine and Institute how can take advantages. Solution for ambulation and during activities of daily living by technology integration in P&O aids appliance for Divyangjan. Software/e-governance 1. One step easy software based Job tracker for disabled (divyangjan) 2. Health guide monitor to check well-being and fitness quotient 3. Portable Stress monitor to devise solutions for stress based on physiological parameters Design an integrated system to provide above facilities and/or provide a facility to integrate them with eachother."

74. Organization: Central Water Commission, Ministry of Jal Shakti

Domain Bucket: Miscellaneous

Title: Embankment Mapping and Crowdsourced Health Card for Preventive Structural Measures

Description: The inspection and monitoring of health of embankment for preventive maintenance is a massive and intensive exercise which has huge financial ramifications. The manpower requirements for effectively carrying out such an important exercise is very high keeping in view large number of embankment protection works across river networks which are not easily accessible at times. Therefore, preventive maintenance of embankments needs a technological solutioninvolving participation of localsto safeguard the public property and life. One such solution may be through the use of embankment mapping and crowdsourced health card. Embankment mapping involves the development of GIS application to analyse the existing river embankment network. The crowd sourced data with images, geo-location and time stamp can be used for the generation of health card of embankment and identifying the critical sections thereof for their preventive maintenance.

75. **Organization:**Central Water Commission, Ministry of Jal Shakti

Domain Bucket: Miscellaneous

Title: Water Accounting in Irrigation Commands through Crowd Sourced Crop Mapping

Description: Lack of dynamic crop maps and opacity in water utilisation data prevents proper water accounting at the level of irrigation commands. Information regarding area under various crops is generally available at an aggregate level e.g. district wise cultivated area under individual crops. Non-availability ofactual crop maps preventsspatialvisualisation of water utilisation and therefore proper water accounting. National Remote Sensing Centre (NRSC), Hyderabad generates yearly Land Use Land Cover (LULC) maps at a finer resolution of 56m containing land use classes of crop season and number of crops (single/multiple crop). Crowdsourced information from farmers, agricultural extension service providers, local administration and local population may be used for

generation of crop type maps for a particular irrigation season which in turn may be used for preparation of water accounts at various spatial scales rangingfrom command of a major to minor irrigation project. Water Accounting at various spatial and temporal scales in commands of irrigation projects will help in informed decision making during the ensuing crop season and leads to optimal utilisation of irrigation water.

76. Organization: Dr. B R Ambedkar Institute of Technology

Domain Bucket: Agriculture and Rural Development

Title: Software for computerization of farmer, land details along with beneficiary schemes details

Description: Software for computerization of farmer, land details along with beneficiary schemes details All the records at present are maintained manually by the department which leads to difficulty in access and retrieval of records. Design a block chain based mechanism to ensure frauds are eliminated in land records thereby assisting in maintaining the documents.

77. Organization: Dr. B R Ambedkar Institute of Technology

Domain Bucket: Software - Web App development

Title: Court Case Management software

Description: Repository of departmental court cases Design and prepare a court case management software that has facility to record information like adding a case, adding lawyers (have facility select from existing list of lawyers), add invoice for for each hearing and for different heads under which lawyers charge the clients. In short the system should provide end to end management of court case from client perspective and should be easy to use.

78. **Organization:**Dr. B R Ambedkar Institute of Technology

Domain Bucket: Sustainable Environment

Title: Android App for Geo-tagging location of wildlife and forest offence and sighting of wildlife in the forest areas

Description: Andaman & Nicobar Islands have a fragile ecosystem with a vivid flora and fauna. Protecting the wildlife is critical to its environment. Increase in wildlife offence like killing of protected animals has increased in the recent past. This app will enable to curb such offence.

79. **Organization:**Dr. B R Ambedkar Institute of Technology

Domain Bucket: Miscellaneous

Title: Development of App to capture the field patrolling track of frontline staff in their forest beat jurisdiction

Description: "Develop an app to capture information related to field patrolling officer for forest and wildlife asset for patrolling personnel posted in field. Following information can be recorded (1) location for their safety, (2) asset, location, and other information about the asset like weight, etc depending on the asset. A major requirement of this app will be offline abilities. It should work

without internet access. This can be done by having sync functionality and subsequent edits should be recorded in the app and synced later on."

80. Organization: Dr. B R Ambedkar Institute of Technology

Domain Bucket: Smart Education

Title: Library software for Andaman College

Description: Computerization of Library Activities and Book Transactions Design a system for library management system for Andaman college that has voice based search of books and automatic categorization of books in genres based on title. The system should search from the internet and get information about the book and put them into appropriate category based on title, authors and information collected online.

81. ORGANIZATION: MINISTRY OF RURAL DEVELOPMENT

DOMAIN BUCKET: Software - Web App development

TITLE: Geography based analysis for noise identification in large and complex data gathered

DESCRIPTION: Data at ground level is captured for various schemes across multiple parameters/indicators. This data is large and consists of physical, financial, beneficiary, geographical details etc. under various schemes year on year. Since different programs have different methods of data collection, many a times it has been observed that data is not consistent, consists of erroneous entries etc. A solution is required which is able to identify types of noise in data collected and also highlight usage/propose implementation of best practices/latest technological interventions followed for data collection and making data entry rectifications. Sample Data Required: No

82. ORGANIZATION: MINISTRY OF RURAL DEVELOPMENT

DOMAIN BUCKET: Software - Web App development

TITLE: Making websites meaningful for differently Abled citizens with open source tools

DESCRIPTION: Department of rural development is currently running several multiple schemes, sub-schemes and programs at a national level primarily focusing on the development of rural poor. As part of it, it has housed several in-house developed website/portals for information dissemination, reporting etc. for catering to varied needs including information requirements of various applicable stakeholders. It is required that the websites be made compliant towards the requirements and cater to needs of the differently able citizens as well. E.g. text to speech, hearing impaired, speech impaired, visually challenged etc. Features (technology enabled) to be introduced in website so that it is easy to use, readily accessible and understandable and convenient to everyone including best practices/standards and global innovation techniques. E.g. Google Sample Data Required: No

83. ORGANIZATION: MINISTRY OF RURAL DEVELOPMENT

DOMAIN BUCKET: Software - Web App development

TITLE: Making websites meaningful for differently Abled citizens with open source tools

DESCRIPTION: Under DAY-NRLM program, financial assistance is provided to SHGs (Self help groups) to help mobilize them, become self creating efficient and effective institutional platforms of the rural poor enabling them to increase household income through sustainable livelihood enhancements and improved

access to financial services. A lot of transactional related activities and data entry, reporting, monitoring and tracking is being performed for over 5 crore SHG members (women) over 50 Lakh SHG groups. Low network connectivity is a challenge for doing the data entry for various SHGs transaction at the village level. A solution is required which is able to help perform the record keeping, data entries, transactions capture at ground level itself (preferably real time) with less challenges and data gaps, for the scheme even when there is low network connectivity. Sample Data Required: No

84. ORGANIZATION: MINISTRY OF RURAL DEVELOPMENT
DOMAIN BUCKET: Agriculture and Rural Development
TITLE: One Nation – One Citizen – One Pension – Identify citizens receiving multiple benefits like pensions under different schemes of the centre and state, such as NPS, NSAP Schemes, PMSYM and State level schemes
DESCRIPTION: Currently there are multiple programs through which a welfare scheme such as 'Pension' is being disbursed to eligible citizens across the country. Many of these overlap and the citizens get the benefits through multiple sources for the same purpose such as 'Pension'. In addition to all this, there are a number of citizens who are deprived of such welfare schemes and hence there needs to be a innovative approach to address such issues. As per the Census 2011 data, out of 24.3 Crores households, 10.69 Crores households are considered as deprived, while through NSAP only 3.26 Crore beneficiaries are covered. Likewise, it is imperative to look at other welfare schemes and ensure all the deprived are brought into the bracket. Sample Data Required: Yes

85. ORGANIZATION: MINISTRY OF RURAL DEVELOPMENT
DOMAIN BUCKET: Software - Web App development
TITLE: Mechanism for linking of works under convergence in Rurbanwith multiple DBs (e.g.: MGNREGS, PMUY, DDU-GKY, PMAY, SAGY etc.)
DESCRIPTION: Multiple works in GPs are taken under Rurban through CGF Fund and Convergence Fund and both are captured in Rurbansoft. But at present, there is no mechanism to verify the works under convergence fund with works under other Convergence schemes. There may be a need of linking of works under Rurban with works under multiple convergence scheme DBs for verification of accuracy of actual works. We need an interface where Rurban works under convergence can be mapped with other convergence scheme DBs (through API or other technology). Sample Data : No

86. ORGANIZATION: NATIONAL CRIME RECORDS BUREAU
DOMAIN BUCKET: Security & Surveillance
TITLE: Artificial Intelligence (Al) and Machine Learning solutions for Police functions
DESCRIPTION:
Artificial Intelligence (Al) and Machine Learning solutions for Police functions like Identity Resolution on disjoined databases, Natural Language Processing over Indian Languages, Speech to Text converters in Indian Languages, etc

87. ORGANIZATION: NATIONAL CRIME RECORDS BUREAU
DOMAIN BUCKET: Security & Surveillance

TITLE: Data Crawlers to collect data

DESCRIPTION: Data Crawlers to collect data on given Keywords from the web in areas of child and woman abuse, cyber bullying, pornography, etc.

88. ORGANIZATION: Government of Andhra Pradesh

DOMAIN BUCKET: Software - Web App development

TITLE: Develop a Students Grievance Support System.

DESCRIPTION: We are looking for a Students Grievance Support System. Expectations from software solution/webapp are: (1) It must be an easy access application, accesible to students, members of Student Grievance Redressal Committees, respective heads. (2) Students should be able to post complaints under different categories, Department Level, Institute/College Level and University Level. Again these categories would be subdivided among sub categories such as Admission, Finance, Examination, Lecture Timemable/Learning, Paper Re-Evealution, etc. (3) Members of Students Grievance Redressal Committee should be able to sort complains based on keywords. (4) The Portal should link students with respetive Department/Institutions/College and University Students Grievance Redressal Committees.

89. ORGANIZATION: Ministry of Rural Development

DOMAIN BUCKET: Software - Web App development

TITLE: Geography based analysis for noise identification in large and complex data gathered

DESCRIPTION: Data at ground level is captured for various schemes across multiple parameters/indicators. This data is large and consists of physical, financial, beneficiary, geographical details etc. under various schemes year on year. Since different programs have different methods of data collection, many a times it has been observed that data is not consistent, consists of erroneous entries etc. A solution is required which is able to identify types of noise in data collected and also highlight usage/propose implementation of best practices/latest technological interventions followed for data collection and making data entry rectifications. Sample Data Required: No

90. ORGANIZATION: Ministry of Rural Development

DOMAIN BUCKET: Software - Web App development

TITLE: Making websites meaningful for differently Abled citizens with open source tools

DESCRIPTION: Department of rural development is currently running several multiple schemes, sub-schemes and programs at a national level primarily focusing on the development of rural poor. As part of it, it has housed several in-house developed website/portals for information dissemination, reporting etc. for catering to varied needs including information requirements of various applicable stakeholders. It is required that the websites be made compliant towards the requirements and cater to needs of the differently able citizens as well. E.g. text to speech, hearing impaired, speech impaired, visually challenged etc. Features (technology enabled) to be introduced in website so that it is easy to use, readily accessible and

understandable and convenient to everyone including best practices/standards and global innovation techniques. E.g. Google Sample Data Required: No

91. ORGANIZATION: Ministry of Rural Development
DOMAIN BUCKET: Software - Web App development
TITLE: Mechanism for linking of works under convergence in Rurbanwith multiple DBs (e.g.: MGNREGS, PMUY, DDU-GKY, PMAY, SAGY etc.)
DESCRIPTION: Multiple works in GPs are taken under Rurban through CGF Fund and Convergence Fund and both are captured in Rurbansoft. But at present, there is no mechanism to verify the works under convergence fund with works under other Convergence schemes. There may be a need of linking of works under Rurban with works under multiple convergence scheme DBs for verification of accuracy of actual works. We need an interface where Rurban works under convergence can be mapped with other convergence scheme DBs (through API or other technology). Sample Data : No

92. ORGANIZATION: NATIONAL CRIME RECORDS BUREAU
DOMAIN BUCKET: Software - Mobile App development
TITLE: Mobile Apps for Citizens and Police for management of crime records
DESCRIPTION:
Mobile Apps for Citizens and Police for management of crime records, beats, resource allocation, form fillings, request for NOC, appointments etc

93. ORGANIZATION: Government of Andhra Pradesh
DOMAIN BUCKET: Software - Web App development
TITLE:
Monitoring and Evaluation of Higher Educational Institutions in Andhra Pradesh

DESCRIPTION:

94. ORGANIZATION: Ministry of Rural Development
DOMAIN BUCKET: Software - Mobile App development
TITLE: Non network intensive record keeping system for SHG
DESCRIPTION:
Under DAY-NRLM program, financial assistance is provided to SHGs (Self help groups) to help mobilize them, become self creating efficient and effective institutional platforms of the rural poor enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services. A lot of transactional related activities and data entry, reporting, monitoring and tracking is being performed for over 5 crore SHG members (women) over 50 Lakh SHG groups. Low network connectivity is a challenge for doing the data entry for various SHGs transaction at the village level. A solution is required

which is able to help perform the record keeping, data entries, transactions capture at ground level itself (preferably real time) with less challenges and data gaps, for the scheme even when there is low network connectivity. Sample Data Required: No

95. ORGANIZATION: Ministry of Rural Development
DOMAIN BUCKET: Agriculture and Rural Development
TITLE: One Nation – One Citizen – One Pension – Identify citizens receiving multiple benefits like pensions under different schemes of the centre and state, such as NPS, NSAP Schemes, PMSYM and State level schemes
DESCRIPTION: Currently there are multiple programs through which a welfare scheme such as 'Pension' is being disbursed to eligible citizens across the country. Many of these overlap and the citizens get the benefits through multiple sources for the same purpose such as 'Pension'. In addition to all this, there are a number of citizens who are deprived of such welfare schemes and hence there needs to be a innovative approach to address such issues. As per the Census 2011 data, out of 24.3 Crores households, 10.69 Crores households are considered as deprived, while through NSAP only 3.26 Crore beneficiaries are covered. Likewise, it is imperative to look at other welfare schemes and ensure all the deprived are brought into the bracket. Sample Data Required: Yes

96. ORGANIZATION: Government of Andhra Pradesh
DOMAIN BUCKET: Software - Web App development
TITLE: Design a single point securely hosted solution to seamlessly integrate disbursal of funds and related communication from both the Center and State w.r.t. Central Schemes for each of the Department
DESCRIPTION:
We are looking for a single point securely hosted software solution to seamlessly integrate disbursal of funds and related communication from both the Center and State w.r.t. Central Schemes for each of the Department. Solution should (1) provide facility to automatically inform disbursement of funds to respective State Department for specific scheme (2) allow communication between officials of Centre and State for specific scheme of department (3) facility to add add/modify Schemes etc.

97. ORGANIZATION: Ministry of Railways
DOMAIN BUCKET: Travel and Tourism
TITLE: AI Based Reservation System
DESCRIPTION: Getting quicker and earliest booking in Indian Railways system is sometimes a challenge for passengers. The challenge is to devise an optimization using latest technologies which improves probability of getting ticket, improve booking time and customer experience remarkably. Expectation from solution are (1) Once passenger enters origine and destination, probable options and alternatives should be provided to him, within predefined/limited time frame. This should help passenger in getting confirm seat. (2) Additional functionality could be added to help passenger getting confirmed seats, improve booking time. (3) Data available in public domain/internet can be used by students to approach problem.

98. ORGANIZATION: Ministry of Communications
DOMAIN BUCKET: Software - Mobile App development
TITLE: Detecting Poor Telecom Connectivity (Cellular) regions using user device signal strength
DESCRIPTION: Detecting Poor Telecom Connectivity (Cellular) regions using user device signal strength. An APP based solution may be developed for Detecting Poor Telecom Connectivity (Cellular) regions using user devise signal strength along with geo coordinates of the user to a central server. Government authorities can use that information to assess the poor coverage regions and take necessary steps to address the issue of poor coverage

99. ORGANIZATION: Ministry of Communications
DOMAIN BUCKET: Software - Mobile App development
TITLE: Mapping of Telecom infrastructure in GIS application
DESCRIPTION: Mapping of Telecom infrastructure in GIS application. At present GIS based DBT mobile app has feature to search ATM, Bank Branches, Bank Mitras and places. If this DBT app include the details of Telecom Infrastructure (Mobile Towers Wi-Fi Hotspots/APs, Telephone exchanges etc.) then it would be more useful for Public Government authorities can also use this information to facilitate Eservices and to provide coverage in Telecom uncovered areas.

100. ORGANIZATION: Ministry of Communications
DOMAIN BUCKET: Software - Mobile App development
TITLE: T o develop an app and SMS based application which can register the grey market complaint
DESCRIPTION: To develop an app and SMS based application which can register the grey market complaint

101. ORGANIZATION: Ministry of Communications
DOMAIN BUCKET: Software - Mobile App development
TITLE: Development of platform for dialing single emergency no SDC (Short digit code)
DESCRIPTION:
Development of platform for dialling single emergency no SDC (Short digit code) or just pressing a button in mobile phone using any of the available mobile network, which will send the live location of the customer to a predetermined server which is to be integrated with the server meant for action program of Disaster management team.

102. ORGANIZATION: National Jute Board, Min of Textiles
DOMAIN BUCKET: Software - Web App development
TITLE: Automated Inspection of manufacturing Process
DESCRIPTION:
Inspection is critical point of manufacturing process as it helps to determine quality and quantity orders, by making this inspection process automated using software processes, the cost of inspection in long run can be reduced and good quality of the bales can be assured, with minimum human errors. This process can be further associated to marking, packaging and loading accurately. For instance, can there be a digital solution to ensure that only those bales that are inspected are dispatched to the consignee without tampering of the

pack-sheet. In such case of tampering, whether it is possible to generate sirens with help of digital, tamperproof tags

103. ORGANIZATION: National Jute Board, Min of Textiles

DOMAIN BUCKET: Software - Web App development

TITLE: Software to track the goods through its delivery path and ensure safe delivery

DESCRIPTION: Can some cost-effective digital solution (on the lines of RFID) be provided after packaging the bales to track the goods through its delivery path and ensure safe delivery at the consignee's end? This will help to ensure that no goods are lost in transit. In case of good lost, the same can be traced back and delivered to consignee.

104. ORGANIZATION: National Jute Board, Min of Textiles

DOMAIN BUCKET: Software - Web App development

TITLE: Solution For Implementing and tracking of certified jute seeds packaging from the suppliers to jute farmers in india.

DESCRIPTION Implementing and tracking of certified jute seeds packaging from the suppliers to jute farmers in india.

105. ORGANIZATION: National Jute Board, Min of Textiles

DOMAIN BUCKET: Smart Textiles

TITLE: racking the jute sacking bags production/procurement across the value chain

DESCRIPTION Design a application for tracking the jute sacking bags production/procurement across the value chain depending the invoice generated by the sellers. Track the movement from producer to sellers. Then provide an app to track the jute bags that are sold back to the recyclers.

106. ORGANIZATION: National Jute Board, Min of Textiles

DOMAIN BUCKET: Security & Surveillance

TITLE: Integrating identification of HS Codes and LCS checking at the International borders and improving the surveillance system.

DESCRIPTION

Integrating identification of HS Codes and LCS checking at the International borders and improving the surveillance system. Study the existing surveillance system and understand how they gather the relevant codes. Identify arenas where the existing system can be improved and develop software/hardware system wherever necessary.

107. ORGANIZATION: National Jute Board, Min of Textiles

DOMAIN BUCKET: Software - Web App development

TITLE: Assessment of income generation of the jute farmers, jute mills workers in the jute sector through web portal

DESCRIPTION :Design an application for assessment of income generation of the jute farmers, jute mills workers in the jute sector through web based portal. The system should accept as input variety of information and generate different reports as output. Link the system to web based training module suitable for farmers in local language and access the effectiveness of training using using same mechanism of income assessment.

108. ORGANIZATION: National Jute Board, Min of Textiles

DOMAIN BUCKET: Software - Web App development

TITLE: Artificial Intelligence based solution which may calculate the probability of future market trend on the basis of past years data and suggest a suitable pricing model for sale of cotton

DESCRIPTION: Cotton is a commodity, which is perhaps the most volatile among all the agricultural commodities traded. Due to high volatility in cotton prices, it is very difficult to predict the future market trend and accordingly sales strategy so as to compete in the market and increase the volume of the corporation for sustainable growth. Thus, Artificial Intelligence based solution which may calculate the probability of future market trend on the basis of past years data and suggest a suitable pricing model for sale of cotton

109. ORGANIZATION: Ministry of Tribal Affairs

DOMAIN BUCKET: Software - Web App development

TITLE: E –Marketplace (Like Amazon, flipkart) wherein tribals can promote, market and sell tribal produce such as handicrafts, arts, paintings, minor forest products etc. on line with provision of delivery and e-payment and promotional discounts.

DESCRIPTION:

E–Marketplace (Like Amazon, flipkart) wherein tribals can promote, market and sell tribal produce such as handicrafts, arts, paintings, minor forest products etc. on line with provision of delivery and e-payment and promotional discounts.

110. ORGANIZATION: Ministry of Tribal Affairs

DOMAIN BUCKET: Miscellaneous

TITLE: Development of repository of tribal youth talent from various areas such as sports, arts, paintings, dance, culture, social service or any specific area.

DESCRIPTION: Development of repository of tribal youth talent from various areas such as sports, arts, paintings, dance, culture, social service or any specific area. The specialized agencies/authorities involved in promoting such events could also reach out to these individuals for promoting them for advance training or any other support

111. ORGANIZATION: Govt. of Bihar (DOA)

DOMAIN BUCKET: Agriculture and Rural Development

TITLE: Estimation of crop yield using modern ICT tools which is quick and reliable for making a realistic plan for procurement and to compensate farmers for yield loss if any.

DESCRIPTION: Estimation of crop yield using modern ICT tools which is quick and reliable for making a realistic plan for procurement and to compensate farmers for yield loss if any. (current methods take months in crop cutting experiments and farmers have to wait for months to get compensated in case of loss etc.)

112. ORGANIZATION: Department of Information Technology and Bio Technology, Government of Karnataka
DOMAIN BUCKET: Software - Web App development
TITLE: Development of online platform for mentoring Startups
DESCRIPTION: There are many success stories around startup now a days. Presently, there is no online platform for mentoriship of startups. Mentoring and guidance are very critical for early stage startups. Online platform may help in reaching out to startups at grass root level including college students. So, we looking for software solution for (1) creating startups and mentors community. This can help Startups with market trends, etc. (2) helping startups to reach to mentors in required domain (3) possible help to startups to reach at grass root level, colleges for talent based on different criterias.

113. ORGANIZATION: Govt. of Bihar (DOA)
DOMAIN BUCKET: Agriculture and Rural Development
TITLE: Develop a real time land usage monitoring tool using satellite data and artificial intelligence etc
DESCRIPTION: Develop a real time land usage monitoring tool using satellite data and artificial intelligence etc. (This needs to address policy, practice and planning issues in agriculture along with estimation of crop losses for permissible assistance to farmers)

114. ORGANIZATION: Govt.of Sikkim
DOMAIN BUCKET: Agriculture and Rural Development
TITLE: MIS for Rural development Housing Scheme like Garib Awas Yojana along with GIS application
DESCRIPTION: There is no monitoring system to monitor the progress of construction of houses under Rural Housing schemes.To generate real time statistical report of the ongoing constructions. Design web based dashboard for monitoring and a native mobile application to track the progress of the construction just by taking a photograph by using the application itself.

115. ORGANIZATION: Govt.of Sikkim
DOMAIN BUCKET: Software - Mobile App development
TITLE: SINGLE WINDOW MONITORING OF ALL RURAL DEVELOPMENT WELFARE SCHEMES
DESCRIPTION: There are multiple welfare schemes run by different cells under the department. At times this welfare schemes are meant for target beneficiaries and it is difficult to monitor. If the intended welfare schemes has reached the right household. It is also pertinent to note that the duplicity of such schemes often go unnoticed. Design a AADHAR based application to resolution process for taking benefit of such welfare schemes. Provide facility to enter eligibility to the scheme. If application to one scheme disqualifies application other then such conflicting applications should not be allowed using the system.

116. ORGANIZATION: Govt.of Sikkim
DOMAIN BUCKET: Software - Web App development
TITLE: Transparency and Safeguard measures in HR management
DESCRIPTION: An Application to monitor all file movements of every employee,timely information,intimation to the employees through SMS,emails.All files should be traceable online so that the

employee do not run after the file. For this purpose whenever a file enters the system put a sticker (barcode/QR code) on the file and then whenever a file moves out of the warehouse, goes for signature, the sticker should be scanned to update its status. This system should provide insights like estimated turn around time, at each stage. Number of stages for a type of application. Additionally it should provide intimation to the employees who are supposed to take action on them on a dashboard. Additionally if they delay taking action provide notification by SMS/email.

117. ORGANIZATION: Govt.of Sikkim
DOMAIN BUCKET: Software - Web App development
TITLE: Centralised Attendance Monitoring System of Employees of RMDD
DESCRIPTION:

Develop an Application that will record attendance on a real time basis at the BLOCK,DISTRICT office on a periodic basis and generate statistical report using the existing Bio-metric device.A dashboard where statistical data can be shown like total no.of employees present,absent in all levels of Block and District. As this application should integrate with the existing biometric device, study the input and output parameters of some popular biometric devices. Understand enrolment and attendance management of these systems and identify how to connect their output to the application.

118. ORGANIZATION: Bureau of Police Research & DevelopmentCategorySoftware
DOMAIN BUCKET: Security & Surveillance
TITLE: Tracking & Tracin Security & Surveillanceg of Fake News
DESCRIPTION: Fake news has been a hot topic in the last few years in the form of Troll Farms and these Hoax News attempt to create public unrest like Lynching, Cyber Mobbing, Subvert and influence the public perceptions using social media platforms. • Desired Solution : The solution will detect Fake news like Offensive Text-(Comment, Post, Feeds), Offensive Images(Original or Morphed Pictures) and Offensive Multimedia Videos (Original or Fake Videos) across the Social Media websites using keywords crawling, APIs, Reverse Image and AI/ML/Data Mining techniques and original source of posting and nearer/proximate profiles.

119. ORGANIZATION: Bureau of Police Research & Development
DOMAIN BUCKET: Security & Surveillance
TITLE: Detection of Malicious Content/Web Links related to Cyber Frauds
DESCRIPTION: Typically, malicious links are used to lure a victim into clicking through to a payload that is hosted on third-party sites rather than the malicious content being directly available from the social media platform. One-click exploits such as those used for account takeover could easily be distributed via social media and, when clicked, could exploit the victim in terms of profile takeover or misguiding users for fake advertisements. • Desired Solution: The solution will detect malicious links and its origin signature (first uploaded person-profile URL, name, email, number etc.) on a real time basis and provide advisory report to the public and corresponding agencies about those links source credibility.

120. ORGANIZATION: Bureau of Police Research & Development
DOMAIN BUCKET: Security & Surveillance
TITLE: Detection of Malicious/Rogue/Honey-Trap Chatbot's at Social Media/other Web Platforms
DESCRIPTION: Typically, malicious links are used to lure a victim into malicious bots are used by cybercriminals to do their personal motives. • Desired Solution: The solution will detect malicious SPAM and SPIM bots/Zombie Bots/Malicious File-sharing Bots/Fraud Bots on cyber space and provide advisory scanning or detection solutions to public/LEAs.

121. ORGANIZATION: Bureau of Police Research & Development
DOMAIN BUCKET: Software - Mobile App development
TITLE: Real-Time Based Facial Recognition Systems
DESCRIPTION: Criminals are widely using Social Media & Social Networks to Commit the Crime and they are being part of cyber space as well, in this regard. • Desired Solution: The solution should focus on develop an app to capture a photo and search for the same on official websites / social media websites / internet using an optimized facial recognition algorithm.

122. ORGANIZATION: Bureau of Police Research & DevelopmentCategorySoftware
DOMAIN BUCKET: Security & Surveillance
TITLE: Criminal/Suspect Profile Generator using OSINT Techniques:
DESCRIPTION: Cyber Criminals are using internet (Both Surface, Deep and Dark Network) as mean and target for executing their crimes, In this regard Cyber criminals tracing and tracking of their digital footprints are very import to LEAs • Desired Solution: The solution should focus on tracking, tracing of cyber criminals with their digital foot prints like Name, Email, Phno Number, UserIDs etc.. And the solution will scan & search other associated data from public available records from internet and create summary report against the target suspect.

123. ORGANIZATION: Bureau of Police Research & Development
DOMAIN BUCKET: Security & Surveillance
TITLE: Proxy & VPN Detector
DESCRIPTION: Cyber Offenders are masking themselves with Proxy and VPN services • Desired Solution: The solution should scan and detect the given IP address (IPv4/IPv6) is Original IP or Proxy/VPN enabled IP address and also the application should fetch the details of Whois Records of respective IP or Website input

124. ORGANIZATION: Bureau of Police Research & Development
DOMAIN BUCKET: Software - Web App development
TITLE: CDR/IPDR Data Visualizer
DESCRIPTION: Cyber Offenders are related CDR/IPDRs are very important for LEAs, the given CDR/IPDR data is in a Spreadsheet/Excel/CSV/Notepad (Rows & Column Structure) file format. • Desired Solution: The solution should take different input file formats like .XLSX, .CSV, TXT. and it shall covert into Info Graphical and Data Visualizer forms with connected Roots, Nodes and Edges Relationships.

125. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Security & Surveillance

TITLE: Face, expression and gesture recognition and compilation in database software

DESCRIPTION: Design a system to capture face, expression and gesture of targeted persons (Criminals) through distributed CCTV System and maintaining it in a database along with time and location stamp. The database so compiled to be used to identify suspects from video clips of crime related CCTV footages captured series of CCTV Systems located on routes and close to scene of crime

126. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Security & Surveillance

TITLE: Textile (clothes) recognition and compilation in database software

DESCRIPTION: System would focus on capturing and saving various attributes of clothes/ fabrics worn by targeted persons captured from various CCTV Systems through distributed intelligence (software) along with time and location stamp over the period in a database. The database so compiled to be used to identify suspects from video clips of crime related CCTV footages captured series of CCTV Systems located on routes and close to scene of crime

127. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Web App development

TITLE: Vehicle recognition and compilation in database software

DESCRIPTION: It would focus and capture various attributes of vehicles (Type of vehicle, model of vehicle, Colour, Number Plate of vehicle, Peculiar attachments, accessories, marking including dent marks) captured from various CCTV Systems through distributed intelligence (software) along with time and location stamp over the period of various targeted persons. The database so compiled to be used to identify suspects from video clips of crime related CCTV footages captured series of CCTV Systems located on routes and close to scene of crime

128. ORGANIZATION: Govt. of Madhya Pradesh

DOMAINBUCKET: Security & Surveillance

TITLE: baggage and other accessories recognition and compilation in database software

DESCRIPTION: It would focus and capture various attributes of baggage and other accessories (Type, make, Colour, company, peculiarities, attachments, signs and marking including damage marks) captured from various CCTV Systems through distributed intelligence (software) along with time and location stamp over the period of various targeted persons. The database so compiled to be used to identify suspects from video clips of crime related CCTV footages captured series of CCTV Systems located on routes and close to scene of crime

129. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Security & Surveillance

TITLE: Identification of suspects based on their gestures, gait, BMI (Body Mass Index) and motions or objectionable/ illegal/ improper behavior and gesture of the police (Datasets will be provided on request)

DESCRIPTION: It would identify criminals from running CCTV streams on the basis of peculiar gestures and body movements and physical movements

130. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Web App development

TITLE: Developing Virtual Police Station to receive FIR with OCR based digital signature authenticated through digital signature (Aadhar Number based authentication).

DESCRIPTION: Designing a Virtual Police Station in which animated police officer would be used to interact with victim/victims to capture all the details with respect to identity of complainant, details of the incidence or crime committed will extract supplementary information to capture ingredient of the crimes committed, identity of criminals and likely witnesses the same would be converted in text format as an FIR which would be signed by the complaint/ victim through OCR device and verified through digital signature (using OTP based verification of Aadhar). The signed FIR would be routed to CCTNS system using Citizen Portal Bridge already available. Allowing OCR and Digital Signature of SHO to convert it in formal/ legally acceptable FIR.

131. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Web App development

TITLE: Converting typed or printed document images (photos) to legible text documents and storing the critical information in a database and protecting the digital image with # value so that document is admissible as evidence.

DESCRIPTION: Software should all documents formats of printed or typed documents and would convert them in text. The analytical tools would be used to identify the critical information available on the documents and would be stored along with identity of documents, crime number ((Thus linking it with all the attributes of the crime through this primary key), identify of document, authorship and other attributes): 1. Investigation Leads would be identified and would be pushed to Investigation Officer, Volunteers, Observers or the stakeholders as the case may be 2. Evidences would be saved with # value along with who would prove it in court. Certificate of legal admissibility, relevance and integrity would be provided. Certificates under 65 B would be auto generated to certify the process and authenticity

132. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Web App development

TITLE: Converting hand written documents as scanned images or photos (in any format) to legible text document using AI extracting important and critical information into database.

DESCRIPTION:

Software should all documents formats of handwritten documents and would convert them in legible text. The analytical tools would be used to identify the critical information available on the documents and would be stored along with identity of documents, crime number ((Thus linking it with all the attributes of the

crime through this primary key), identify of document, authorship and other attributes): 1. Investigation Leads would be identified and would be pushed to Investigation Officer, Volunteers, Observers or the stakeholders as the case may be 2. Evidences would be saved with # value along with who would prove it in court. Certificate of legal admissibility, relevance and integrity would be provided. Certificates under 65 B would be auto generated to certify the process and authenticity

133. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Mobile App development

TITLE: Web, portal and Apps for facilitating reporting of offences for registration of FIR with provision OCR based signature along with Aadhar based digital signature

DESCRIPTION: Designing a web portal and Apps to capture all the details with respect to identity of complainant, details of the incidence or crime committed will extract supplementary information to capture ingredient of the crimes committed, identity of criminals and likely witnesses the same would be converted in text format as an FIR which would be signed by the complaint/ victim through OCR device and verified through digital signature (using OTP based verification of Aadhar). The signed FIR would be routed to CCTNS system using Citizen Portal Bridge already available. Allowing OCR and Digital Signature of SHO to convert it in formal/ legally acceptable FIR.

134. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Web App development

TITLE: Requisitioning of data, information and documents

DESCRIPTION:

Requisitioning of Data, Information and Documents from various institutions, organizations and departments based on various probability using AI etc (using both API based and nodal officer channels) with automated follow up and monitoring provisions:- a. Telecom Service Providers: i. CDRs ii. PSTN Dumps iii. VLR Dumps iv. CAF v. SMS Tags related data b. Financial Institutions and Banks: i. IDs related data ii. Transaction related data c. Movement related information: i. Railways ii. Airlines iii. Roadway d. CCTV footages: i. Police CCTV Systems ii. Smarts City CCTV Systems iii. Malls and other business centers' CCTV Systems iv. Private Institutions and Individuals CCTV Systems

135. ORGANIZATION: Govt. of Madhya Pradesh

DOMAIN BUCKET: Software - Mobile App development

TITLE: App based portrait building system

DESCRIPTION: App based portrait building software from the photos of the criminals available with us. - Extracting representative features of eyes, eye brow, forehead, nose, ears, beard, hair styles etc in various classes - Extracting broad features of a face - Projecting these attributes for choosing close representatives of suspects/ criminals - Integration and polishing to get close representation of real suspects/ criminals.

136. ORGANIZATION: Education department Gujarat

DOMAIN BUCKET: Sustainable Environment

TITLE: IS BASED FLOOD RISK ASSESSMENT

DESCRIPTION: Flood is a major environmental problem in India as it has destructive or damaging effects on life and property. There is a serious need of detailed research in the development of regional or national flood damage functions for pre-disaster flood damage estimation property. Risk assessment is important in making decisions, policies and managing floods. The objective of this study is to review and synthesize concepts and techniques of flood hazard, vulnerability and risk assessment with reference to the Uttarakhand. The objective of present study is to delineate and identify flood hazard and risk assessment Banaskantha district in Gujarat, India. There is a serious need of detailed research in the development of regional or national flood damage functions for Pre-disaster flood damage estimation property. The objective of present study is to delineate and identify flood hazard and risk assessment Banaskantha district in Gujarat, India. Human beings and Animals. To delineate and identify flood hazard and risk assessment at Dhanera city of Banaskantha district in Gujarat, India. Dhanera covering total geographical area of 16 km2. Dhanera is located at 24.52°N 72.02°E. It has an average elevation of 128 meters (420 ft.). There is a serious need of detailed research in the development of regional or national flood damage functions for pre-disaster flood damage estimation property. Risk assessment is important in making decisions, policies and managing floods. The objective of this study was to review and synthesize concepts and techniques of flood hazard, vulnerability and risk assessment with reference to the Uttarakhad. Using geo spatial technology to model and predict the magnitude of flood risk areas, Geographic Information System (GIS) analysis techniques are used for this study the flooding causative factors such as rainfall distribution, elevation and slope, drainage network and density. This study aims at providing expertise for preparing flood mapping and estimating flood risks in growing urban areas.GIS and remote sensing play an important role in flood hazard, vulnerability and in risk assessment and useful for delineation of flood zones, preparation of flood hazard and risk maps The main advantage of using GIS for flood analyses is that it not only generates a visualization of flooding, but also creates potential to further analyze these events to estimate probable damage due to floods. Compared to traditional mapping, GIS enables the comparisons across spatial units; comparison across different themes by category of hazards and disasters; merging of qualitative with qualitative assessment and spatial database, based on which logical and/or numerical operations can be dynamically performed. These are grounds for concluding that GIS has an important function to play in natural hazards analyses because natural hazards are multi-dimensional phenomena, which have a spatial component.

137. ORGANIZATION: Education department Gujarat

DOMAIN BUCKET: Software - Web App development

TITLE: Road maintenance record-keeping system

DESCRIPTION: The maintenance of rural and urban roads is becoming an increasing challenge as a result of the rapid growth of the network. A large amount of money is going to waste due to irregularity and improper approach. Sound asset management principles need to be introduced as an integral part of road policies and maintenance program. Comprehensive maintenance planning with schedule,institutional reforms, linkage with initial construction, maintenance backlog, utilization of fund, regular on site inspections, training to the workforce, human attitude, existing practices and knowledge of different road patterns are the major challenges in record-keeping. The maintenance and record keeping of maintenance is the key issues in the government department after the liability period over of new construction. A

comprehensive system will help for planning of maintenance schedule, frame work, methodology. Also a prediction can be made for the timely maintenance fund requirements. Effective techniques can be decided for the problems. Quality of initial construction work can be achieved. It is more important to say that wastage of public fund can be reduced from the repetitive approach. Mostly, Public infrastructure is developed by the government department. It is obvious that various government bodies like municipalities, nagarpalika, panchayat and road and building department of state and central government etc. will be the potential users. Also private residential and commercial communities may use it for the maintenance records and fund estimation. A comprehensive maintenance record-keeping system will be the ready tool, which serve different aspects of complete qualitative maintenance such as, data base of complete any type of inspection on-site, recording defects including capture of images and location data to aid in repair, repair methodology applied, cost of maintenance, effective area of work, frequency of maintenance including during liability period of new constructions and fund planning for the future. It will be fruitful for the executors for social and economic development of users. Effective maintenance record keeping system will create social and economic impacts of rural roads users. It will serves ready record for long term budget planning as huge investment incurred in road infrastructure development. Some qualitative outputs such as, maintained roads provide access to where people live and important facilities such as markets, schools and health services. Good access provides the opportunity for improving livelihoods and increased employment opportunities, thereby contributing to the alleviation of poverty. Although it may be argued that the link between rural roads and poverty alleviation is mostly indirect, experience clearly shows that areas with poor road access are generally more disadvantaged than areas that are better served. The web application will contain an effective dashboard (visualization like a BI tool) which will provide different kinds of analysis , in order to take quick actions and to avoid spending excessive time in analysing this information. The application will be an effective tool as it will help save time and provide valuable information at a go to thus avoid wastage of public resource.

138. ORGANIZATION: Ministry of Power

DOMAIN BUCKET: Energy / Renewable Energy

TITLE: Remote Sensing /Satellite Imagery Application to Find Naturally Occurring Depression(s) Sites For Pump Storage Projects (PSP's)

DESCRIPTION: Design a Remote Sensing or Satellite Imagery based Application to identify Naturally Occurring Depression(s) Sites that can be used for Pump Storage Projects (PSP's). Use publically available dataset for the images with well known Naturally Occuring Depressions and use that to learn process of identifying them in any image.

139. ORGANIZATION: Ministry of Power

DOMAIN BUCKET: Security & Surveillance

TITLE: Integrated Automatic Flood Warning and alert system using IOT

DESCRIPTION: Design a IoT based system that is able to sense the pressure on walls of dams. Additionally design a backend system to predict the areas that need to be vacated if dams are open. Ensure that this system warns the respective users directly based on the dashboard output.

140. ORGANIZATION: Ministry of Power

DOMAIN BUCKET: Smart Vehicles

TITLE: Solution For Predictive Maintenance and Battery Life saver for Electric Vehicles

DESCRIPTION: In line with the Government of India's vision of 30% e-mobility by 2030, the National EMobility Programme was launched in India in March, 2018. Under this programme, electric vehicles (EVs) are being procured by EESL and leased out to government organisations at rentals that are equal to the present rentals for petrol and diesel cars hired by these organisations. Battery is critical component of EV which is the fuel who runs Electric vehicle and hence it is imperative to monitor the battery life and predict about it maintenance, charge and give enhanced enriched user experience which not only save energy costs but also improve the standard of living

141. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Software - Mobile App development

TITLE: Air/Water turbidity estimation mobile app

DESCRIPTION: Development of App for measurement of Air and water turbidity using smartphone. Air Quality: It would involve imaging sun by placing appropriate light diffusing mechanism in mobile, developing App for image processing taking care of different sun viewing geometry to estimate the atmospheric optical thickness. Water Quality: It would involve imaging water through mobile and developing App for image processing to estimate turbidity of water. Data set Link: https://vedas.sac.gov.in/vcms/en/sih2020.html

142. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Sustainable Environment

TITLE: Automated mapping of trees/farms in satellite image

DESCRIPTION: Design and Implement algorithm for automated mapping of trees/plantation and farmland from 5m multispectral multi-temporal (LISS IV) data. Participants need to develop algorithm for automatically classifying vegetation areas as either farm or tree/plantation by analysing seasonal changes apparent in multi-temporal satellite imagery. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

143. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Agriculture and Rural Development

TITLE: Extraction of crop cycle parameters from multi-temporal data

DESCRIPTION: For a given set of multispectral multi-temporal data with timestamp of one year or more, develop and implement an algorithm for extracting crop cycle parameters. Participants need to develop a high-performance algorithm to analyse multi-temporal data at each pixel to extracting parameters such as date of sowing, date of harvesting and number of harvests based on temporal profile. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

144. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Energy / Renewable Energy
TITLE: Detecting clouds and predicting their movement from INSAT imagery
DESCRIPTION: INSAT-3D and INSAT-3DR are two geostationary meteorological satellites of India having 6 channel Imager and 19 channel Sounder payloads. The imagery captured in the visible range by INSAT satellite can be used to detect clouds. Participants need to develop and implement algorithm to detect clouds in INSAT satellite images and predict the location of clouds in subsequent images. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

145. ORGANIZATION: Indian Space Research Organisation (ISRO)
DOMAIN BUCKET: Miscellaneous
TITLE: Nowcasting of Meteorological Satellite Images using AI/ML techniques
DESCRIPTION: INSAT-3D and INSAT-3DR are two geostationary meteorological satellites of India having 6 channel Imager and 19 channel Sounder payloads. INSAT-3D and INSAT-3DR Imager acquire images over its footprint every 30 Min. In order to have better revisit these satellites are programmed to acquire images in staggered mode, which provides images over Indian region every 15 Min. Nowcasting refers to forecasting for a shorter duration (3 to 6 Hrs.). Nowcasting of meteorological images will help in forecasting images with for next 3 hrs. These Nowcasted images help synoptic meteorologists, administrators and common man for better interpretation and decision support during extreme weather events. Machine learning (ML) provides techniques for predicting the new outcomes based on previously known results and Artificial Intelligence (AI) helps in decision making. Develop an AI/ML based software to generate nowcasted satellite images and its animation loop for next 3 Hrs. at an interval of 30 Min. using data form INSAT-3D and INSAT-3DR. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.htmL

146. ORGANIZATION: Indian Space Research Organisation (ISRO)
DOMAIN BUCKET: Software - Mobile App development
TITLE: Web-map data visualization using augmented reality globe
DESCRIPTION: Develop an app to visualize globe in augmented reality on any surface. (Participants can use any physical marker or placeholder). When viewing the physical marker/placeholder from the phone camera, an augmented reality globe must appear over the placeholder. Moving the camera It should be possible to overlay any OGC Web Map Service (WMS) on the globe. The application must provide interface for selecting the data to be overlaid on the globe.

147. ORGANIZATION: Indian Space Research Organisation (ISRO)
DOMAIN BUCKET: Software - Mobile App development
TITLE: AI based crop identification mobile app

DESCRIPTION: Develop a mobile application that can identify crop using only field photo of a crop. The team must target at-least 10 different crops for demonstration. The application will allow the user to take photos and automatically identify the crop. The photo and crop information along with geo location information should be stored in an internal database which can be exported/emailed.

148. ORGANIZATION: Ministry of Power

DOMAIN BUCKET: Smart Communication

TITLE: Development of IoT based advance Public Address and Flood Warning Systems across all Hydro Power project areas.

DESCRIPTION:

We are looking for advance Public address and Flood Warning Systems across all Hydro Power project areas. IoT sensors can be used for generating advance flood warning across hydro power project areas. IoT sensors data can be used with Public Address system to generate alarm.

149. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Software - Mobile App development

TITLE: App for recording and playing geo tagged videos

DESCRIPTION: Develop a mobile application for recording and playing geotagged videos. Unlike photos in which geotag data is of a single point and orientation pair, for videos geotag data is a sequence of point and orientation pairs. The mobile application should have two views. In one view the recorded video should play while simultaneously plotting field-of-view (orientation) cone and marker on an interactive map in the other view in a synchronized manner. The position shown on the map should match the play position of the video. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

150. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Software - Mobile App development

TITLE: App for identification of sky regions in a photo

DESCRIPTION: Generating local sky horizon has important applications for analysis of solar energy potential in an urban setting. Develop a mobile application for automatically detecting sky pixels in a photograph. The application should generate a mask image consisting of sky pixels marked in white colour in the image and other pixels marked in black colour. Further, using information about camera optics, the application should give angle of elevation of the lowest sky pixel for all pixel columns in the mask image. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

151. ORGANIZATION: Ministry of Power

DOMAIN BUCKET: Miscellaneous

TITLE: Monitoring the battery life of Electric Vehicles.

DESCRIPTION: Monitoring the battery life of Electric Vehicles.

152. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Security & Surveillance

TITLE: Drone route planning

DESCRIPTION: Develop an application for automatically planning a route (for shortest time to cover area) and schedule of drones for mapping a given area. The input provided will be. 1) Map of area to be covered. (Shapefile) 2) Number of drones. 3) Range (in km based on battery life) 4) Top speed 5) Location of automatic charging station The software must have features for visualizing a simulated animation of the plan.

153. ORGANIZATION: Ministry of Power

DOMAIN BUCKET: Software - Web App development

TITLE: Auto fetching of regulatory compliance data of power sector stake holders for analysing and reporting purpose

DESCRIPTION: We are looking for Auto fetching of regulatory compliance data of power sector stake holders. This would be helpful for analysing and reporting purpose. This tool should auto-fetch the new or additional regulatory compliance data and auto inform to users. Design should be easy to use so that analysis and reporting can be smoothly performed.

154. ORGANIZATION: Indian Space Research Organization (ISRO)

DOMAIN BUCKET: Software - Mobile App development

TITLE: Virtual reality based Earth/Moon explorer

DESCRIPTION: Develop application to visualize Earth/Moon globe in virtual reality using a wearable mobile based headset (using Google Cardboard VR or similar technology). User should be able to select a location (e.g. peak of mount Everest) and explore the area in virtual reality in 3D as if he/she was present there. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

155. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Sustainable Environment

TITLE: Automated land use classification using AI/ML

DESCRIPTION: Develop a deep-learning based software for automatically classifying land-use from multi-temporal multi-spectral high-resolution satellite imagery. The developed model should be scalable/efficient to allow rapid mapping of incoming datasets and must incorporate a web-based viewer for visualizing input as well as classified output. The viewer interface must also allow the user to visualize

changes that have occurred within a given timeframe. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

156. ORGANIZATION: OrganizationIndian Space Research Organisation (ISRO)

DOMAINBUCKET: Miscellaneous

TITLE: GNSS Reflected Signal Coverage Simulator

DESCRIPTION: Apart from determining location, GNSS can also be used for estimating geophysical parameters using its reflected signal. Based on the satellite altitude/position, the receivers receive reflected signals from a particular region. The reflected signals get changed with change in the surface and terrain characteristics. In this problem, the teams need to develop a software suite that will provide the following features. • Run dynamic simulations to identify the reflected signal area coverage of a particular satellite with its time and position. • Tool to analyse the effect of the obstacle in the identified coverage area. The teams will be provided the following input • Orbital parameters of all GNSS satellites • Digital elevation model of the study area • On ground locations of the GNSS receivers

157. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Hyperspectral image analysis tool

DESCRIPTION: Hyperspectral Remote Sensing data provides data in large contiguous number more than 100 wavelength bands. In hyperspectral data the feature and its abundance is measured using its spectral response across these bands. Each feature behaves differently in different wavelength band and sensitive to particular wavelength region. Develop a tool to analyse the spectrum of each pixel in a hyperspectral remote sensing data cube for absorption dip, width of absorption and other characteristics at different percentile of the absorption depth. The developed tool must also provide functionality to prepare map of each of these properties and its visualization.

158. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Software - Web App development

TITLE: Web based volume rendering and 3D/4D visualization of Model Forecast

DESCRIPTION: The numerical weather models are used for generating forecast, these model forecast contains 4D information (i.e., Latitude, Longitude, Height/pressure and Time). These model forecasts are Gridded at a defined sampling interval, and are very useful for planning and decision supports. WebGL is a Javascript API for rendering high-performance interactive 3D and 2D graphics. The participants must develop a web-based tool for 3D/4D visualization of model forecast.

159. ORGANIZATION:

DOMAIN BUCKET:

TITLE: AI/ML based system for deriving value added parameters using satellite surface observations

DESCRIPTION:

Sub-surface information of the ocean like the mixed layer depth (MLD), sonic layer depth (SLD), tropical cyclone heat potential (TCHP) etc. is very useful in wide variety of applications such as air-sea interaction studies, Naval applications, cyclone genesis and forecasting etc. This information is available either from in situ measurements or from Numerical models. In situ measurements in the ocean are quite sparse while the numerical models have inherent errors in simulating this information. Satellites provide wide spatial coverage of the oceans; however, they only give ocean surface information. Assuming that the derived quantities of the deeper ocean such as MLD, SLD, TCHP etc have signatures in the ocean surface as well, an artificial intelligence based technique linking the satellite surface observations of the ocean with these sub-surface quantities, may be envisaged. Satellite observations of sea surface temperature (SST), sea surface salinity (SSS), sea surface height anomaly (SSHA) and sea surface wind speed (WS) collocated with MLD, SLD, TCHP derived from in situ measurements (ARGO floats/moored buoys) can be used as training data set where we try develop a relationship between SST, SSS, SSHA, WS and the derived quantities MLD, TCHP and SLD. In this problem the participants must develop a software to generate MLD, SLD and TCHP using satellite data (SST, SSS, SSHA, WS)

160. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Reconstruction of missing data in Satellite Imagery

DESCRIPTION: Short Wave Infra-Red(SWIR) detectors used in satellite imaging cameras suffer from drop outs in pixel and line direction in raw data. Develop software to reconstruct missing parts of a satellite image so that observers are unable to identify regions that have undergone reconstruction. Study shall also compare the performance of the proposed with existing state of art technique results.

161. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Depth Estimation of Valles Marineris using ISRO's Mars Color Camera (MCC) images

DESCRIPTION: Valles Marineris is Grand Canyon system present along the equator of Mars. The Valles Marineris is a large tectonic crack present on the Martian crust running up-to a length of around 4000 km. Mars Color Camera (MCC) captured multiple images of Valles Marineris at varying spatial resolution which can be used to estimate the depth of the canyon system. Develop software to generate depth map of Valles Marineris using image captured by MCC. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

162. ORGANIZATION:

Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneo

TITLE: Field Data Analysis and Automated feature validation from crowd sourced field photos;

DESCRIPTION: Bhuvan is widely used for crowd sourcing and millions of photos are uploaded everyday pertaining to different subjects of interest like crops, dams, water bodies, prominent locations, grievances, infrastructure etc. Also, this has become an important platform for most of the ministerial activities, where in accountability and financial sanctions etc are also linked. Such important activities need more focused and automated validation mechanisms for understanding the photographs and relevance for the purpose. Hence, extracting information from the photograph is essential. Develop software to automatically locate and extract text from field photographs. For example, given and image containing a traffic sign, the traffic sign should be identified and its text must be extracted. data set: https://sid.erda.dk/public/archives/daaeac0d7ce1152aea9b61d9f1e19370/published-archive.html

163. ORGANIZATION:

DOMAIN BUCKET:

TITLE: Air pollution hot spots detection and identifying the source trajectories using ML/AI techniques

DESCRIPTION:

At present, air pollution is a global problem. India is also a big sufferer of this problem. India signed COP21 agreement for cutting the carbon emissions from 2025. Hence a study identifying the hot spots of pollutants and their transport namely carbon monoxide (CO), sulphur dioxide (SO2) and oxides of nitrogen (NO+NO2) using advanced data analysis techniques. Satellite provides columnar concentration of these pollutants which are 90% representation of surface concentrations. Pollution sources are mainly from the land surface activities. Satellite provides these observations on daily basis with different spatial resolutions. Challenges involved in the current statement is mining the datasets from different satellites parameters and providing the final output with moderate spatial resolution on pollution information. Hence information will be useful for change detection analysis. Identification of source pathways. Participants must develop AI/ML based software/algorithm to identify/analyse 1. Location of hot spots. 2. Long-term occurrence of hot spots and changes. Dataset Links: Satellite based data (freely available), Sentinel-5p/TROPOMI (https://s5phub.copernicus.eu/dhus/#/home), MOPITT (https://eosweb.larc.nasa.gov/project/mopitt/mopitt_table), Aura/OMI (https://giovanni.gsfc.nasa.gov/giovanni/#service=TmAvMp&starttime=&endtime=&dataKeyword=Ozone) and Winds (https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=form; https://giovanni.gsfc.nasa.gov/giovanni/#service=TmAvMp&starttime=&endtime=&variableFacets=dataFieldMeasurement%3AWind%3B)

164. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Sustainable Environment

TITLE: Identify shifting cultivation locations in dense temporal stacks

DESCRIPTION: Shifting cultivation is an agricultural system involving the clearing and burning of natural vegetation, followed by the cultivation of new fields for a few years. This is followed by a period of fallow during which the vegetation regenerates, after which the cycle begins all over again. This is typically followed in the hilly regions of the country. The cycle is likely to be over 7 to 20 years. Using multi-

temporal satellite imagery. Develop AI/ML based software/algorithm to map/visualize/analyse 1. Areas exhibiting shifting cultivation. 2. Long-term changes.

165. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Sentiment Analysis from text feedback:

DESCRIPTION: Webportals like Bhuvan get vast amount of feedback from the users. To go through all the feedbacks can be a tedious job. Develop software to categorize opinions expressed in feedback forums. This can be utilized for feedback management system. The software must provide the following output. 1) Classification of individual comments/reviews. 2) Determining overall rating based on individual comments/reviews. The Multi-Domain Sentiment Dataset contains product reviews taken from Amazon.com from many product types (domains). http://jmcauley.ucsd.edu/data/amazon/

166. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Voice command driven Web-GIS Applications (mobile/ desktop)

DESCRIPTION: As on date, Bhuvan is driven by GUI based features. Develop software for voice based navigation of Bhuvan portal and/or applications listed on Bhuvan portal. Solution can be provided for at-least 2 languages- 1. Language-1: Hindi or any other Indian regional language. (Participant may have to prepare the data-sets for desired language, and may also use online datasets, If available) 2. Language-2: English (Participant may use online available datasets). Specific focus should be on providing voice-based navigation for Web-GIS applications.

167. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Sustainable Environment

TITLE: Change detection and extraction of information / features of interest in RS images using time series information

DESCRIPTION: Bhuvan - The EOS visualisation platform has large amounts of satellite data along with derived information from various sensors and collateral data. Users of Bhuvan are widely interested in downloading data and carrying out change detection analysis for each of their areas of interest as on date. Utilities for change detection on Bhuvan platform, directly using knowledge base / Deep Learning based algorithms for identifying the changes in given / selected time series data and extracting features of interest changed over time will be a very good value addition for water resources, urban dynamics, infrastructure monitoring and disaster management. This is possible only by identification / detection of features on the fly from RS images, which are more amenable for noise from different implicit processes in atmosphere and data processing algorithms. Given time series tiles of Bhuvan Imagery / RS image (2 dates) the system should a) Identify changes and highlight areas of change. b) Extract features that are evident from image 2 and not in image1, categorise in known lists i.e. water, roads, buildings, parks, trees c) Find features that are missing in image2 w.r.t. image 1. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

168. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Efficient Communication scheme for Human Space Flight Programme

DESCRIPTION: To increase the transmission reliability and better service quality, connectivity through multiple links or networks, i.e., multi-homing, is considered which provides robustness and offers concurrent data transfer over multiple paths. The real-time data streaming requires low delay, jitter free transmission medium. For real-time multiplexed streams, comprising audio, video and data, the transmission reliability requirement is different for each type of stream. So, there is a need of an efficient transmission technique for such multiplexed streams with different reliability parameter settings for each stream over a multi-homed networking environment. It is also required to have a suitable handoff mechanism in case of link failover with minimum handoff latency. The participants must design implement and demonstrate transmission protocol with point-to-point real-time Audio, video and data conferencing application over multi-homed network. DATA : Live Audio, video stream may be generated through webcam and mic. attached to a laptop/desktop machine for testing and evaluation. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

169. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Link Adaptive Speech Compression scheme for Human Space Flight Programme

DESCRIPTION: The objective is to design light weight end to end communication protocol which facilitates satellite link adaptive speech compression schemes. When the satcom link becomes erroneous and information rate needs to be reduced to maintain the link quality, the speech encoding scheme needs to be changed to provide lower rates. The information on type of encoding used needs to be made available to the receiver as part of end to end protocol to support decoding. Desired Outcome: The participants must design, implement and demonstrate end to end communication protocol with point-to-point real-time speech communication (voice call) under variable link conditions using different available open source speech compression schemes like G729, CELP, MELP etc. The rate adaptation with link condition to be demonstrated. Participants are encouraged to provide novel ways of determining link quality (self-learning) as part of end to end communication protocol. DATA: Live speech stream may be generated through laptop mic. And satellite link quality (BER) can be simulated using available tools like MATLAB/C for testing and evaluation.

170. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Blind Scrambling Code Identification

DESCRIPTION: Satellite Link Monitoring and Analysis System requires identification of transmitted waveform parameters. Scrambler polynomial is one of the parameters. The objective is to identify the scrambler polynomial and initial seed (if any) used for scrambling on the dataset. The scrambling polynomials can be from any of the given standards namely DVB-S, CCSDS, DVBS2, V.35. Desired Outcome: The challenge is in developing an algorithm that can identify the scrambler polynomial from the scrambled dataset given with the problem. The scrambler used in generating the data can be either self–synchronous or synchronous. It is expected that the output of the developed algorithm should be polynomial estimation of the scrambler used in generating the waveform. Reasonable assumptions for the algorithm design can be taken. DATA: Matlab generated scrambled dataset

171. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Efficient Header Compression technique for IP based communication over Satellite network

DESCRIPTION: SATCOM networks operate under bandwidth & power limited scenarios. In order to effectively utilize the network resources, the overheads are required to be reduced (specially TCP/IP Headers) in the user traffic. The IP header compression scheme should accept TCP/IP traffic from users & provide header compressed data over satellite link. The header compression system should support all protocols & provide seamless communication among multiple users by minimizing the TCP/IP headers through elimination/caching static fields. The compression algorithm should be capable of maximizing Header compression factor for applications like VoIP, FTP, HTTP etc. & handling static/dynamic fields of TCP/IP headers during communication between multiple users. Desired Outcome: Complete algorithm development for header compression technique, system development and demonstration with different IP based services like – VoIP, FTP etc. Microcontroller based solution will be cheered DATA: Real Time VoIP calling, FTP between server & client etc.

172. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Customized Web-based animation for data cube, volume rendering and time series data visualization

DESCRIPTION: Develop software for animating multi-spectral, multi-temporal data (in the form of orthorectified data cube). User should be able to select parameters such as the band to visualize, the time-range or the time-step and animation speed parameters e.t.c. The software should be web-based and support combining data from various satellite imaging sensors. The software system should be able to handle large volumes of data. Data Set link:https://vedas.sac.gov.in/vcms/en/sih2020.html

173. ORGANIZATION:

DOMAIN BUCKET:

TITLE: Size Invariant Ship detection from SAR Images

DESCRIPTION: SAR satellites provide useful information for object detection. A methodology needs to be developed to detect ships at ocean area using SAR data and estimate size of the detected ships (size invariant). The methodology should be applicable for different resolution SAR data of same bands. Develop software with following two features- a) Land water discrimination using SAR imagery, b) Output detected ships as a vector file, with an estimate of the size of ship

174. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Software - Mobile App development

TITLE: Processing, visualization and application development of raw GNSS data on Android Smartphones:

DESCRIPTION: These days almost every android smartphone includes a GNSS sensor. Increasingly this GNSS sensor supports hosts of GNSS constellation like GPS, Galileo, Beidou, Glonass and QZSS. In near

future it will support NavIC also. Until now, the smartphone GNSS chipsets were operating on single frequency at L1 only. However, some of the advanced smartphone chipsets now supports L5 band also. Along with this a major development has happened wherein the android has enabled access to raw GNSS data also. This opens up enormous opportunity to develop newer smartphone based GNSS applications enabling accuracy and integrity, which was not possible earlier. This problem statement deals with the processing and visualization of such raw GNSS observable from the android devices. Desired Outcome: The teams are free to bring out novel processing strategies and their implementation on android, utilizing the raw GNSS observables. Detection of interference, interference localization, spoofing detection, enhancing accuracy, fusion with other smartphone sensors are the capabilities to name a few.

175. ORGANIZATION: Indian Space Research Organisation (ISRO)

DOMAIN BUCKET: Miscellaneous

TITLE: Ethical hacking for extraction of restricted GNSS signal features

DESCRIPTION: The Global navigation Satellites transmit navigation signals for both civilian as well as strategic and military users. Concerning signals catering to civilian applications, all the necessary signal details are available and well documented. However, it is not available for the signals for strategic users. All the GNSS service provides be it, GPS, GLONASS, Galileo or Beidou is transmitting such signals for their strategic users. This problem deals with the subject of ethical hacking of strategic GNSS signals. Primarily the idea would be to process the recorded GNSS signals in order to extract the important signal feature such as, data rates, data frame lengths, correlation among data frames, spreading code structures, code lengths, overlay codes, spectral signatures etc. Desired Outcome: Algorithms and processing software to extract the signal features from the recorded signals. As a test case GPS M-code signal can be considered. DATA : Digitized signal records will be made available using ISRO facilities.

176. ORGANIZATION: Govt. of Bihar (DOA)

DOMAIN BUCKET: Agriculture and Rural Development

TITLE: Estimation of crop yield using modern ICT tools which is quick and reliable for making a realistic plan for procurement and to compensate farmers for yield loss if any.

DESCRIPTION: Current methods for estimating crop yield take months in crop cutting experiments and farmers have to wait for months to get compensated in case of loss etc. Solution for estimating crop yield using modern ICT technologies needs to be developed, which will make realistic plan for procurement. This would also help in compensate farmers in case of yield loss. The solution needs to be quick and reliable.

177. ORGANIZATION: Govt. of Bihar (DOA)

DOMAIN BUCKET: Agriculture and Rural Development

TITLE: Develop a real time land usage monitoring tool using satellite data and Artificial intelligence etc.

DESCRIPTION: Use satellite data and artificial intelligence to monitor crop production across India. Use standard dataset available from NASA/ISRO for this purpose. This kind of data will be helpful to predict production of crop with schedule and help government develop a procurement plan for the same.

178. RGANIZATION: Govt. of Bihar (DOA)
DOMAIN BUCKET: Agriculture and Rural Development

TITLE: Developing an e-enabled real time produce life cycle monitoring & sharing mechanism to enhance output realization to farmers through private sector participation and DBT
DESCRIPTION: Develop a portal for farmer registration along with farm plan. This plan should help government agencies to monitor the life cycle crop across life cycle. In case the production fails then provide facility to report that too. Due to information asymmetry across producers and buyers there emerges a situation of distress sales, this solution may be a step to address this arbitrage situation. Additionally provide them with advisory of different activities during the farm schedule. This kind of plan helps government to plan the production and procurement plan, thereby increasing invome of farmers. If there are too many farmers producing same crop they can be recommended/incentivised to produce some other crop.

179. ORGANIZATION: Govt. of Bihar (DOA)
DOMAIN BUCKET: Agriculture and Rural Development
TITLE: Enabling transparent price discovery and forecasting of crop arrival along with management and utilization of price stabilization funds in the case of agri - commodities
DESCRIPTION: Develop an application for transparent price discovery from different Mandis and forecasting of crop arrival along with management and utilization of price stabilization funds in case of agri-commodities. Use a multi-level strategy for selected key crops to forecast and discover prices along with designing and leveraging PSF to avoid fluctuations in prices.

180. ORGANIZATION: Department of Science and Technology
DOMAIN BUCKET: Agriculture and Rural Developmen
TITLE: Mobile App for sharing or pooling of transport for agricultural produce to market
DESCRIPTION: This will help to reduce the cost of transportation through aggregation.

181. ORGANIZATION: Department of Science and Technology
DOMAIN BUCKET: Smart Cities
TITLE: Unusual event detection from surveillance video shots
DESCRIPTION: The problem is aiming at detecting unusual events from surveillance videos. All the videos are shot using a single static camera. One example of such an event could be detection of events where a car is breaking the traffic rule. Input: Videos shot using static camera with one event per shot. Expected Output: Automatically detect the unusual activity. Give the start and end time of the event

182. ORGANIZATION: Govt.of Sikkim
DOMAIN BUCKET: Software - Web App development
TITLE: Data Storage and analytics with Dashboard
DESCRIPTION: Schools in Sikkim are located in different terrain and during monsoon season it's very difficult to reach every school to get data. In govt sector sometimes we need data immediately in such scenario creating data is difficult We need a software or web portal which can store data of all students across the four districts .The data storage should be block level, district level and state level. As network is

very challenging throughout the state of Sikkim. Software should be design such a way that data can be entry offline and later on put into the web when network is available. Design a desktop based application that records a variety of data like attendance or students as well as teachers, marks of students, and other statutory data as required by education department. Most important aspect of this application is sync only when network is available. It should additionally provide facility to upload file separately once in a month.

183. ORGANIZATION: Govt.of Sikkim

DOMAIN BUCKET: Software - Web App development

TITLE: Online STET (State Teacher Eligibility Test) Software or web portal.

DESCRIPTION: Education Department Govt of Sikkim, every year conduct STET (State Teacher Eligibility Test) exam for all categories of teachers Primary Teacher, Graduate Teacher and Post Graduate Teacher before the recruitment exam. All the eligible candidates will apply for STET, so the applicants will be almost 5000. Checking all the documents, verifying them and issuing admit cards to individual candidate manually is a difficult job, which we are carrying for many years. During this span of time we made human error and had to repeat the processes. What we want : To make the STET exam error free and quick solution, we are in need of online software or window where candidates can login, register, fill the form and submit. Software should keep bio data of the candidate, print admits cards and later we can display online result of STET as well. During all the process automatic SMS and Email facilities should be included. Mobile app will be more convenient along with software. Challenges Network connectivity is not uniform all throughout the state of Sikkim so software should be develop in such a way that it can run with less network ,that is it can open only that window which candidate wants. Design a application that integrates with some reliable system like DigiLocker for verification of documents, or accept documents signed by DigiLocker eSign for document verification. Reduce manual intervention wherever possible, manual verification should be done only when final offer letter is to be issued.

184. ORGANIZATION: Bharat Electronics Limited , Bengaluru

DOMAIN BUCKET: Software - Web App development

TITLE: Sentiment Analysis of Code-Mixed Languages

DESCRIPTION: In the current scenario, Most of the social media platforms can be seen with the proliferation in usage of code-mixed text. Code-mixed data is an important challenge of natural language processing, as its characteristics widely vary from the traditional structures of standard languages. In such scenario, context aware sentiment analysis of the social media data becomes a great challenge. Here comes a need for standard solution which can take the feed of Social Media Data that has code-mixed language statements, Handle multiple code-mixed Indian languages and perform context aware Sentiment Analysis further. Sentiment analysis should give results such as “Positive”, “Negative “and “Neutral” for the code mixed languages such as English, Hindi, Kannada ,Bengali, Urdu etc. Sample data set shall be provided soon .

185. ORGANIZATION: Bharat Electronics Limited , Bengaluru
DOMAIN BUCKET: Miscellaneous
TITLE: Open set Language Diarization for Indian Languages audio data
DESCRIPTION: Software based module for segmentation and identification of Indian languages from the given input audio file. Objective of the software module is: a) Input should be narrow band speech data. b) Output should be labeled for languages with respect to time. c) Language labeling for a minimum 15 seconds audio segment. d) Capable to identify all 24 official Indian languages from given audio file. e) Non-Indian languages need to be labeled as unknown. f) Capable to give high accuracy (more than 80%) in Low SNR's (as low as 20db). Sample data set shall be provided soon .

186. ORGANIZATION: MIC
DOMAINBUKCET:
Software

TITLE:
Energy/ Renewable energy

DESCRIPTION:
Energy/ Renewable energy

187. ORGANIZATION: MIC
DOMAIN BUCKET: Finance
TITLE: Finance
DESCRIPTION: Finance

188. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Smart Cities
DESCRIPTION: Smart Cities

189. ORGANIZATION:
DOMAIN BUCKET: Smart Communication
TITLE: Smart Communication
DESCRIPTION: Smart Communication

190. ORGANIZATION: MIC
DOMAIN BUCKET: Agricultural and Rural Development
TITLE: Agricultural and Rural Development
DESCRIPTION: Agricultural and Rural Development

191. ORGANIZATION: MIC
DOMAIN BUCKET: Travel and Tourism
TITLE: Travel

DESCRIPTION: Travel

192. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Smart Textiles
DESCRIPTION: Smart Textiles

193. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Smart Vehicles
DESCRIPTION: Smart Vehicles

194. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Sports & Fitness
DESCRIPTION: Sports & Fitness

195. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Sustainable environment

DESCRIPTION: Sustainable environment

196. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Healthcare & Biomedical devices

DESCRIPTION: Healthcare & Biomedical devices

197. ORGANIZATION: MIC
DOMAIN BUCKET: Software
TITLE: Miscellaneous
DESCRIPTION: Miscellaneous

198. ORGANIZATION: MIC
DOMAIN BUCKET: Software
` **TITLE:** Smart Education

DESCRIPTION: Smart Education