MHRD - IIC Problem Statements

S.No	Organization	Problem Statement	Software	Description	Technology bucket	Complexity
1	Yamaha Motor Solutions India Pvt. Ltd.	Bike E-Catalogue Mobile App	Software	Augmented Reality based bike E-Catalogue. Customer can scan the QR code/bike from mobile app to get the insights of bikes features and technology in front. Mobile app with augmented reality proposes the features of bike. App should be able visualizing the key important features on the screen. Eg, Powerful Engine Electrical Stylish Head Lights Diamond Type Frame Suspension Extra Long Seat Raise Grab Bar. ABS Instrument Panel . etc Other Features to change Color Change of bike,send feedback and play videos of Youtube.	Software - Mobile App development	Complex
2	Yamaha Motor Solutions India Pvt. Ltd.	My City Information Mobile App	Software	Mobile app to provide all generic public information of selected city of India. Information can be About City Main Attraction Hotels Hospitals Emergency Contact No Scholl and college Police stations Public Representatives Govt Officials Old Age Home Local Train Information Bus time table Information Nearest police station based on Geo Location [Sample City can be Faridabad]	Software - Mobile App development	Simple
3	Yamaha Motor Solutions India Pvt. Ltd.	Bike Crash Detection	Hardware	Device which can send the SOS signal on crash of vehicle to the centralized command center.	Smart Vehicles	Complicated

4	Yamaha Motor Solutions India Pvt. Ltd.	Golf Ball tracking	Software	Tracking of a golf ball after the ball is hit by the golfer. The application can predict and provide the possible location of drop inside the Golf Course. Solution to be provided by considering one camera. Other factor to be considered is the wind speed, the angle of the shot, impact of shot and goal hole position. Purpose is to reduce the time of Game as most of time is spend in finding the ball.	Software - Web App development	Complicated
5	VMware Software India Pvt	Talking Fingers	Software	Real time communication with Speech & Hearing Impaired is always a challenge. There are very few interpreters at limited locations. An app which can do real time translation from multiple Indian languages and English to Sign language will help bridge this gap to a large extent. App should run offline without internet.App should be able to feed in words and signs already available in Database.	Software - Mobile App development	Simple
6	VMware Software India Pvt	Re-forestation using "self driven" robotic vehicle	Software	We have vast areas of land with no forest cover, growing trees on this is tedious as these lands are remote and need manual labor and logistics. Even when the land is near by (like land belonging to army is usually very close to their camps, but lies vacant with no trees being planted), investing manual labor in this task is difficult.The proposed solution shall plant seeds and water the plants, monitor plant growth and suggest improvements to increase the green cover	Robotics & Drones	Complex

7	VMware Software India Pvt	Smart eco-friendly garbage management	Hardware	Trash management is a one of the hard problems. . The existing model is very ineffective due to its poor placement, collection scheduling, dump yard allocation and management, ever increasing transport cost and resulting health issues. The solution shall present a solar powered smart garbage bin (like an Edge in IoT) which houses necessary biotech based mini/macro waste decomposer and necessary mechanical and electronics to manage, monitor and secure the Smart bins & detect usage violation etc	Waste Management	Complex
8	Vanderlande	Telepicking Interface with item picking Robotics	Hardware	Most distribution centers (warehouses) uses a good-to–person picking model and automated system to compile orders. A latest available technology component to be used to Interface with robotic item picking and operator. Remote operation by operator of these robotic item picking using the control devices like joystick, remote hand. The operator should be able to visualize this process by camera	Robotics & Drones	Complicated
9	Vanderlande	MarkingByDrone	Hardware	In any equipment or machine manufacturing industry, when the site is ready with proper flooring and electricity, one needs to start installing the equipment. In a typical system there are many components that have to be installed within a building or closed area. Now this is done manually by installation team. With the advent of drone technology, one should be able to automate the process of manual measurement and marking. The solution should be aimed at simple yet accurate (within +/- 10mm)	Robotics & Drones	Complicated

10	Vanderlande	Using AI to improve slotting, picking routes	Software	In the future it is expected that robots can do the same activities as the operators in a traditional warehouse. So, one could have a warehouse where both robots and operators are responsible for replenishment and picking tasks. The assignment is to make a system where we can learn from the operators in the WH (how is the slotting and picking routes operator uses). The idea is to use artificial intelligence, that learns from operators, to develop a strategy which will be used to instruct Robots	Miscellaneous	Complex
11	Thermo Fisher	Real Time Mapping of Epidemic Spread	Software	We envision a simple portal which shall provide real time data on how an epidemic is and can spread. Real time status and alerts will be the primary objective of this project. To achieve this objective, we will need to build layers of crowd sourced data that will add up to provide rich real time status of an epidemic spread as it happens.	Healthcare & Biomedical Devices	Complex
12	Thermo Fisher	Integrated Health Care App/Portal	Software	Develop the concept of an integrated Health Care portal with App that helps common man to look for a hospital or a doctor for any consultation needs or undergoing medical procedure. A platform that offers service providers approved for offering diagnostic tests at regulated price and quality. This portal could be linked to IRDA approved healthcare insurance companies with clear mention of what is included and what is not, Deductibles, etc.	Life Sciences	Complicated
13	Thermax	Energy Storage Solutions using earth abundant materials	Hardware	Renewable energy requires energy storage devices to supply round the clock power. Current solutions use rare materials such as Lithium which are not readily available. Storage Solutions using earth abundant materials is the need of the hour	Energy / Renewable Energy	Complicated

14	Thermax	Develop Innovative methods for treating Sewage	Hardware	The sewage water from large cities and towns comes in huge volumes, contains unacceptable level of CoD/BoD and hence needs an extensive treatment systems. Currently it is being treated mainly through biological aerobic treatment route which consumes energy and occupies considerable space. The anaerobic treatment which usually results in energy generation in terms of bio-gas is not suitable very low CoD/BoD. These plants also face problem of creating local pollution.Hence current sewage treatment methods for municipal sewage require breakthrough change in designing. Hence the challenge is to develop new way of treating the sewage at municipal level or at co operative society level where the treatment process happens as the sewage flows in the U/ G pipe lines carrying the sewage to the common facility thereby making such a facility redundant or generates energy in a cost effective manner. The depiction should be based on scientific calculations for the processes involved in each of the proposed case	Waste Management	Simple
15	Thermax	Minimizing reject during water purification	Hardware	The current drinking water devices generate 4 to 5 times waste (reject) water for every liter of drinking water. Develop a system which can either reduce this reject water or make it zero liquid discharge. The device should be generate WHO quality drinking water from a sub surface and surface water resource available in the country. The water device should be at 10 LPH capacity to 1000 LPH capacity . The students can work on either models but preferable to work on the larger capacity say 400 L	Clean Water	Complicated

16	Tata Motors	An Open sourced Motor Controller for Hybrid Veh.	Hardware	Due to openness of "Raspberry Pi", a powerful computer, and it's low cost, it is used extensively in many Industries and across innumerable applications. On similar lines, we want to create an "Open Motor Controller" which can be used in hybrid vehicles at low cost. Components, Building blocks and even Sub-assemblies are available in the open market but the challenge is to integrate them, package them in a box and make it an ECU with requisite physical and electrical protection.	Smart Vehicles	Complex
17	Tata Motors	Vehicle Consumables Prognostics	Hardware	Can we devise a novel solution for vehicle owners where they are able to take an informed decision on whether to replace the consumables with respect to its remaining useful life while also considering the effect of not changing it within a specified time? Some of these consumables are: 1. Air Filters 2. Oil Filters 3. Engine Oils 4. Tires 5. Clutch plate 6. Brake Liners 1.You can choose to take up any one of the consumables listed above. 2.Go beyond putting sensors. 3.Low cost.	Smart Vehicles	Complicated
18	Tata Motors	Intelligent Battery Management	Software	Have you ever been left stranded with your vehicle because it just wouldn't start? Many a times this is due to the battery of the vehicle, more specifically either its state of charge (SOC) or its state of health (SoH). The challenge is to devise a user friendly APP based Battery Management Tool through which the user can get the critical information about the SoC as well as the SoH along with the set of actions required to ensure a reliability of starting is maintained.	Smart Vehicles	Simple

19	Tata Motors	Intelligent trip management for Electric Vehicles	Hardware	The biggest anxiety of any electric vehicle owner (Bikes, Cars, Buses and Trucks) is the range they can derive out of a single charge, essentially because of the limited opportunity to charge the vehicles available today. In this context the challenge is to develop a smart algorithm (a complete simulation model) which takes all the noise factors of the outside environment (e.g. via open APIs) and uses it to manage (via a control logic) the vehicle parameters to ensure optimal battery utilization	Smart Vehicles	Complex
20	Tata Motors	The Mobility Challenge	Software	The Challenge is to develop a system to gather anonymized data of people's movement (no privacy infringement) in a City and then suggest a use-case of how this data can be used to improve any or all of the following attributes of mobility: 1.The need for mobility: Analysis of mass movement across long distances.2.The Efficiency of moving from A to B: 3.The discovery of demand patterns for specific modes of transport.4.The carbon footprint trails.5.The safety of travel.6.Out of Box Insights.	Smart Vehicles	Complex

| 21 | SkipperSeil | Health Index of Power Transformer Fleet in Transmission Utility. | Software | Power Transformer is an important and vital equipment for Power Supply System in a transmission grid. It's back -down leads to commercial losses and inconvenience to the public. • Today, we have a vast transmission network with lakhs of power transformer in the grid. The Power transformer fleet is maintained by each state utility in its domain. The failure rate of transformer has been a matter of concern and it is attributable mainly to the maintenance of the transformer. • There are good practices of maintenance- both preventive and predictive. Predictive maintenance has gone far ahead in terms of knowledge and technology today in the area of power transformer and we have condition monitoring equipment, both off-line and on-line. • It is proved over a period of time that these condition monitoring predictive maintenance has saved million of Rupees for utility and successfully provided uninterrupted power supply. • Inspite of having advance off-line and on-line condition monitoring, it is quite challenging for utility to precisely look at each and every transformer. In a way, it is manual assessment. Utility is like to miss the right time intervention to take corrective action based on condition monitoring data recorded in the off-line and on-line monitoring equipment. With above background, following software is required:- Like a health check in human being on regular basis, one can know the health | Software - Mobile App development | Complex |

22	SkipperSeil	Wind and Solar energy prediction	Software	Traditional (conventional) sources of power generation are Thermal (Coal), Hydro, Gas and Nuclear, but they are depleting and causing carbon emission. Many countries are taking harsh decision to close down thermal and nuclear. An alternative source, catching the attention of everyone is renewable energy from Solar and wind, which require no fuel and abundantly available according to geographical location. However, it has its own characteristic and throw upon challenges to integrate into transmission and distribution grid. Solar Energy 1. Solar Energy is available only during daytime and quantum of power varies according to time in bell shape form. This bell shape will change according to season. 2. Solar Energy is variable in the cloudy weather conditions. Wind Energy 1. Though available throughout the year. Wind potential varies location to location (that's why installed in specific areas mostly in remote locations) and season to season. 2. Wind is variable, intermittent and unpredictable during 24 hrs. of the day. Location wise wind potential makes the task of transmission and distribution utility/grid operation more difficult in absence of local consumption as well as adequate network. Wind Energy is at peak during monsoon. This is the season when power demand is low. Grid operation has a challenge of	Software - Mobile App development	Complex

23	SKF India Ltd.	Zero Defect Manufacturing at Suppliers	Software	Description - process variations within supplier factory create dimensional variability in the produced parts as well as creates outliers. Standard SPC charts are unable to catch specially the outliers. Efforts to weed out these variations / outliers are manual, costly & time consuming + they are not foolproof. This affects manufacturing cycle time variations on SKF Channels thereby limiting the productive output. A solution can be developed to identify key variables in the supplier factory & monitor them on real time basis. All cases of dimensional variations will be separated online Explanation - this automated solution is expected to give real time signals to correct the variations in order to center the process outcomes & improve process capability at suppliers. Eventually this should help SKF to reduce the cycle time on channel to increase the output further.	Miscellaneous	Complicated
24	SKF India Ltd.	Real time info: suppliers supply chain planning	Software	Component suppliers plan raw material procurement and their internal manufacturing processes as per the 'forecast' from SKF. Any delay due to manufacturing / dispatch of raw material due to machine breakdown, workmen absenteeism, over booking by customers wrt capacity etc, can delay deliveries to customers in turn affecting final customers. A system to be developed to know real time status of all vital activities/ actions to customer & advance warning alarm should go off in case of any delays	Software - Web App development	Complicated

25	SKF India Ltd.	Automated system for Material Return from Customer	Software	In case of excess supply, wrong/damaged deliveries to end customers, SKF customer service team returns the product back to regional warehouse irrespective of condition of material. Hence, sometimes we (India Distribution Centre) end up receiving damaged stocks even after an ok Proof of Delivery which results in blocked stocks and we end up scrapping them leading to loss. A solution can be developed that a proper justification for return is mentioned and right decision on return of goods is taken	Software - Web App development	Complex
26	SKF India Ltd.	Developing Low Noise High Speed Ring Loading Sys	Hardware	The Face & OD Centerless grinders for Bearing Rings with asymmetric cross section requires rings to be fed in the m/c in right orientation at high speed (ring OD size ~ 30 mm - 180 mm, width ~ 12mm - 60 mm). Conventional mechanical loaders have limitations, there are frequent interruptions during loading & rings get stuck. Whole system is very noisy & requires constant human intervention which is unsafe. A solution is required for feeding rings into m/c's at required speed and right orientation	Miscellaneous	Complex
27	SKF India Ltd.	Automated Visual Inspection of Oily Components	Software	The Bearings Rings & assembled Bearings need to be free from visual defects such as Surface Defects, Nicks, Dents, Black Patches, Uncleaned or Un-honed Surfaces, Laser Marking Missing, Character or faint marking etc. This needs to be prevented from being passed on. An automated visual inspection sys is required to detect these defects under actual production environment & oily conditions. Robot system with correct algorithms & intelligence built-in(for self-learning) also need to be built in.	Miscellaneous	Complicated

28	Shantha - Sanofi	Managing the personnel training in a simple way	Software	In a GMP manufacturing organization with 2000+ employees, tracking employee training details is one of the key tasks. How to manually track the employee training details and alert the users through an excel spread sheet easily? We are in 21st Century & moving ahead with new trends of technology. Organizations need to keep their workforce up to speed with the latest trends & procedures. How to keep the skill set of the personnel as per the current requirements of GMP?	Software - Web App development	Complicated
29	Shantha - Sanofi	Simplification of garment scanning	Hardware	We have implemented RFID tags for our sterile area garments to track washing cycle. In a set of Sterile garment will have • Head Cap – 1 No. • Body wear – 1 No. • Booties – 2 Nos. We have to scan 4 times to prepare a set. We have almost 500 sets every day to be washed, means 2000 times we have to scan. Can we have some simple solution to avoid every tag scan individually?	Healthcare & Biomedical Devices	Complicated

| 30 | Schneider Electric | Efficient Embedded Search engine for million records in an edge device | Software | Brief: • In the era of IoT there are plenty of edge control devices that collect data, aggregate, stores and bridge to the cloud. • They are also expected to do minimum in premise analytics & decisions, while they aggregate millions of records in a large scale IoT solution. • An efficient search engine which is embedded in the IoT edge control device would speed up the analytics, improve user's operational efficiency. A few considerations: • Consider the Embedded device is equipped with webserver, webpages for user interactions. It contains onboard embedded memory as well as expandable memory by micro SD card slots. • Teams can use any popularly known embedded targets for their experiments and demonstrations. Open sources can be reused with duly respecting any license terms applicable. Simulated data or a real data can be used. Data shall be heterogeneous data. Outcome: • The expected outcome would be an end to end solution for the aforementioned requirements. It can also be a partial solution specific to the data storage like innovative file systems for edge devices, innovative storage of data records, retrieval of the records or an innovative search engine that finds and populates the relevant data or records as per the user input, innovative and efficient linking of data dynamically within the edge device, etc. • If | Smart Communication | Complicated |

31	Schneider Electric	The Schneider Industry Uber-like service app	Software	Objective: To create a pool of OEM's, Process specialist's, Electricians, Freelance Consultants on a single digital platform through an app that can be accessed by End User whenever required as per the service needs. 1. Make strong Schneider Electric distribution GTM 2. Saturate current distributors by introducing new products and solutions for new markets 3.Break the silos increase cross sales via distributors 4. NPS improvement "It is the customer who determines what a business is, what it produces, and whether it will prosper." The concept of customer centricity is not new, today almost every company vision includes customer centricity as a key driver of its strategy. Companies that adopt this philosophy are 60% more profitable compared to companies that are not focused on the customer. The world is changing around us, the customer base, technology and the environment. For these reasons, we are more focused than ever at the online web-based after sale services will help us to elevate our business and have better connect with end customer, so that products offered not only have functional value but emotional value too. Targeting retailers, distributors and competitive customer conversion will aid in accelerate existing market share. One of the challenge in customer conversion is ease of customer with linked TOTAL COST OF	Software - Mobile App development	Complicated

| 32 | Samsung R&D | Real-time estimation of Heart Rate under lighting using Smartphone Camera | Software | Real-time estimation of Heart Rate from facial images under different lighting conditions using Smartphone Camera Smart phone application that measures heartrate using on-board cameras in real-time and non-invasively offers several advantages and have multiple use cases. Detecting heart rate using only camera has an added advantage because in such case the users do not require any skills or compliance, but has to just capture image/video. During exercise, it is often desired that the user can measure their heart rate without any extra accessory. Wearing a wearable during exercise can be uncomfortable to certain users. Catering to the phenomenon of people using camera as the most popular smartphone feature we can address this problem. This work will predominantly focus on estimating Heart Rate in real-time from facial images captured using smartphone camera. With every Heart Beat blood flows to our face. Whenever our heart circulates blood, the amount of light reflected from the face varies. To the human eye, this variation is invisible. But using image processing techniques we can detect these changes. The underlying principle is to analyse the spatio-temporal variations in the time-series facial images and amplify these variations. The time series of color values at pixels in region of interest is used to | Healthcare & Biomedical Devices | Complicated |

| 33 | Samsung R&D | Eco Drive | Software | Eco Drive Goal: Reduce carbon footprint of the travel Proposal: Build a smartphone app that helps you to car/bike pool, compare and compete with your friends on the carbon footprint of the travel. Air pollution in India is a serious issue with major contributors being vehicle emissions and traffic congestions. Individuals and communities can play a more effective role in reducing the air pollution if they are aware of their contributions to the same. Carbon footprint is one way of quantifying the direct and indirect emissions. We propose smartphone application (app) that can automatically track the carbon footprint of the users by analysing the details of the commute, such as mode of travel, distance, and duration. Basic guidelines of the app: 1. Community centred – the app lets you invite family and friends to join a community that strives to reduce the carbon footprint 2. Gamification – Virtual points/badges awarded to the members who top the eco-friendliness of commute, or make significant improvements to their carbon footprint 3. Simple to use – the app may request the user to setup their regular mode of travel (private vehicle or public transport) during the onboarding time. The app infers other details of the commute automatically through smartphone sensors (GPS etc.) and related framework, for e.g., Android's DetectedActivity class. | Software - Mobile App development | Complex |

34	Samsung R&D	Human Activity Recognition using event based sensors for Home IoT applications	Software	Considering privacy concerns event based sensors such as DVS (dynamic vision sensor) are preferable in smart home than normal RGB cameras. In addition to that DVS is power and data efficient compared to RGB cameras. But DVS captures events corresponds to object under motions which does not contain any texture information like RGB cameras. The problem is recognition of daily essential activities of humans like walking, bathing, eating, cooking .etc using DVS video clips and provide analytics to corresponding services. Domains Involved: Image processing, Computer vision, Machine learning	Miscellaneous	Simple
35	Saguna Rural Foundation	A seed sowing machine for Zero-Till farming	Hardware	The machine should operate on a permanent raised bed of 100 cm width which can sow seeds with fertilizer in 5 rows at 25 cm apart. Seeds - rice, gram, pea, groundnut, bajra, maize, Val, etc. Mechanism should be preferably impact dibbler or it should make very thin slit of max depth of 30-40 cm. It should cover the seeds after sowing and be operated by 1-2 people either manually or by 1 hp power and sow 0.6 to 1 ha in 8 hours. Potential of it being self-driven to get higher speed.	Agriculture and Rural Development	Complex

| 36 | Robert Bosch Engineering & Business Solutions Private Limited | Achieve zero wastage of water through RO Water purifiers normally used in an Indian household | Hardware | Currently available Reverse Osmosis (RO) Water purifiers that are commonly used in an Indian household reject 3 l of water for every 1 l of pure drinkable water given. This is not a good ratio considering the rising alarm on judicious usage of water worldwide. Zero wastage and Zero Liquid Discharge technologies do achieve zero wastage of water through RO purifiers but at industry level. The said technologies have not yet been successfully implemented for RO purifiers that are commonly used in an Indian household. So considering the popularity of RO Water purifiers in Indian market, it is high time that we address the problem of rejection of 3 l of water (for every 1 l of pure drinking water given). | Clean Water | Complex |

| 37 | Robert Bosch Engineering & Business Solutions Private Limited | Intra city networking for load carrying small vehicles | Software | Everyone is aware about the impact and disruption which has happened in the passenger taxi market due to the advent of Ola and Uber. They have revolutionized the whole customer experience benefiting both the customer as well as the taxi owners. It is has brought in optimum utilization of resources and has been effective in reducing the cost for the customers and more revenue for the taxi owners. On the same lines, an application is required for networking in the logistics area for load carrying small vehicles, this neglected area needs to be uberified .This is an area which is totally disorganized resulting in unequal business opportunities for the vehicle owners and not cost effective for customers. Following are the problem areas which need to be addressed 1)No standard pricing model exists 2)Non availability of vehicles when required resulting in delay of dispatch 3)Routes not optimized 4) Partial and full load constraints 5)Finance options for vehicle purchase like in Ola | Miscellaneous | Complicated |

| 38 | Robert Bosch Engineering & Business Solutions Private Limited | Smart garbage vehicles and push carts | Hardware | The garbage collection process is tedious, inefficient and time consuming. The process involves manual monitoring and there is no tracking mechanism for the garbage carrying vehicles and garbage load. A new system can be developed to monitor the garbage vehicles in a particular ward of a corporation to obtain optimization in terms of route and garbage collection. The garbage vehicles and push carts can be fitted with sensors and based on the GPS location, the vehicles can be monitored to cover all areas of an ward. The vehicles should be compartmentalized for dry and wet waste to avoid the mixing of garbage. As of now the segregation of dry and wet waste is being enforced in many localities and the same should be followed while loading the garbage vehicles. The push carts used to collect garbage are not designed correctly, most of the garbage spills over the road during transportation. Battery operated carts can replace the existing push carts. In many cities of China, the point to point collection is done by battery operated vehicles and mostly driven by women. A node can be developed for a particular ward and monitored. A new app can be developed to help the citizens to locate the garbage vehicles and the timing of its arrival which helps in proper planning of disposal of garbage. | Smart Vehicles | Complicated |

39	Robert Bosch Engineering & Business Solutions Private Limited	Advance Traffic navigation system	Software	We are aware of Google Map. How it has changed our travel plan for last few years. Little bit enhancement of this navigation system can make our travel plan more easier. Plans:- 1. In Bangalore usually we see for any rainy day, suddenly queue of cars will come here & there where rain water accumulated. All the bikes avoid those rain accumulated places as a result 4 wheeler s also will suffer. So, if our navigation system enhanced with these info where rain water accumulated, commuters can plan to avoid those places in advance. As a result they can save their time, fuel consumption etc. 2. Google map shows which route will take more time, how many kms we need to cover. Within our selected route also, if we can improve our navigation system where potholes, speed breakers are there 4 wheeler drivers can plan in advance, it will save time as well as it will create less damage to the car. Please think about it.	Smart Communication	Simple
40	Robert Bosch Engineering & Business Solutions Private Limited	Sunlight uses in IT office	Hardware	We are aware of how much energy IT offices will consume everyday. IT offices are so huge in size sunlight which will enter through window are not at all sufficient for entire office space. We all know how Water sprinkler spread ed entire floor. Same way, if we can install large size tube outside of floor where sunlight will come to mirror which are placed in 45 deg angle & it will reflect the sunlight. And it will travel from one mirror to another one via reflection. And existing light space will be replaced by this sunlight beam focus. Finally it can save lots of energy. Please think about it.	Energy / Renewable Energy	Simple

| 41 | Robert Bosch Engineering & Business Solutions Private Limited | Digital India-Smart Subsidy System | Software | A great extent of time is wasted under supply chain and significant truthful beneficiaries are bereft of government subsidized schemes. Government subsidized items like fertilizers, housing schemes (Indira Awas,land etc.), pension schemes, medicines, rationing items (wheat,sugar,kerosene) enormous amount of time is wasted in supply chain and that results in wastage of huge amount of items, delayed delivery of the items etc. Also due to other various reasons in some cases subsidized items/schemes does not reaches to the truthful beneficiary. To address & ensure government schemes are reaching to the beneficiary in the timely manner, A Blockchain based ecosystem can be developed in order to monitor, track and ensure reduced supply chain time and desirable beneficiary is benefited under the government schemes. | Agriculture and Rural Development | Complex |

| 42 | RCF | AI Solution for Farmers | Software | Food Security is paramount importance to the growing food needs of an ever increasing population. Not having sufficient domestic production of food to meet requirement of 1.25 billion plus and still expanding will put huge burden on Indian economy. India is a large agricultural hub around the globe and majority of the total population is dependent on the agricultural sector for meeting their demand. Agriculture is the major end-user sector for fertilizers and the demand for fertilizer is growing significantly. Due to unpredictable monsoon and ever decreasing ground water and un predictable market condition and unregulated market for crop yields putting huge pressure on farmers. A solution to be developed taking into account following factors 1. Monsoon Prediction 2. Climate conditions 3. Soil condition 4. pests and disease Predictions and use of insecticides 5. Demand for crop 6. Availability of fertilizers and insecticides 7. Irrigated and non-irrigated Based on available data from multiple sources and market condition, a solution in the form of interactive application is expected from the cream of the society to guide farmers in deciding when and which crop to grow in their fields based on geographical location of their field and market demand / trends using artificial intelligence (AI). In addition to the above the application should propose | Agriculture and Rural Development | Complex |

43	RCF	Integrated Crop protection Management	Software	AI solution for Integrated Crop protection Management In today's scenario, the climatic conditions have become uncertain with unpredictable monsoon, the farmers work hard in the field and grow good crops for the entire nation and suddenly they are struck with bad luck and pest attacks their crop may because of un expected change in climatic condition. Relationship between some of the Agro climatic conditions like fog, humidity, temperature sunlight, rainfall, variation in minimum and maximum temperature	Agriculture and Rural Development	Complicated
44	Quick Heal	Effectively writing YARA rules to detect malwares	Software	Search engine for YARA signature pattern selection. • Automatically generating YARA rules/signatures that cover a specific set of files. • Short scanning time for YARA signatures on large amount of data (clean set) for identifying the best signature candidate. • The generated YARA rules should be generic i.e. single signature should cover multiple malware samples.	Security & Surveillance	Complex
45	Quick Heal	High Performance Network Intrusion Detection Engine	Software	Develop a network intrusion detection system with high network throughput. The system should scan, classify and monitor the network traffic in realtime without affecting the network throughput. Following are the features - Real time traffic analysis - Protocol analysis - Content searching - Detect variety of attacks and probes	Security & Surveillance	Complicated

46	Quick Heal	Collective Threat Intelligence Framework	Software	Adopting a collaborative approach to sharing the threat intelligence has its own benefits. The volume of threat incidences along with sophistication of techniques used demands implementation of effective protective system. You always see only view through one angle and no one has the full picture. Ability to find needle in a haystack gives the notion of today's threat landscape. The system should build capability of collective threat intelligence to prioritize, focus and detect threats.	Security & Surveillance	Complicated
47	Praj Industries Limited.	Development of Non-fouling metallic surfaces/coats	Hardware	To concentrate effluent generally evaporation technic is used. During evaporation plant operation, due to inorganic & organic contents in effluent, fouling occurs on surface of tubes after some duration. This reduces the capacity of plant & need to be cleaned by Cleaning In Place (CIP). If we find the suitable Non-fouling metallic surfaces / coatings for tubes, we can reduce the CIP chemical & water consumption & down time of cleaning. This can give benefit for plant operation and water saving.	Clean Water	Simple
48	Praj Industries Limited.	Removal of Volatile Acids (eg AA) in waste stream.	Software	During various unit operations vapors are getting generated for separation of water, which are then condensed. While handling the effluents, process mixtures, the volatile acids are coming out along with vapors and then in condensate, which is generally colorless. For recycle & reuse of this separated water, we have to treat this to remove volatile acids (main component Acetic Acid). If we innovate / develop techno-economic solution for removal of such volatile acids, lot of water will be reused	Clean Water	Simple

49	Praj Industries Limited.	Biomass Size reduction with low power consumption.	Hardware	In nature we can see lot of Biomass & which can be used for various applications. But for processing this biomass for particular use, we need to do size reduction. At present there is equipment available which can do this, but the power consumption for unit operation is very high. This increases the operating cost of that plant. If we can design / develop size reduction equipment with low power consumption, then it will benefit all biomass based industries.	Agriculture and Rural Development	Simple
50	Plezmo	Create an Augmented Reality based 3D Build and Assembly Instruction App for Cardboard Models	Software	Many games, furniture items or construction kits come with build instructions which are usually represented in 2 dimensional print material or PDFs for consumption via computers. Depending on the nature of the item being built, 2 dimensional instructions are sometimes insufficient. At Plezmo, we develop products to teach computer science, design thinking and IoT fundamentals to School and College students. Part of our product line is a set of models which the users construct from die-cut cardboard sheets. We would like the users to be able to scan a QR code on these cardboard sheets using a phone/tablet App which will present user with Augmented Reality build and assembly instructions of all the models that can be built using that cardboard sheet overlayed on top of the cardboard itself. Users should be able to click the app for next and previous buttons which will allow them to go back and forth between various intermediate steps of assembly. The AR data should be fetched from a cloud backend. The cloud backend should have ability to upload new 3D data for different models along with the intermediate steps etc.	Software - Mobile App development	Complicated

| 51 | Plezmo | Create a Visually programmable PLC controller using Bluetooth Automation I/O Profile | Hardware | Majority of the factory automation today is done using isolated PLC controllers which can control components of a single sub-system (CNC, Pump, Boiler etc) at a time. These need to be re-programmed as per the job running on the factory floor since the same plant is used to manufacture different products. The cycle time between these changes is quite large and is prone to errors (since one of the machines may be incorrectly programmed) and it's difficult to do a factory wide what-if analysis of such changes. The challenge is to develop an IoT platform that can allow simple Visual Programming using open source libraries like Google Blockly to specify new program to be done across all different PLC controllers. On the hardware side, the PLC controllers should be bluetooth connected and running the Bluetooth Automation I/O profile/service. There should be a central server which can communicate with all the PLC controllers over bluetooth. User should be able to specify new programms using visual programming (e.g. When the boiler PLC controller Analog input 1 detects value > 100 then turn the motor connected to output 2 of the Cooling system PLC controller etc). When the program is done, it should be possible for the user to execute this program from the central server which acts as a co-ordinator executing this | Smart Communication | Complex |

| 52 | PayTM | Reduce the amount of push notifications require for e-commerce apps | Software | Developer would have to build a solution using Artificial Intelligence or some other mechanism to reduce the amount of push notifications sent by e-commerce apps. Currently push notifications are generally sent based on a fixed schedule or some trigger in most apps. This creates multiple notifications every week and irritates the user. The intent should be to only send notifications when the users intent is there to purchase a particular product. Sending push notifications or emails without any user intent to buy that category of product creates frustration to the user. So only when user has intention to buy something the notifications or emails should. The developer has to use a technical method to find that intent using big data and then send notifications or emails according to that method. | Software - Mobile App development | Complex |

53	PayTM	Using technology to create a credit profile of e-commerce customers	Software	The e-commerce companies find it very difficult to profit since their are lot of return backs and cancellations in e-commerce orders. Also even when orders are properly accepted the customer may want to pay by EMI. Thus their needs to be a system to create a credit and buying profile of a customer. This has to be done in a way that it does not create privacy issue for the customer. The developer should use data from customers and try to use technologies like big data/AI/statistical analysis to create a profile of customer without compromising his or her privacy. Then based on that the system should give delivery benefits and EMI options to the user. So a customer who has negative buying profile will not get Cash on Delivery option. Similarly customers with negative credit profile will not get EMI options.	Software - Mobile App development	Complicated
54	PayTM	Reducing phishing attacks in online/mobile wallets and net banking	Software	Phishing attacks are becoming common. The common man is sometimes duped of hard earned saving due to phishing attacks. Specially vulnerable are old people. They are targeted for their net banking/online wallet PIN or password. The developer should design a system to solve this problem. This problem cannot be solved using only technology. Special focus will have to be put on User Experience (UX) design and User Interface (UI) design. Solutions should keep in mind old users, users who are from villages, users who are not technically savvy and kids. These are specially vulnerable groups.	Security & Surveillance	Complicated

55	Pathirakha Foundation	In Surgery Video Annotation	Software	Surgeons perform endoscopic surgery by looking at the live camera view fitted inside an endoscope. Endoscopes are tiny telescopic tubes inserted into patients' bodies for performing surgery on target with high precision with minimal collateral damage. Inexperienced surgeons often find it difficult to identify what they are seeing on the camera view during surgery. This is because, the endoscope only shows a magnified planar view of a tiny portion inside the body, without any other visual references. It would be good to have a solution which recognizes the body parts, annotates them and also provides a spatial frame of reference to the surgeon on a live camera view.	Healthcare & Biomedical Devices	Complicated
56	P. D. Hinduja Hospital & MRC	One Click Research Solution @ Hinduja Hospital (OC	Software	Since 1987 till date almost 1200+ projects have been processed by our Research Department. At present the files and documents of all the projects are recorded or stored in excel sheets or word documents. Research Administration finds it challenging to handle, supervise, monitor and track the progress of the study in the context of defined	Healthcare & Biomedical Devices	Complex

57	P. D. Hinduja Hospital & MRC	Washroom Management for the Hospital	Software	We have 4 facilities accommodating OPD, Diagnostics Lab, IPD wards, offices etc. Each floor has multiple washrooms for patients, staff and visitors. The washrooms are cleaned by the Housekeeping staff on a rota basis. Depending on the location, the time of the day etc., a washroom might get dirty much before the next clean-up is scheduled. We need an interactive solution which uses technology to sense if a washroom is dirty, and alerts Housekeeping and captures and analyses data.	Healthcare & Biomedical Devices	Complex
58	P. D. Hinduja Hospital & MRC	Keyword based Exploration of Library Sources	Software	DNB students have to complete a dissertation/ thesis on a research topic for which they require library support. The students and their guides face challenges in searching and accessing relevant articles/ papers from the inhouse library. We want a software solution which will offer a platform that will download all the Indian and global references that are relevant to the students' research topics.	Healthcare & Biomedical Devices	Complex
59	P. D. Hinduja Hospital & MRC	Analytics of Scanned Prescriptions and Notes	Software	The hospital generates a huge amount of medical information about a patient in the form of handwritten medical notes and prescriptions which are scanned and stored as pdf. There is still no way to "read" those scanned documents and extract useful information from them. We need a software solution which can extract useful information from these scanned documents.	Healthcare & Biomedical Devices	Complex

| 60 | NCR | Ensuring effective detection of currency counterfeits across different touch points | Software | Currently, currency notes that are in legal tender are used widely in the economy for different transactions and are accepted at various banking touchpoints like branches, ATMs, banking correspondents etc. as well as commerce touchpoints like retail stores, petrol bunks and for various utility/government services. Some touchpoints are more mature at detecting and eliminating counterfeit notes like note counters in branches and note accepting ATMs, but in a wide array of touchpoints cash handling is manual. If simple software that can be downloaded on a phone can detect counterfeit notes that have been detected at other touchpoints then counterfeit detection can be vastly improved thus reducing the fraud. | Finance | Complex |
| 61 | NCR | Improve reusability of electronic components across various industries by maintaining industry databases of compatible HW, SW version data | Software | Currently, the repairs of electronic equipment like phones, refrigerators, TVs etc. is supported by specialized agencies only and general-purpose repair facilities aren't able to use a wide array of parts available from scrapping of old equipment. If data visualization software can be made available by an industry body to which all participating electronics manufactures can make required data that allows for identifying a part along with compatible hardware/ firmware then this can be used by general-purpose repair agencies and will result in improved re-use of scrapped electronic equipment. For example a common Platform/appln can be developed where technical specifications of components can be shared to make it more usable. We can have facility to upload image and identify components thru them. | Miscellaneous | Complex |

| 62 | NALCO | Finished Goods DISPATCH BAY Mnagement Automation | Hardware | Environment- We have 4-5 Dispatch Storage Area (DSA) of 100 mtr by 50 mtr, aprox 500-2000mtrs away from each other. From the Production Bay (PB) the Finished Goods (FG) are transferred to DSA. Each FG has usable parameters viz. an Identification Number (UID), Quality Indicators (QINDs) and Weight (WTG). The FGs are arranged in DSA with help of Fork Lifts in a defined and orderly manner in specified zones. The DSA is demarcated into physical smaller grids/zones of 5 X 5 mtr in a physical manner with markers placed on the periphery of DSA. n.b. – Each FG weighs approx. 980kg +/- 0-30kg. Each TRUCK is to be loaded with approx. 9-10T of FG as per LS. Operation- A. From the PB area the FGs are shifted by the Operator to DSA and are arranged at specific physical Grid Locations with help of Fork Lifts. B. At the day end, Dispatch Plan is prepared for next day and truck placement request is sent to FG picker and Transporter. C. The Picker identifies the require material at DSA as per the Dispatch plan. D. The truck enters the plant and tare weight (TW) is recorded, QIND, Total Quantity to be Dispatched (TQTY), Truck Number (TN) is recorded on the Loading Slip (LS) before being directed to DSA. E. With given LS (UID, TN, QIND and TQTY) the Fork Lift operator locate, reach, pick and loads the | Smart Communication | Complex |

63	MixORG	Affordable mobile application camera system to monitor residential societies' vehicle activity	Software	Statement: Create an affordable solution of a mobile application and a camera system through image processing to identify and monitor vehicles entering and leaving a residential society passing through the entry/exit gate. Description: Many residential society administrations in India face an impending problem of illegal vehicle parking inside their societies and theft of the vehicles. This issue is not bounded to just vehicles, but also add to other security concerns inside the residential societies. Though there are solutions that exist in the market for monitoring through cameras and software system but are expensive and the affordability comes into the question. In this regard, we would like to have an affordable and innovative solution that caters to the Indian market. Expectation: For the team choosing this topic, we expect to have a working model (software system) of the solution wherein, when a vehicle passes through a residential society gate, it is identified as a resident / non resident vehicle and a notification to be sent to the vehicle owner and the security via a mobile application. Similarly on exit the vehicle is identified. The application may provide interesting features which improve the overall security of the resident society, convenience to residents and analytics to the security / management of the residential society.	Software - Mobile App development	Simple
64	MindTree	Efficient Farming	Software	A mobile application that the farmers can use to hire tractors as well as other mechanizations at a nominal amount all using their mobile phones . This would not only help them avoid manual labor but can be also be considered as an important step to encourage this profession.	Agriculture and Rural Development	Complex

65	MindTree	TechAgri	Software	Our farmers are well too behind in using technologies and advanced methodologies to grow the crops. Every year we see that the farmers are committing suicide due to the bad crop (various reasons), or bad rates for the crops and loan sharks. What if there is a platform for the farmers, which is easy to understand and use, to enable them to utilize the power of technology in their farming?	Agriculture and Rural Development	Complex
66	MindTree	Mask Free Air	Hardware	We have seen cases of bad air quality indices across Indian metro and major cities. Last year, Delhi was at its worst! Residents were using masks wherever they go. How do we reduce the smog? How can we commercialize the collected carbon as well?	Sustainable Environment	Complicated
67	MindTree	RADAR on Roads	Hardware	There will be huge pile of vehicles waiting to pass through the toll booths over weekends around many cities. Though the NHAI has introduced FASTag RFID stickers, it still doesn't address the issue. In many places its still not functional and at few it's partially working. Places where it's working, the vehicle needs to go slow so the sensors to detect the sticker and deduct the toll fare. What if we had a system which is similar or better to one being used in Dubai?	Security & Surveillance	Complex
68	MindTree	Mechanism to save medines from getting wasted	Software	Frequently the medicines remain unused with people. In those cases medicines do get wasted. The proposal brings in usage of technology to make the medicines reusable in seamless and hassle free manner.	Healthcare & Biomedical Devices	Complicated

69	MindTree	Drone based medical facility	Hardware	Use drones to deliver critical medicines ,blood, blood derivatives to rural health centers in India. There would be some centralized distribution centers from where the drones will be launched and retrived. The drones should autonomously perform the delivery and return back to the base.	Robotics & Drones	Complex
70	MindTree	Identity (KYC) secure sharing	Software	Frequent cases of personal data leakage has brought back into focus the security issues with different KYC programs. A consumer is expected to provide his personal identity for authentication by different agencies, which is known as KYC, but there is no restriction on how much data to be shared with the agencies needing the KYC. Consumer should have full control over where and how much data is being used by the third parties. We can use a public Blockchain based solution to overcome all these.	Security & Surveillance	Complicated
71	MindTree	Proactive Disaster Detection	Software	Detect high probability of large scale natural disasters and eventually model the post disaster spread dynamics. One approach could be to use technology to process the satellite data to predict the likelihood of the disaster which then can be used as a warning tool for monitoring and detecting the disaster. Also, with the satellite and human generated data, system should model the dynamics of the disaster spread, which will help to manage the disaster efficiently.	Miscellaneous	Complex
72	MindTree	Driver alertness detection	Software	A lot of deaths happening are because of road accidents. So to prevent these accidents, a driver alertness detection system must be made.	Smart Vehicles	Complex

73	Max Healthcare	Bed management optimization	Software	Bed management optimization is critical for efficient functioning of hospitals especially for larger tertiary and quaternary care hospitals. poor bed management can lead to a myriad of problems like increased waiting time for patients, underutilized operation theatres, overcrowded ERs. The need for automated bed management is the need of the hour.	Healthcare & Biomedical Devices	Simple
74	Max Healthcare	Increase clinician-patient face time	Software	Need to increase face time between clinicians and parents. Clinicians spend considerable amount of time capturing patient information in hospital softwares. Need a technical solution like speech to text option.	Healthcare & Biomedical Devices	Complicated
75	Max Healthcare	Confidentiality of patient medical records	Software	Confidentiality of patient medical records is of utmost importance. Access to patient medical records in hospital softwares should be with the treating/admitting clinician and the team. Access to medical records should not be given to everyone in the hospital network.	Security & Surveillance	Simple
76	Max Healthcare	Early prediction of lifestyle diseases	Software	How can we predict the likelihood of lifestyle diseases early to enable preventive healthcare. This can reduce the cost of treatment significantly. Potential solution: using detailed demographic and vital stats about people who have a particular disease and those who dont, technology companies like Google can create machine learning models to predict specific diseases in an individual during physical checkups.	Healthcare & Biomedical Devices	Simple

77	Max Healthcare	Diagnosis of acute diseases in villages and smaller towns using AI	Software	Supply of doctors is limited in India especially in smaller towns and villages making provision of healthcare difficult to a large number of people. Telemedicine and other solutions in the past have also struggled to scale up due to this problem. Now in the age of digital assistants like Google and Alexa, can we create artificial intelligence based "doctor" that can diagnose everyday acute diseases like common cold, flu, etc, based on simple questions?	Healthcare & Biomedical Devices	Complicated
78	Max Healthcare	Data collection for machine learning models to work using technology	Software	For machine learning models to work we needs large amounts of trusted patient data on symptoms of various diseases which can help in diagnosis. How can we make collection of this data easy using technology.	Healthcare & Biomedical Devices	Simple

79	MathWorks India Pvt Ltd	Aerial Traffic Monitoring using UAVs	Software	INTRODUCTION India is a country with the second largest road network in the world. Out of the total stretch of 5.4 million km of road network, almost 97,991 km is covered by national highways. Challenges in traffic management and congestion cause huge financial, environmental, and physiological costs to the individual and to the government. On an average, a person spends anywhere between 30 minutes to 2 hours of their day commuting, accounting to almost 520 hours a year. It is estimated that the traffic congestion in the four metro cities costs the nation approximately Rs. 1.5 lakh crore (more than the annual Railway budget for this year) {Reference:1,2}. This problem statement focuses on developing a specialized aerial solution for automatic aerial analysis of traffic activity in highways and city roads using Unmanned aerial vehicles. The end goal is to explore new possibilities in the field of traffic analysis by its fully automatic calculation of a wide range of traffic parameters such as speed, densities, time, and pollution levels. These data can be used for: o Betterment of road condition: Detecting potholes and inefficient speed breakers o Detecting traffic anomalies: Identifying root cause of traffic and other emergencies o Toll-gate efficiency: Prevent choking of traffic at toll gates o Maintain strict traffic	Robotics & Drones	Complicated

| 80 | MathWorks India Pvt Ltd | Health alerts application for a region | Software | INTRODUCTION: Viral and mosquito borne diseases rise seasonally and regionally. Hygiene is one of the reasons why some regions in India have higher disease rate compared to others. It would be great if an application could collect data, analyze and report to authorities. Here is a problem statement for one such application. PROBLEM STATEMENT: Create a smart phone application that can be used by individuals as well as various medical clinic authorities in each region to report viral and mosquito borne cases registered per day. The application interface can be as simple as type of viral infection reported or optionally collect all the symptoms reported. Location data can be obtained from smart phone and the data can then be sent to MATLAB ThingSpeak channel. Using MATLAB, we can analyze the data reported and create reports that can be sent to regional municipal authorities for necessary actions or posted to the same app where users can view health alerts for their area. USES OF APPLICATION: Applications like this can help in collecting the health information in a region and provide this to NGOs and Government authorities to take necessary steps. For example, an action may be taken to sanitize an area if necessary or send a team of doctors for a camp in the area that reported large number of cases. Expectation is for problem solvers to create an external mobile app | Healthcare & Biomedical Devices | Simple |

81	Maruti Suzuki India Ltd.	On the spot (Realtime) Accident information & Insurance dispute resolution	Software	There should be a system / portal for gathering of on the spot information during road accidents. This information should include photos of the site, interviews with eyewitnesses, information on injuries and fatalities, reason for accident, speed, road condition on relative basis, etc.. - All this data can go into a central database - The responsibility for collecting the data could be given either to police, transport authority, ambulance or even ordinary citizens who volunteer for the same - In the same system, there should also be a provision to submit / exchange Insurance numbers / details in order to settle the dispute if any arising out of accident	Software - Web App development	Complex
82	Maruti Suzuki India Ltd.	Live Digital Traffic Management / Information System using GEO Coordinates	Software	There should be a system for Traffic policing using GPS and Traffic light / signal system integration & the same should be capable of: - Deciding priorities when emergency vehicles are in the lanes - Adaptive (Red-Green) timings based on traffic in lanes, syncronizing consecutive signals in sequence so as to allow smooth flow of traffic on a particular route - Traffic voilation detection using GPS, Traffic Signal, CCTV's - Extraordinary event recognition like traffic, accident, Protests etc. - Pot holes and speed breaker mapping on maps through satellite imaging thru AI algorithm - Traffic signal location map	Miscellaneous	Complex
83	Maruti Suzuki India Ltd.	Live AQI (Air quality Index) Map like Google traffice map for the use of various stakeholders (Car Drivers,OEMs, individuals etc.)	Hardware	The AQI index of City is available, it doesn't inform the pollutant level on different areas & roads of the city - There should be a system for monitoring of AQI for different road levels thru physical measurement & AI and this data should be available on cloud for the use of various stakeholders - Find use cases for such information	Smart Communication	Complex

84	Maruti Suzuki India Ltd.	Stop Noise pollution from honking	Hardware	'Indian Roads are very Noisy due to various road users and congestion factors., its a custom in India to paint Truck Rear with message " BLOW HORN". Honking is a habit and people like to install various types of horn to generate discrete audible noise. Horn blowing leads to noise pollution and creates a chaotic environment. Horn is a device to be used in emergency and if it is used repeatedly in very short succession then there should be system having the following features :: - recording the no. of times a horn is pressed by the driver & this should be further linked with driving capability which in turn should be be used to calculate insurance premium / permit charges for taxi, etc..	Smart Vehicles	Complex
85	Maruti Suzuki India Ltd.	Water borne diseases detection in a particular location	Software	There should be an aggregation app to check & monitor the outbreak of any water borne diseases - It should have capability to mark on app - the location of the detected case (making mandatory for test lab) - This data should be available on cloud & the same can be used by various agencies to take corrective action - Similar app can be used for various other diseases like dengue, malaria, jaundice, tuberculosis etc...	Healthcare & Biomedical Devices	Complex

| 86 | Marico | Coconut to Copra Instant Yield Estimation | Hardware | Coconut refers to coconut without husk that is normally available at Retail shops. Said coconut consists of Outer shell, Coconut meat (with 45-55% moisture) & water inside. Copra manufacturing from Coconut involves breaking of coconut, scooping and subsequent Sun Drying of coconut meat. The entire process takes around 6-7 days. Moisture of final copra (dried coconut meat) is around 5-6%. Copra Yield is defined as the amount of copra produced from 1 kg of coconut. Yield ranges from 23% to 34% and is key Parameter for defining Nut quality and Prices. (Yield many a times is referred as Outturn in coconut domain) One can estimate exact copra yield only after completion of entire drying operation. Samples getting mechanically dried instead of Sun drying can reduce the time for yield estimation but again it will still not allow Yield determination at time of Buying nuts. Also said process will be based upon sampling and subjected to friction between seller and buyer. Currently there is no way of estimating instant Yield at time of purchase. Inability to estimate the yield of copra is quite critical problem in the entire value change as either seller or Buyer suffer losses due to poor yield estimates at point of sale. What is needed - The need of the hour is a sampling / continuous testing machine (Non Invasive type) which can accurately | Agriculture and Rural Development | Complicated |

| 87 | Marico | Coconut crop Harvest mechanization for reducing Harvest cost | Hardware | More than 1/3rd of the coconut farm cost consists of labour expenses. The major heads for the same are harvesting charges. Harvesting requires skilled set of labours and shortage of labour leads to higher cost and delay in harvesting. Also the number of trees that can be harvested manually remains a constraint. Previous innovations in this field like the coconut climbing machine has had limited success because the speed of operation becomes slow and there is unwillingness of the farmer to be a climber himself. Hence the problem remains unsolved. What is needed: A harvesting machine/mechanization which can be directed / controlled easily from ground without needing farmer / labour to climb the tree. Expectations from said mechanization - 1. Accurate cutting and harvesting ability. 2. Cost benefit vs Manual Climbing 3. Low effort required to activate and use | Agriculture and Rural Development | Complicated |

| 88 | Marico | Ultra-Portable Cosmetic Heating Solution | Hardware | Heating in personal care and beauty solutions is a unique vector which is used for up regulation of various benefits like better penetration or absorption, easy spreadability, relieving senses, enhancing blood circulation etc. Heat available naturally is much diffused whereas direct or indirect heating modes are inconvenient & expensive. For instance, hot oil massage is a common Indian Consumer practice. In order to heat the oil, common practice is heating the bowl over heater (direct mode) or in hot water (indirect mode); both of which are messy and inconvenient. Potential innovations in this field suffer from cost upcharge due to sophisticated heating elements and safety concerns. There is a need for low cost heating solution for single use product amount (say 2-10 gm) to warm temperature (35-45oC). What is needed: An ultra-portable and low-cost heating solution for single use amount of cosmetic product with following expectations- - Cost <15 INR per piece - Temperature of product to rise upto 45oC - Utilization of resources available at home without adding any inconvenience | Miscellaneous | Complicated |

| 89 | Marico | Body Odor Detection attachment for Smartphone | Hardware | Our nose is so used to our own body odor that we can't smell our own sweat. In order to avoid getting pointed out by others, the solution can be a portable sensor which can detect and convey the state of body odor and recommend corrective action. Sensors are available for detection of various volatile organic compounds (VOCs). Miniaturization of the sensors and fitting it as smartphone attachment- using any available mobile ports- for detection of body odor and algorithm to recommend the corrective action. What is needed: An ultra-portable and low-cost body odor measurement probe attachment for smartphone and accompanying application with following expectations- - Low Cost Attachment - Differentiate intensity and character of odor detected - Differentiate between fragrance and body odor (both are volatile compounds | Miscellaneous | Simple |

90	Marico	Non-Invasive, 24-h Digital Blood Glucose Monitoring Device	Hardware	Glucose monitoring helps people with diabetes manage the disease and avoid its associated problems. A person can use the results of glucose monitoring to make decisions about food, physical activity, and medications. Most common way to check glucose levels involves pricking a fingertip with an automatic lancing device to obtain a blood sample and then using a glucose meter to measure the blood sample's glucose level. Steps toward non-invasive monitoring solutions have borne fruit with the launch of flash monitoring technology with a minimally invasive patch and techniques showing promise in terms of smart tattoo, smart lens and smart watch. There is still a need for low cost, 24-h, non-invasive glucose monitoring techniques which can employ surrogate body fluids like sweat, saliva etc. to estimate blood glucose level with a reasonable accuracy. The accuracy levels of the device should be good enough to take decisions on the food, activity and medication regime. What is needed: Non-Invasive, Continuous Blood Glucose measurement technique with following requirements - Low Cost (both one-time and recurring cost) - Reasonable accuracy of glucose levels to help decide on regime choices	Healthcare & Biomedical Devices	Complicated
91	Manipal Health Enterprise	Doctor App	Software	A mobile app for helping doctors plan their appointments, out patient & in patient care, handover of patients in case of leaves for seamless continuity of care	Software - Mobile App development	Simple
92	Manipal Health Enterprise	Cost effective parking solution	Software	A cost effective parking solution to address the problems faced by patients/attendants. The solution that we are looking is from a space optimization angle. There is a parking area with limited space. Once a vehicle enters, the system should be able to calculate its space requirement for parking and put it in a location to get optimal usage.	Smart Cities	Complicated

93	MAHYCO	Crowd sourcing of diseases and pests information	Software	Indian farmers rely on each other for guidance on the type of seeds to use, diagnosis of pests and diseases as well as their remedies. Timely assessment of problems on the field can improve yields and therefore incomes for the smallest of farmers.The solution envisages using the "wisdom of the crowds"- the creation of a crowd-sourced database which is created for the farmers by the farmers. In the ideal situation farmers will be able to login to see information that other farmers have inputted.	Agriculture and Rural Development	Simple
94	MAHYCO	Farm to Fork traceability of Farm Produce	Software	Today, there is a total lack of information on where our food is coming from, who is growing it and what is being applied to it. A farm to fork traceability system can help eliminate the complete lack of transparency that exists starting with the creation of a farmer id and profile, farm record that will contain what chemicals and fertilisers he has used in addition to location details and sale details of every transaction. This will help diagnose the root cause of farm related problems.	Agriculture and Rural Development	Simple
95	MAHYCO	Reducing Cotton Picking Cost of Indian Farmer	Hardware	Cotton picking is completely manual in India. Because of increasing labour costs, cost of picking cotton has increased substantially. It is about 40-50% of total crop management cost and accounts for 15 to 20% of gross income.Mechanised picking is cost effective & better than hand-picking since the latter can lead to contamination.What we want is a Small machine that can pick minimum 150-200 Kg cotton per day from cotton plants.	Agriculture and Rural Development	Simple

96	Mahindra&Mahindra(FarmEq)	Low cost & smart cooling system for tractor cabin	Hardware	intent is to a design a smart cabin & cooling system for the tractor that would employ a very thoughtful design of a. cabin ensuring all round visibility b. Alternatively, new innovative concepts of cooling without a cabin can also be thought of, cooled seat c. Smart cooling system d. a smart cooling algorithm e. low cost design f. carbon footprint should be at least 50% less and should be compatible for future electric tractors	Agriculture and Rural Development	Complicated
97	Mahindra&Mahindra(FarmEq)	Low cost on the go soil sensing and mapping attached to implements	Hardware	Soil Health and Soil Mapping is important for the plant growth and productivity of the Farming. There is an important need to determine NPK (Macro), Micro Nutrients, Electrical conductivity, soil compactness, Organic Content, Soil Moisture, PH value to determine the soil health and map it against the GPS location. GPS tagged information will help user to correct amount of fertilizer at correct location. The soil health data card is very important parameter to monitor for every crop season.	Smart Communication	Complicated
98	Mahindra&Mahindra(FarmEq)	Uplifting the Farmer through a Connected Ecosystem	Software	How can a farmer gain access to all the elements of his farming cycle?one stop shop where he has access to information from different aggregators, for retailing , leasing & finally taking his produce to the nearest mandi. Application to provide a means of easy transaction for all his farming activities and his personal expenses. Agri credit should help him buy/lease Farm Machinery & have access to all the local vendors for his plantation needs including expert advice from the local university	Software - Mobile App development	Complex

99	Mahindra&Mahindra(FarmEQ)	Pedestrian Safety Device in automobiles	Hardware	Pedestrian death rates are amongst the highest in India as Jaywalking is very common. There is no system integrated with vehicles to detect and prevent this. All safety features currently focus on the occupants of the vehicle. Availability of such a driver assistance system would significantly take down instances of fatal accidents involving pedestrians. It would identify when a jaywalker/bystander moves in the path of the vehicle and instantly deploy measures to evade or brake.	Smart Vehicles	Complex
100	Mahindra&Mahindra(FarmEQ)	Parking Spot indicator in vicinity	Software	India is the world's fourth largest automobile market with limited parking spots. Ever-growing number of vehicles causes traffic congestion on most streets and roads. Availability of a low cost connected ecosystem will help identify the nearest parking spot when sought. This will resolve issues related to parking as well as reduce traffic jam instances caused due to improper parking situations.	Smart Vehicles	Complicated
101	Mahindra&Mahindra(FarmEQ)	Low Cost Digisense Platform: Change Driving Habits	Software	We have very erratic driving patterns on the road and it causes lot of fuel wastage and is a major cause of accidents. A low cost system(under 15$) which can integrate with any car and provide a summary of driving habits of each car owner/driver will help us track usage, plan routes and monitor the health of the vehicle real-time. We can then suggest users to modify their driving habits to control spending on fuel, breakdown alerts and to practice proper road etiquette.	Smart Vehicles	Complex

102	Mahindra Electric	1. Intelligent Range Estimator 2. EV Smart Charging App 3. Universal EV Charging Adaptor	Software	1. Intelligent Range Estimator with Real Time Traffic Information Description: In case of EV, the range of the vehicle is the most important and critical information for the customer, which is influenced by the various factors like driving & usage patterns, operating environment and traffic conditions. By utilizing the real time traffic information, drive profile, and environmental conditions, an accurate prediction of algorithm to be developed to address the range anxiety. 2. Smart Charging App for EV Description: The major challenge of Indian EV customers is the lack of Charging Infrastructure and its integration into a common App. Smart Charging App developed on to a smart phone either using Android or IOS is to automatically identify the utility provider (charging station) along with rate cards within the specified zone. This is to reduce the wait time for EV charging by reserving the slot in advance. It is also used as a secured payment gateway. 3. Universal EV Charging Adaptor Description: Around the globe there are multiple charging protocols and standards followed for EV charging. CHAdeMO, IEC CCS, Bharat Charge Protocol-BCP and GBT are the few dominant fast charging systems. They are not interoperable. The objective of this project shall be to develop a universal EV charge hardware to be used with a	Smart Vehicles	Complex

103	KG Info Systems Pvt Ltd	Invoice Processing using RPA	Software	One of our Client processes approximately 1500 invoices per day received from 250 surveyors in 15 different formats. All those are of pre-defined format containing no hand written text. Each document spans across approximately 3 pages. it can be, • mobile captured images • Scanned PDFs. Data retrieved from the invoices (including item name, etc.)are updated into CRM application. However, it refers to items with names which is different from the one specified in invoice. (For E.g., Invoice Item Name: Front Wheel, CRM Item Name: F.Wheel). Design and propose an automation solution, which will automate the above business process, considering that all the invoices are made available in a pre-defined File Server.	Miscellaneous	Complex
104	KG Info Systems Pvt Ltd	Finance Receipting using Robotic Process Automatio	Software	A client needs to automate a back office process which has a volume of 25000 receipts per month. The information is structured, with pre-determined rules and conditions. The process has 10% of exceptions and also involves the use of paper. The source file is downloaded from SAP application, from which data is retrieved. Based on transaction type, client details are segregated as either Card or Cheque. Segregated user information is fed to the web application. For each Receipt number, templates are used to generate receipts and the same is mailed to the vendor specified in the source file. Each transaction type has its own template, which is available in the File Server. Design an automation solution which will automate the above process and email the receipts to corresponding vendor.	Miscellaneous	Complex

105	KG Info Systems Pvt Ltd	Alternative to traditional credential based authentication	Software	On day to basis people access various websites like net banking, trading, social websites, Govt websites etc.. and each site has unique login id & password. This has become unmanageable, it is not possible to remember login id & password of each site and it is not safe to write it down. We need a solution like universal authentication system (e.g. Aadhar) which is secure and manageable. The challenge with the centralized system like Aadhar are regulation, dependency and cost. Hence the system should be decentralized, secure and cost effective. It can make use of technologies like bio-metrics, face recognition, OTP etc..	Software - Web App development	Complex
106	KG Info Systems Pvt Ltd	Customer Support Chat bot with ML	Software	A chat bot which can interpret the customer complaints or queries, search the DB for resolution and in case new solution found, hand it over to support staff. Based on the conversation b/w customer and staff, update the DB, be prepared to handle similar queries in future.	Software - Web App development	Complex
107	KG Info Systems Pvt Ltd	Customer support-Automation of ticket creation(RPA	Software	Eliminate manual intervention in ticket creation 1. Raise a ticket based on the complaint mail 2. If the details are incomplete (e.g. customer id is missing), send a mail to customer asking for missing details. 3. Link the sub sequent responses from the customer to the original ticket 4. Recognize the bounced mails and initiate appropriate action 5. Auto response to template based mails (complaints/queries) ie no free text 6. Multiple bots / parallel processing	Miscellaneous	Complex

108	KG Info Systems Pvt Ltd	Google search Using (RPA)	Software	When we search for a particular information in Google the result is not ready for consumption and not well formatted. It requires some more effort and time to drill down each link and find out the relevant information. This process needs to automated and results needs to be collated in a table or an excel so that it is easy to consume. When we search a online directory like Just dial, the information is provided in a tabular format & easy to consume. E.g. Chinese Restaurants in Coimbatore	Miscellaneous	Simple
109	KG Info Systems Pvt Ltd	Time and productivity analysis	Software	A tool to capture & calculate the time spent by a resource in various activities ie documentation, coding, SQL, Internet etc.. and store it in a central DB and generate analytics based on this. This is to understand where the resources are spending more time and where organization is loosing time & how to make resources more productive.	Software - Web App development	Simple

| 110 | ITC Limited | Drone Doctors | Software | Deep Learning of plant topography for predictive / prescriptive analysis against pest and diseases". BACKGROUND: Crop losses owing to pest & diseases are inherent in Indian agriculture with the annual loss of 15-25% of productivity. Pest & diseases are complex, crop/region specific, seasonal, epidemic/endemic, which require integrated approaches to manage the loss. Due to the level of complexity, diagnosis for preventive measures are challenging, particularly our inability to (fore)see the pest/disease occurrence and their life cycle, while the level of difficulty raises with the size of land holdings. Due to the poor visibility of pest and disease occurrences, our ability to integrate and use the data for preventive/prescriptive measures has been the challenge leading to continuous productivity loss. PROBLEM DESCRIPTION: Crop loss is generally diagnosed by the symptoms developed by pest and diseases, while manual diagnosis has a very limited scope in identifying the damaged plant parts, while recognizing the pattern of pest/disease distribution almost close to impossible in large area. Drone based scanning the large area using both visible and near-infrared light, could help track changes in plants at large scale and identify the distribution pattern very precisely. Further, an artificial intelligence (AI) driven software | Robotics & Drones | Complex |

| 111 | ITC Limited | Consistent Product Moisture in manufacturing | Software | Time Series Machine Learning based Prediction Model to achieve consistent Product Moisture in manufacturing BACKGROUND: Achieving consistency in product quality is one of the key objectives in a manufacturing process. The product quality in a process is affected by both, process and environmental parameters. In case of a hygroscopic organic product, moisture plays a vital role in determining the end product quality. In the case of this problem it is crucial to maintain the end product moisture level within a narrow band for superior product quality. To achieve the same, online control of various process parameters is required in manufacturing. PROBLEM DESCRIPTION: The manufacturing process of this product has a drying step which is controlled to get the end product moisture within limits. However, post drying, the retention time and conditions in further process steps impact the final product moisture. The incoming material loses moisture in the drying process. The dryer process parameters are controlled through a PID loop with short and long term levers. Post drying, the product is stored in a conditioned environment and is transferred for manufacture as per requirement. Product interacts with the surrounding environment while residing in the storage area and the manufacturing process. Due to these interactions, the product moisture | Miscellaneous | Complicated |

| 112 | ITC Limited | Online Inspection of Packed Cases | Software | Leveraging Artificial Intelligence & Image Processing for Online Inspection of Packed Cases 1.BACKGROUND: Leaves of a crop are threshed and are packed into 200 Kg cases. 10% of these packed cases are later inspected for conformity to the master case approved by the customer in terms of Color, Ripeness and Uniformity. The quality inspection processes are manually operated and rely on the judgmental experience of the experts. The judgment is heavily driven by personal, business and environmental factors and is highly subjective. 2.PROBLEM DESCRIPTION: Inspection is a crucial activity to ensure customer satisfaction. Although it doesn't eliminate the defects in the product, it helps identify the defective products before they are dispatched to the customer. The limitations with the existing inspection process is multi-fold. • While Customer expects all the cases to be inspected, due to space and man-power constraints, today, the business is able to achieve only 10% inspection. • As the inspection process happens one day after the cases are processed, due to limitations with Expert availability, real-time corrective actions in the factory in case of deviations in product quality gets difficult • Due to human involvement in the visual inspection, there is inherent subjectivity involved in the process 3. PROBLEM STATEMENT: To automate | Software - Web App development | Complicated |

113	ITC Limited	Packaging format and design optimizer	Software	Packaging format and design optimizer for packaged food products 1. BACKGROUND: The packaging format design is currently based on trial and error for most of the packaged food products. The packaging format decides the damage any food product will undergo, especially during transit and handling. Especially for biscuits, product breakage is a prime concern, and any packing format is decided retrospectively based on the damage endured during transits (mostly by evaluating breakage). A simulation based model would solve this problem, just like any mechanical design, if packaging design can be tested for relative preference. 2. PROBLEM DESCRIPTION: Packaging format for food products need to be designed based on a simulation model. This model should involve a multi body dynamics study to evaluate the maximum forces the final packaged food will be subject to during transit and handling. A simulation has to be done basis forces that products undergo during the journey in the supply chain. 3. PROBLEM STATEMENT: To build a computer simulation model for optimizing packaging design for a given packaged food 4. PROJECT DELIVERABLES: (a) A comprehensive stimulation model which will help in designing the optimized packaging format. (b) The simulator should identify and recommend the areas	Software - Web App development	Complicated

114	ITC Limited	Intelligent Food packaging	Hardware	Time – Temperature Sensors to deliver Super-Safe Frozen Shrimp Meat Products 1. BACKGROUND: To deliver highly relished and supersafe prawns to the consumer, rapid freezing after processing and storage at low temperatures is essential for prawn and prawn products in order to eliminate oxidation, denaturation of proteins, sublimation and recrystallization of ice crystals. Temperature increase of frozen product will result in off-flavors, rancidity, dehydration, weight loss, and loss of juiciness, drip loss, toughening, microbial spoilage and autolysis of the product. Therefore, it is absolutely critical that frozen conditions are maintained during transportation, storage, and in retail stores. This needs to be verifiably demonstrated to the consumer during the time of purchase. This is feasible only by a bio-sensor which will demonstrate the actual state of the product during its shelf-life. 2. PROBLEM DESCRIPTION: Prawns may be frozen–thawed many times before being consumed. The Frozen prawns may get thawed (core temperature ~ 0 deg C) and refrozen during transportation and repackaging. An increase in the freeze–thaw cycles, greater than -180C, results in augmenting Thiobarbituric acid (TBA) value and cutting force while lowering the salt soluble protein (SSP) value. This leads significant deterioration in product quality. The prawns can be	Miscellaneous	Simple
115	IndiaNeoDesigns	Referral of Severe Acute Malnourished (SAM) childr	Software	Nearly 20 million USD per year is invested to operationalize 1151 Nutrition Rehabilitation Centers (NRCs) under National Health Mission to treat children with Severe Acute Malnutrition (SAM). Inefficiency in detection of SAM, and poor referral and lack of tracking system leads to underutilization of services. A mobile application that will facilitate and track referrals of children with SAM to NRCs and provide real-time bed availability status is required.	Healthcare & Biomedical Devices	Simple

116	IndiaNeoDesigns	Fetal Distress Classification based on Cardiotocography	Software	Fetal distress before and during childbirth indicating that the fetus has been receiving inadequate oxygen. Cardiotocography monitors two vital parameters, i.e Fetal heart rate (FHR) and uterine contractions (UC). These time series data and can be used to detect fetal distress. Goal: a system that takes these two time series data as inputs and classifies them as "Distress" and "Normal" Source data: https://physionet.org/physiobank/database/ctu-uhb-ctgdb/ Methods of processing could include Support Vector Machines/ Principal Component Analysis or any other method of choice that discriminates the best. Problem: https://drive.google.com/open?id=18oYVdQHq6Jo-9blXCpQwy3g-HBZzErGL	Healthcare & Biomedical Devices	Simple
117	IndiaNeoDesigns	App for Pediatric Chronic Care	Software	Babies born very premature or those with cerebral palsy often have additional needs, for example, a gastric tube. Parents and family members are generally unfamiliar and need a lot of help and assistance. Information about usage and ongoing care is not readily available. There is a need for helping parents navigate the maze of information. Goal: An multilingual educational app (android/iOS) with editable content for parents of children with long-term disability.	Healthcare & Biomedical Devices	Simple

118	IndiaNeoDesigns	Pediatric Teledermatology	Software	Diagnosing neonatal and pediatric skin conditions does not require face-to-face communication and can be done remotely. There is a need for an App based system which receives images from a phone, allows the "physician" to 1) receive an image 2) tag the diagnosis, 3) automatically store the image for research use and 3) respond to the sender. There is no need to make an automated diagnosis. Overview: https://drive.google.com/open?id=1ETZMd3tCqieKUjR1PgHGqX6NYTzx07dNPc7Wd1SrVNU	Healthcare & Biomedical Devices	Simple
119	Indian Oil	CO2 conversion to CO	Hardware	CO2 is a thermodynamically very stable molecule and does not react easily. If CO2 can be reduced to CO in an energy-efficient manner, CO can be further converted to various chemicals using syn-gas chemistry. Hence, various approaches for CO2 reduction such as electro-catalytic reduction, efficient thermal reduction, reverse water gas shift reaction, etc., can be developed.	Energy / Renewable Energy	Complex
120	Indian Oil	Lignin valorisation-Conversion to fuels,chemicals	Hardware	Lignin valorisation: Conversion into fuels, chemicals and materials - Production of second generation (2G) ethanol from agricultural residue would generate large quantities of lignin as a byproduct. Lignin is a heterogeneous aromatic polymer and it is very difficult to depolymerise and upgrade into fuels or chemicals. At present, most of the lignin generated is burned to meet process heat requirements. Converting lignin into bio-based chemicals and polymers can help improve the economics of cellulosic ethanol plants. Lignin can be converted into valuable bio-polymers, chemicals and fuels through thermo-chemical and biological methods.	Energy / Renewable Energy	Complex

121	Indian Oil	Design of proto-type Hydrogen storage tank	Hardware	Design of proto-type Hydrogen storage tank with adsorbent/hydride and demonstration in a vehicle - Hydrogen has drawn attention as a next-generation energy carrier for mobile and stationery power sources. For transport needs, Hydrogen is mostly stored in a compressed from (at 350-700 bars) while methods for its storage at lower pressures are rapidly developing using adsorption-based Hydrogen storage (AHS) systems. Abundant adsorbents such as activated carbons, carbon fibers, carbon nanotubes, carbon nanohorns, fullerenes, zeolites, and metal-organic frameworks (MOFs), covalent organic frameworks (COFs) have been explored as adsorbents for Hydrogen. A Hydrogen storage system based on AHS can provide a safe alternative for on-board hydrogen storage.	Energy / Renewable Energy	
122	Indian Oil	High-thermal efficiency gas burner	Hardware	Liquefied Petroleum Gas (LPG) is extensively used in domestic as well as industrial cooking. It is a precious and non-renewable energy source. Therefore, it is highly essential to use it efficiently by employing energy-efficient devices. With the objective of conserving LPG fuel, IndianOil is looking for design and development of energy-efficient devices for domestic & industrial cooking that surpass the thermal efficiencies of devices available in the market.	Energy / Renewable Energy	Complex

123	Indian Oil	Low-cost vapour recovery system at fuel stations	Hardware	Low-cost efficient vapour recovery system at fuel stations - Evaporative emission of Volatile Organic Compounds (VOC) is of great concern during various stages of handling of transport fuels in the distribution network. Currently, technology for control of VOC is achieved through deployment of VRS system, which is available from a limited number of suppliers. Hence, development of such a system will enable Oil Marketing Companies (OMCs) to control VOC emissions effectively at reduced cost. The various points where the product could have possible application Lorry loading point, Lorry unloading at fuel stations,Vehicle filling by fuel stations (Nozzle design) or any other application,	Energy / Renewable Energy	Complex
124	Indian Oil	Innovative re-refining of used lubricating oils	Hardware	Process methods using solvent/acid treatment for re-refining of used lubricating oils available in the market are not eco-friendly solutions for the problem. However, since oil conservation is of immediate importance & used oil disposal in an environment-friendly way is of utmost importance, we are looking for novel concept/idea for re-refining used lubricating oils in an eco-friendly manner, without solvent/acid treatment.	Energy / Renewable Energy	Complex
125	Indian Oil	Low-cost production of Hydrogen	Hardware	At present, Hydrogen is produced mostly by reforming fossil fuel sources – petroleum feedstocks – which is a cost-intensive process and defeats the very purpose of conserving scarce petroleum reserves. Production of Hydrogen through renewable route will reduce dependency on petroleum feedstocks and may also reduce production costs.	Energy / Renewable Energy	Complex

126	Indian Oil	Low-cost, high-accuracy lubricant testing kit	Hardware	The existing lube testing equipment is very costly & can't be deployed in field. There is need for an effective methodology & toolkit for monitoring conditions of lube during its use in field. Such lube test kits will provide a quick assessment of lubricant quality & will help in controlling associated machinery failure. The proposed kit should aim at at least giving accurate information of used oils with respect to viscosity,total base number, total acid number & moisture content	Energy / Renewable Energy	Complex
127	Indian Oil	Utilisation of CO2 emitted from MEG plant	Hardware	Around 7-12 metric tonnes/hour of Carbondioxide (CO2) with 99.72% purity (dry basis) is generated from the Mono Ethylene Glycol (MEG) plant and the same is vented into the atmosphere. IndianOil is looking for innovative & novel concept/idea for converting CO2 to valuable product(s) to reduce environmental impact.	Energy / Renewable Energy	Complex

128	Indian Oil	Plug b/w petroleum products to avoid intermixing	Hardware	Innovative plug between petroleum products to avoid inter-mixing during transportation through multi-product pipelines Petroleum products are generally pumped in batches through a single multi-product pipeline. To ensure meeting product quality requirements, a typical batch sequencing is followed while transporting products through pipeline. A typical batch sequencing is: [Motor Spirit (MS)] – [Pipeline Compatible Kerosene(PCK)] – [High speed Diesel(HSD)] – [PCK] – [Superior Kerosene Oil (SKO)] – [PCK] – [HSD]. During transportation of petroleum products through pipelines, some inter-mixing between products may happen. This mix of products is known as Interface. In the sequence given above, the interface of [MS-PCK] is taken in Motor Spirit (MS), [HSD-PCK] is taken in High Speed Diesel (HSD), [SKO-PCK] is taken in Superior Kerosene Oil (SKO). PCK is the same as SKO but with Sulphur content in line with BS-IV or BS-VI product specifications. With mixing of [MS-PCK] interface in Motor Spirit (MS), some quality degradation happens. An innovative method/procedure for preventing mixing of products (such as inflatable balloons, bio-degradable jelly, etc.), as plugs in between two different products is to be developed.	Energy / Renewable Energy	Complex
129	India Health Link Pvt Ltd	Smart body posture recognition & Guiding system	Software	We have a self service wellness KIOSK that measures health vital parameters like BMI, BMC, BP, ECG, Pulse, Temp. And it designed to be non-assisted while user measures the vitals. A right body posture yields a correct result. We wanted the system should capture the image of the uses body posture like hand, leg etc via camera and through image processing; Compare the required postures for particular test, Analyse and guide users to have right posture in case the test is not carried out proper	Healthcare & Biomedical Devices	Complicated

130	India Health Link Pvt Ltd	Personal Health Influencers through social network	Software	Build an API for IHL users (from IHL platform) to choose/select their friends/others from facebook, LinkedIN, whatsapp, others to form a group to play a challenge like average no of steps in a month, healthy food habits, health vitals (decrease in weight/BP etc.Gamify user experience to win rewards, badges etc.	Software - Web App development	Complicated
131	Hughes Systique Pvt Ltd	Secure distributed transaction recording system	Software	Design a system by which we can record and make visible/non-falsifiable/non-repudiable the different transactions between a common citizen and a govt. department for getting and managing a particular form of license/permit. For a specific example, we consider the driving permit. The system should be able to track the different transactions starting from getting the permit (retail/commercial), renewal, recording of traffic rule violations, and possibly, revocation/suspension	Security & Surveillance	Complicated
132	Hindustan Unilever Ltd	Smart Demand Predictors	Hardware	Accurate Demand planning is essential to unlock efficiency in value chain. Lack of accurate real time demand prediction at Distributor and Point of Sale leads to inefficiencies and unmet demand specifically for seasonal and impulse products like Lipsticks, Ice-creams etc. The challenge is to design smart demand prediction systems which can be installed at Distributor or POS point. they should be able to signal real time change in demand patterns and help in increasing demand forecast accuracy.	Smart Communication	Complex

133	Hindustan Unilever Ltd	Digital Reverse Logistics for Damaged Goods	Software	Reverse Logistics is the process of moving goods from their point of consumption or sales for recycling, disposal or reuse. We take back damaged/expired products from about 1.5 million retailers across India. The current process is slow and manual. It takes about 8-12 weeks to process the payment for returned goods. The manual entry makes it difficult to track, audit and analyze the inefficiencies. The Challenge is to design complete digital reverse supply chain for damaged/expired products.	Waste Management	Complex
134	Hindustan Unilever Ltd	Digital In-store Merchandising	Software	Retail stores are changing from utility based generic mass market stores to personalized and entertaining shopping experience. We want our products to stand out from the rest in Modern stores by developing innovative digital in-store merchandising concepts. They should generate curiosity, gather attention and bring joy to the consumer. The solutions should need minimal expense on hardware, should be easy to scale, occupy less space.	Smart Communication	Simple
135	Hindustan Unilever Ltd	AR/VR Experience for Beauty Products	Software	Digital and mobile technology is bringing innovative ways to bring customer delight in the retail stores. Augmented reality/Virtual reality can help in heightening customer experience and bring several "wow" moments while they are buying beauty products. It can help the store assistants in selling the right product to the right customer. The challenge is to design frugal AR/VR based solutions which can help the customers and assistants while trying, testing or buying beauty products.	Software - Mobile App development	Complex

136	Hindustan Unilever Ltd	Track and Trace Supply Chain	Software	Every year Millions of units of consumer products are transported from farms to factories to distributors to retailers and finally the end consumer. To deliver Quality and transparency, Organizations need to be able to trace each product to its origin. The challenge is to design a solution to track each of the millions of units from point of origin to retailer. Traditional bar code based solutions becomes difficult to manage beyond the distributors. The design should need minimal human effort.	Security & Surveillance	Complex
137	Hero Electric Vehicles	Parallel BMS	Hardware	Conventional Lithium –ion battery packs of 1 to 3 KWhr are connected in parallel and series of cells to achieve 48 V required for e-scooter and e-rickshaws. This limits the number of cells to be used and leads to costly Battery management system. A few weak cells reduce the performance of the full battery pack. Participants to develop a new concept of which will integrate boost convertor from 3.7 V to 48 V rated voltage and also integrate motor controller function.	Smart Vehicles	Complicated
138	Hero Electric Vehicles	Mobile App for Rental Battery	Software	This requires advance BMS development for locking and unlocking the Lithium ion battery BMS on basis of monthly payment by customer. The battery operating vital parameters to be stored in cloud for later retrieval during maintenance. Participant to develop logic and the embedded system for battery capacity from 1 to 3 KWhr purchase on lease instead of one time investment in lithium battery. This will promote E-mobility solutions over conventional fuel scooters.	Smart Vehicles	Complex

139	Hero Electric Vehicles	Power Train Optimization	Software	BLDC motor know for high power density design and high efficiency. As the speed of the vehicle increases the motor becomes inefficient due to increase in losses. Scooter motor is in range of 500 to 3000W for 25 to 60 kmph speed application. Participant to derive at most efficient combination of motor sizes, hub motor versus transmission driven off hub motors for improved torque-speed characteristics, arrive at controller design for cater low and high vehicle speeds. This involves motor design s	Smart Vehicles	Complex
140	HCL TECHNOLOGIES LIMITED	Person Tracking System	Software	Video surveillance aims to gather information, to prevent crime, protect property, person or object and to inspect the scene of crime. The participants are required to build a pipeline that acquires image from multiple CCTV cameras and carry out face detection, face recognition and tracking of selected individuals. 1.Acquisition :Multiple static CCTV cameras are considered. 2.Face detection & Recognition: detect the faces and recognize the individuals 3. Multiple Person Tracking: Out of the recognized individuals, track target individuals across multiple cameras. The pipeline must have list of recognized individuals details, from which the user can select target individuals.	Security & Surveillance	Complex
141	HCL TECHNOLOGIES LIMITED	Low cost residential flow meter	Hardware	There is a need for strap-on low cost flow meter that can be used to meter water consumption in individual units in existing Apartments and buildings . This problem explain the need and requirements to create such a low cost flow meter. Please refer to you tube video for detail info	Clean Water	Complex

142	Harman	REALTIME ACCENT TRANSLATION	Software	Conference calls have become order of the day. Participants attend the conference calls from various locations and nationalities and speak the language differently. This causes hurdles in ability to understand and also how quickly a thought is communicated. This problem is to develop a real time accent translation system based on the recipients' and deliverer's accents. The idea is to achieve far better understanding during conference calls, which will make the communication far more effective	Smart Communication	Complicated
143	Harman	USE OF VOICE ASSISTANT	Software	The Rural population in India does not have good access to healthcare education . The way voice assistants have helped the urban and western countries population can be replicated in rural India as well if the localization of assistance happens for healthcare education. We will define specific use case for Indian context. E.g. Rural Indian population needs preventing the onset of chronic conditions such as heart disease, diabetes, or monitoring the journey of expectant mothers and babies from physical and mental health perspective. Providing advice for such population on food to eat before and after child birth, right medication, good baby care, right physical recovery advice to mothers etc. Local food recommendations based on the location of individuals considering that there is food and eating habits are different in different regions. It also changes based on season and local customs. This will help in guiding maximum population to be able to follow such an advice or guidance. The focus will be on preventing the conditions and monitoring of the chronic conditions to help keep most of the population healthy and fit.	Healthcare & Biomedical Devices	Simple

| 144 | Harman | OPTIMIZING WATER USAGE AND YIELD IMPROVEMENT | Hardware | To have maximum yield, there is a need for optimum irrigation. The need of water depends on soil type, crop type, and other parameters. Currently irrigation happens based on human inspection and does not take into account various parameters which make it optimal. Parameters such as soil moisture, crop type, seasons weather forecast, can be measured and well used in optimizing water delivery as well as biological micro-nutrients in some form. Using historical / agricultural data will help further in providing real time irrigation requirement. Thus the water delivery can be controlled. This will ensure optimal usage of water with improved yield. This technique can be specifically useful for poly-houses. References: https://www.israel21c.org/5-israeli-precision-ag-technologies-making-farms-smarter/; https://www.postscapes.com/smart-agriculture/; https://www.researchgate.net/publication/285584632_Smart_Agriculture_An_Approach_towards_Better_Agriculture_Management; | Agriculture and Rural Development | Complicated |

145	Growtech Innovations	Monitoring input water quality and output water quality through smart sensing in Home water purifier	Hardware	1. Low cost smart TDS sensing to be incorporated at water source level and water output level, 2. Solution should work for retrofit for existing above water purifier as well as nwe home water purifier, 3. IOT based smart solution with android app for end consumer and home water purifier service provider, 4. Give solution should be easy to integrate home water purifier like plug and play, 5. Cost of this system should be affordable for end consumer and preferably integrated into the home water purifier service provider, 6. When moving from one location to another location, if the input water quality is changing then end consumer and home water purifier service provider should be alerted on the same.	Clean Water	Simple
146	Greefi Technologies	Block-chain based certificate validation	Software	Storing the school/university/board certificates is a recurring process. For the Organization, verifying the authenticity of the certificates is tedious and cumbersome . The proposed solution will help the institutions to store the certificates in the decentralized way using the block-chain system and give access to any organizations or any institution with the consent of the individual using multi-sign. What we want: sharable decentralized storage using digital signature and access	Software - Web App development	Simple

147	CDK Global (India)Pvt Ltd	Common Corporate Social Responsibility(CSR) Portal	Software	Currently most organisation have their own CSR activities and perform social events separately. Due to lack of resources and budgets, it limits their ability to perform these activities on larger scale or remote areas. Also other corporates may not be aware of such events, so that they can participate as well. So idea is to develop an organised Common CSR portal where different corporates or individuals can come together and collectively provide valuable service to society.	Software - Web App development	Simple
148	CDK Global (India)Pvt Ltd	Birth/Death Registration Integration With Services	Software	There are different services which are linked to Birth and Death of an individual. If these services are integrated together it will help individuals. Maternity Nursing home register's child birth to Municipal Office Then Parent / guardian can one time enter the name of their child and get a print of Birth Certificate after few days. No need to visit MO. In case of Death registration at MO then build a system which will notify all tear down services to update death status of the individual.	Software - Mobile App development	Simple
149	CDK Global (India)Pvt Ltd	Ambulance Services	Software	Ambulance services are important for Health & Medical facilities. Requirement is to build a mobile app similar to Ola / Uber cab services. But it will be for Ambulance services. This app will have Ambulance driver's register their availability and location. Both Executive at Emergency Helpline and User's on the other hand on App's Client interface will book an ambulance. This will promise a fast and reliable ambulance service in case of emergency.	Healthcare & Biomedical Devices	Complex

150	CDK Global (India)Pvt Ltd	India Vs Pollution	Software	Every day we come across several sources of pollution, polluting the very basics of our lives- Rivers, Land, Air and Noise. We know nothing about who/where to report it and how. We suggest an Innovative way to identify the sources of pollution in your area, get it prioritized through people votes, escalate it to the concerned authorities, keep a track of the progress and get notified of the actions taken. It will provide an End-2-End tool to battle pollution democratically partnering with Govt.	Sustainable Environment	Complex
151	CDK Global (India)Pvt Ltd	Hospital Finder	Software	During medical emergencies, common people always face problems in deciding which hospital they should visit for required treatment. The wander from one hospital to another in search of medical facility, medicines, blood supply, etc. Hospital Finder will solve this problem by allowing people to search for nearby hospitals on the basis of medical treatment, specialist doctors, medicine/blood availability, etc.	Software - Mobile App development	Complex
152	GoldmanSachs	Smart Traffic Lights using CCTV	Hardware	Use CCTV cameras installed on junctions to figure out which side has maximum traffic and accordingly adjust duration of red/green light automatically.	Smart Communication	Complicated

| 153 | GoldmanSachs | Shared Roof Top Rain Water Harvesting | Software | Currently, for roof top rain water harvesting, people install water storage tanks individually per building/apartment which results in high cost for individuals/groups. No mechanism/application is available to find out where such installations are beneficial, which installations can share storage tanks and what would be the required capacity of these shared tanks. Given map and housing data, optimize the location of centralized tanks for rain-water harvesting.The following data should be sufficient to design and implement a model to solve the problem: 1. Estimating rainwater harvesting capacity: a. Rainfall estimation: Historical data from rainfall gauges at different places in the target area. b. Catchment area: Masterplan of the city to estimate the catchment area available, e.g open areas like rooftop, courtyard, etc. 2. Optimizing Water tank placement: a. Water demand/Use capacity: Water supply data can be used to estimate the consumption of harvested rainwater for non-drinking purposes b. Underground map: Underground map with stability study to identify locations where the shared tank can be built The system should provide the following output from its analysis: 1. Plan for laying out the underground tanks with input and output points defined 2. Cost benefit analysis justifying the plan 3. Plan for | Clean Water | Complicated |

154	GoldmanSachs	Transport Management System for Intra-City travel	Software	Public commute such as buses and metro don't have useful information. For example, if in-city buses had a system with information about the exact number of standing and sitting seats in the next metro or bus, then it would make using public transport very easy and amiable for citizens. Assuming sensor data for seating is available on each vehicle and the vehicles can transmit data between each other, devise an algorithm that can tell users which vehicle to take. Devise relevant analytics to help the authorities realize whether to increase the frequency/passenger capacity of bus/metro in real-time at certain stops could also be included in the system. Inputs to the application: - Static Input (doesn't change frequently) o Route names of DTC buses and their stoppage on that route o Bus Make (Number of standing/sitting seats) - Dynamic Input (changes real-time) o For every stop – no. of passengers boarded and de-boarded (Can be inputted by the bus staff) Outputs of the application: Real-time information about the bus with its seat availability information (number of vacant sitting/standing seats). The application is expected to show the bus going on a static pre-defined route with number of standing/sitting seats. Future Optimizations: - User information like their boarding point and destination can be inputted - The number of boarding/deboarding passengers can	Smart Vehicles	Complicated
155	GE Healthcare	Robust/Affordable fetal heart monitoring	Hardware	Background: Approximately 6 lakh still births happen in India. Around 50% of them are during labor. Some still births can be prevented by monitoring fetal heart rate. Having this information can help the obstetric team take the appropriate steps during labor. Problem Statement: Develop a solution to accurately measure the frequency of an object of approx. size of 1 cm, placed at a distance (ranging 10 cm to 100cm), oscillating at 1 – 5 Hz.It should be affordable (<20$) and compact	Healthcare & Biomedical Devices	Complex

| 156 | GE Healthcare | Continuous Non-Invasive Blood Pressure (NIBP) Meas | Hardware | Background: Blood Pressure (BP) is a vital monitoring parameter in clinical examinations. From several years to till now, cuff based methods has been used to measure BP non-invasively. Due to limitations such as intermittent measurement of BP (long intervals), inaccuracy due to patient stillness, discomfort due to wrapped cuff, frequent need for calibration and improper manual interventions which results unfavorable/unreliable outcome. Also, patients having stents or patients with thickened arteries have cuff based BP measurements which are inaccurate.   Problem Statement: Develop a smart sensing device that measures BP non-invasively and continuously. It should also differentiate between skin of an neonatal, infant, healthy mature adult or a geriatric patient. Perhaps, use AI to improve measurement or compensate for offsets in measurements of patients with stents. | Healthcare & Biomedical Devices | Complex |

157	GE Healthcare	The Right Dose for the patient	Hardware	Background: Patients are often administered controlled dose of medication or contrast media during procedures such as emergency care, medical imaging or anesthesia delivery. The accuracy of administered dose is extremely critical from the perspectives of patient safety and/or diagnostic quality of images produced during these procedures. Fulfilling dose accuracy needs accurate measurement or estimation of the body weight of the patient while positioned on a surgical table or on a patient positioner of an imaging equipment such as CT scanner, MRI scanner or an interventional X-ray system. Most of the conventional surgical tables or patient positioners do not have an integrated weight sensing mechanism to aid dose computation. In situation where there may be an integrated weight sensing, the accuracy could be severely affected due to numerous variances induced by use of bed linen, sheathes or blankets, clothing & accessories, patient immobilization supports, respiratory tubes, IV lines or catheters etc. Problem Statement: Develop an integrated weight measurement system with an accuracy better than +/- 3% and suitable for patient types ranging from neonates to obese adults (3 – 280 kg) for patient positioner used with medical imaging systems or a surgical table to enable accurately defining the dose parameters for medication or contrast media. Other desirable characteristics of	Healthcare & Biomedical Devices	Complex
158	Gail (India) Ltd	AI powered Server Log Management Software	Software	The AI powered software solution should be automatically fetch error logs from servers / applications / databases and categorize/ segregate them based on severity and frequency. There should be dashboards for various types of logs. The solution should have capability to visit Google, Bing and relevant OEM support sites for searching KB for solving the errors mentioned in logs and suggest the relevant link as possible solutions. The target is 95% effectiveness in relevance of links.	Software - Web App development	Complex

159	Gail (India) Ltd	Gas Dehydration for Pipeline Transportation	Hardware	The presence of moisture in gas is detrimental to the Pipelines transporting these gases. GAIL is in search of very low cost technologies for removal of moisture from Natural Gas from these local fields for dew point depression with a minimum area requirement and minimum operating cost.	Robotics & Drones	Complex
160	Gail (India) Ltd	Automatic Stream Changeover for Flow-metering	Software	For measuring very low flow generally a small meter stream is added as standby. A system is required to be devised which checks the flow passing through the MAIN big metering stream and if the flow goes below a pre determined set point, automatically the Low flow stream is taken in line by opening its valves and subsequently closing the main big meter valves. System need to ensure that low flow meter has become online before closing the main meter valves.	Software - Web App development	Complex
161	ABB GIS Pvt Ltd	Big Data challenges for the e-Mobility	Software	An EV user must be assured that power will be available when needed especially in an unfamiliar area. A route optimization approach based on Machine Learning needs to be considered to ensure that vehicle drivers are led to the nearest or their preferred e-Station.	Smart Vehicles	Simple
162	ABB GIS Pvt Ltd	Big Data challenges for e-Mobility- infra operator	Software	The E-Charging Operators (equivalent of today's petrol pump operators) need a Big Data approach to ensure their customers (end-users) satisfaction and optimum utilization of the e-Charging stations. The operator may have fast or slow charging infrastructure with their own payment terms and timings. Based on a data-centric approach the operator can offer dynamic pricing at stipulated times and manage the peak demand accordingly.	Smart Vehicles	Simple

163	ABB GIS Pvt Ltd	Big Data challenges for e-Mobility- Smart City	Software	A Smart city will have various elements like power, water, etc monitored through a central control room. The Control Center will be the single source of information for administrators and decision makers. The new set of challenges faced by a Smart Grid, e-Charging network and e-Vehicle users culminate in the Smart City Control room as an indicator of traffic movement/congestion, power demand and various other related parameters. The solution need to be integrated into the Smart city control room	Smart Cities	Complex
164	ABB GIS Pvt Ltd	Locate faults in Power Distribution Networks	Software	Over the time, cities have built the power distribution asset in phases with varied product technologies. At the time of faults in the physical infrastructure, the distribution utilities take huge time to identify and pin point the fault in the physical infrastructure (especially the cable faults, which is mix of overhead and underground infra). Also, faults in networks are catered to only after they occur. A low cost prediction solution will help in better planning for ad-hoc maintenance	Energy / Renewable Energy	Complex
165	Adani Group	Video Analytics software	Software	To make software which can analyze different types of videos taken by HD camera / Drone / Robotic tools, so that no human intervention is required to analyze data by watching continuous video. It has many applications like security / safety where video can analyze persons who has not with him safety equipment, or software can analyze pipe cracks, etc	Miscellaneous	Complex

166	Adani Group	Virtual reality training program	Software	To prepare Virtual Reality (VR) programme which can provide hands on Operation & Maintenance training to Employees in classrooms. E.g. Employee can feel opening the pump / turbine / any equipment while veering VR glasses and step by step learn to do operation & maintenance	Software - Mobile App development	Complex
167	Adani Group	robotic instrument to gauage tube thickness	Hardware	To prepare robotic instrument which can move / flow inside boiler tube and identify its thickness during shutdown or make drone with probe to identify boiler tube thickness from outside the boiler tube for full pipe length	Robotics & Drones	Complex
168	AGR Knowledge Services	Forecasting commodity prices	Software	Consensus price forecast: There are about 400 broker / analyst reports to be read every month. The relevant data has to be extracted and then analysed . These are generally in pdf format. In addition the reports from each broker in the last 10 years have to be evaluated for their accuracy (actual vs estimated) so that the future forecasts are more robust. please see https://drive.google.com/open?id=155H1Hzn0B_h9rVkJ7bhwJd_-wJP-O2Q- https://drive.google.com/open?id=155H1Hzn0B_h9rVkJ7bhwJd_-wJP-O2Q-	Miscellaneous	Complicated
169	AGR Knowledge Services	Crawling demand drivers	Software	Demand triggers: There are hundreds of dependent parameters that drive demand for a commodity. The parameters have to be crawled and a thread has to be created on each of these parameters for regular tracking . These alerts will then be fed into the model for further analysis	Miscellaneous	Complex

170	AICHAPPRAISERS AUCTIONERS	App Based Valuation Reports of Mobile Assets	Software	We want to automate through mobile app our valuation reports containing photographs with digital signature eliminating hard copies. Our system is semi automatic and currently we are providing PDF links. Right from the site to the final point we wish to completely automate inspection process. The reports was containing algorithms to cost to the bidder. a link of the same is given here http://aichappraisers.com/valuationreports/SEP 2018/WB/5001786612.pdf	Software - Mobile App development	Complex
171	Amadeus Software Labs	Overcoming GDPR in Personalization!	Software	General Data Protection Regulation ("GDPR") is a regulation in EU law within European Union (EU) and the European Economic Area (EEA), to protect all EU citizens from privacy and data breaches. At the same time we have an increasing demand for personalization, like personalized travel offers and suggestions. The problem statement is "How can we treat data differently, maintaining the value of personal taste but being able to target specifically, without exposing the data of the individual?"	Travel and Tourism	Complicated
172	Amadeus Software Labs	Using AR/VR to transform Travel Experience!	Software	Over recent times, augmented and virtual reality has become increasingly popular within the travel industry. We would like to know "What are the new and innovative ways, the technologies AR and VR can be helpful for travel industry! Basically, we are inviting new solutions and use cases, how AR/VR can be implemented, so that the travel providers like airlines, airports, hotels and travel agencies can enhance their customer's experiences!	Travel and Tourism	Complicated

173	Apollo Hospitals	Smart recording of Hand Washing by Hospital staff	Hardware	Practicing hand hygiene is a simple yet effective way to prevent infections. Staffs tend to perform hand hygiene when they are aware, that they are being observed. To track compliance, it is required to design a simple, cost effective, hardware device easily reproducible on a mass scale which will in real time, record the entire process of hand washing. The analytical sensors through its software could capture motion measuring position, direction, and angle of moving objects in 3D space.	Healthcare & Biomedical Devices	Complicated
174	Apollo Hospitals	Handholding Robots for deployment in Apollo Hospital	Hardware	To design, develop and demonstrate the functioning of a reliable cost effective Humanoid Intelligent robot which could be customized, to receive patients in a hospital, take them to various departments and obtain feedback on various services. Machine language processing could be used for in depth, data analysis, self-learning and reinforcement	Robotics & Drones	Complex
175	Apollo Hospitals	Virtual Visits to ICU's	Software	I-SEE-U: To design, develop and demonstrate the functioning of a reliable, cost effective, high security, platform to facilitate virtual visits to the ICU by authorized relatives/ friends from anywhere at approved times. This Value added Service should be self sustaining thro revenue generation	Healthcare & Biomedical Devices	Complex
176	Apollo Hospitals	Automated intelligent humanoid robot in ICU	Hardware	To design, develop and demonstrate the functioning of a reliable, cost effective, mechanised / automated intelligent humanoid robot to assist nurses in their daily tasks for moving and turning patients and giving the patients a bath	Robotics & Drones	Complex

177	Apollo Hospitals	Software for better AV Clarity on Low bandwidth	Software	To design, develop and demonstrate the functioning of a reliable, cost effective, high security, platform to facilitate good video conferencing when the bandwidth drops from 140 to 400 kbps from contracted bandwidth is 512 kbps (1:1) . This should be reliable at external temperatures of -25C at heights of 14,000 ft	Smart Communication	Simple
178	Apollo Hospitals	Single strip estimation of multiple parameter	Hardware	To design, develop and demonstrate the functioning of a reliable, cost effective, Point of Care Diagnostics devices offering quantitative estimation of parameters tested. Exploring possibilities of redesigning existing test strips so that one strip could evaluate more than one parameter.	Healthcare & Biomedical Devices	Simple
179	Apollo Hospitals	TeleScreening 60 minutes HealthCheck at Work	Hardware	Design, develop and prTelescreening- 60 minute health check at work placeoduce a user friendly, multipurpose standalone diagnostic POCD which would provide clinically reliable results for specific pre designed tests including height, weight, BMR, BP, Hb, PCV, HbA1C, urea, creatinine, bilirubin, ECG etc for remote evaluation	Healthcare & Biomedical Devices	Complex
180	ARAI	Automated Adverse Road Condition Detection	Software	The road conditions like pot holes, un marked speed breakers and oil spills shall be detected by a system using cost effective sensors like accelerometers, infra-red sensors, laser sensors, vision based sensors. The output shall be a system architecture and software algorithm for identification of the above road conditions	Smart Communication	Complex

181	ARAI	Ensure safe driving distance in adverse conditions	Software	Many of the frontal collisions on highways are due to slow response of drivers and not many systems are in place to warn the driver about an impending frontal collision. In addition to this, during adverse weather conditions the visibility gets affected, which affects the sensor and the system responses. The participants shall develop the system (architecture and software) using cost effective sensors to ensure safety of the host vehicle while driving on highways.	Smart Vehicles	Complex
182	ARAI	Online Prognostic System of key vehicle component	Software	Accidents in heavy commercial vehicles occur mainly due to the failure of Drivetrain system, chassis, brakes and tires. To avoid breakdown of the above mentioned systems, the participants shall develop software algorithms for online prognostics to monitor the health of the above systems. The typical components that can be considered for the demonstration purposes are 'Drive Shaft, Axle, Brakes and Tires'.	Smart Vehicles	Simple
183	ARAI	Performance Evaluation and Analysis of a vehicle	Software	Indian operation patterns and duty cycles are heterogeneous and complex and require huge experimentation to ensure durability and reliability of the vehicles. Robust methods and algorithms need to be developed to evaluate data which can be further used as input for new vehicle design and development. Participants shall use this data to come up with algorithms for post processing and further performance evaluation. Algorithms shall be generic in nature	Smart Communication	Complex

184	ARAI	Prediction of Automotive Component Failure Causes	Software	Metallurgical Analysis is conducted on various Automobile components to determine the probable cause of its Failure. ARAI contains extensive information about various automobile components with respect to their Metallurgical properties & also available with Micrographs. The participants shall develop software algorithms for assessment of Micrographs with view of Predicting the Probable Failure Cause of Automotive Components & the future Prospects. Analysis of Correlation & discovery of pattern	Software - Web App development	Complex
185	Aurobindo Pharma	Effluent Analysis for Anti-Biotic Presence	Hardware	Development of protocol for analysis and quantification of presence of different pharmaceutical products There are no standard methods available for testing and quantification of products, particularly when present in very low concentrations in waste water for assessment and achievement of level of water treatment efficiency Expected Solution Hence, development of protocol for analysis and quantification of presence of pharmaceutical compounds/effluent properties	Life Sciences	Complicated
186	Aurobindo Pharma	Pharma Logistics - Tracking Vital Parameters	Software	To develop a solution to Track & Trace the goods using IOT methodology to track variations in Vital Parameters such as Temperature, Location & Damages for Overseas Shipment Expected Solution To develop a solution to Track & Trace the goods using IOT methodology to track variations in Vital Parameters such as Temperature, Location & Damages Benefits Real-time Temperature Monitoring Real-time Latitude/ Longitude Monitoring & Identify mis-routes	Life Sciences	Complicated

187	Aurobindo Pharma	Pharma Pull Production System	Software	Evolving a pull-production system to help optimize working capital and inventories Expected Solution A dynamic simulation software which helps better planning of pull system. It shall provide kanban calculation system for internal flow/movement of material/semi finished and finished products. It should include visual display system to operating staff on the flow and kanbans to be delivered	Life Sciences	Complex
188	Aurobindo Pharma	Relative Attractiveness Index of World Markets	Software	To utilize heuristics & predictive AI to dynamically map graphically multiple parameters using mix of internet scouring and syndicated databases Solution The AI will utilize dynamic data base to update Country market rating on a select cycle for various pharma formulations products	Life Sciences	Complex
189	Aurobindo Pharma	High end Access Control Systems	Hardware	Fool proof Employee Access control systems to ensure that there is no tail-gating of unauthorized personnel Expected Solution Software-sensor based solutions that measure the exact body mass thereby restricting only the authorized user and creating an alert system during unauthorized entry	Security & Surveillance	Simple
190	Bajaj Electricals Limited	Water Efficient – Air Cooler	Hardware	An average desert cooler consumes 50-60 liters of water in a days use, which is very critical for dry & arid regions, facing water scarcity. An effective principal design of a cooler can be innovated to reduce the use of water by at-least 50%, without impacting the cooling efficiency. This will have huge positive impact on saving of water and reduction in overall weight & size of cooler body, hence making it cost effective.	Sustainable Environment	Complex

191	Bajaj Electricals Limited	Multipan // NEKA	Hardware	In today's fast pace life, people are always running short of time in metros & big cities. Time is usually carved out of "food" (eating fast, packaged food, skipping breakfast etc). in the mornings there is no time to prepare a quick breakfast, or when you come back from work late evenings not enough time & energy even to fix a small meal like a pan cake / veggies. Solution desired: A mulitpan (SUPER PAN) which can cook multiple dishes at one time & comes with compartments / grill which can be adjustable depending on the size. It can be used as a single size pan or 2/3/4 different items can be cooked in the same pan. The pan has to distribute even heat to all compartments while cooking & comes with a handle	Food Technology	Simple
192	Bajaj Electricals Limited	To have Self Charged Fans - Cost effective , Energy saving and very useful for end user // FAN	Hardware	Fans are used across regions (Urban / Rural) and considering rural mkt penetration is still relatively low where power problems are still there , we can think of Fan which can store energy and which can be useful either in (a) no power condition or (b) can be used to use stored energy for some other application requiring energy. This will be cost effective / energy saver for end user point of view	Sustainable Environment	Simple
193	Bharat Electronics Ltd	DVD Copy Protection	Software	Develop a solution for copy protection of a DVD. It should not be copy-able to any other PC or DVD or media, in any OS platform. Some solutions are available from foreign vendors. But they require connection to Internet during DVD burning, which may not be acceptable in some cases. Hence an indigenous solution that does not require internet connection is required.	Security & Surveillance	Simple

194	Bharat Electronics Ltd	Text To Speech (TTS) for Indian languages	Software	TTS is important for many of the government initiatives in Digital India program to help people who cannot read/write or unable to understand the menus of the application.Current TTS solutions are based on English. Local language support is minimal and existing solutions are based on English accent. TTS solutions for Indian languages with an Indian accent should be developed. The solution provided should support multiple Indian/regional languages with local accent having multiple voice selection	Smart Communication	Complicated
195	Bridgestone	Automation in Tire Visual Inspection	Software	Qualified Inspector performs the visual inspection of each tire for checking defects. (> 100 types of defects). He confirms appearance Quality of the tire based on Global Standards. Inspection time of tire (inside and outside area) is around 32-37 sec (based on the tire size). Problem Challenge:- Manual Inspection depends on Inspector 's skill and there are chances of missing defects. Solution Required:- Automated System in which Tyre is scanned by an artificial Eye (Camera). After scanning, Output will be compared with the defect specifications and judgement of OK /NG Tires will be done.	Smart Vehicles	Complicated

196	Bridgestone	Find Optimised pattern for arranging the tyres in a truck	Software	Variation in loading pattern causing under utilization of vehicle capacity. lack of compatibility of load plan with vehicle capacity causing changes in load. Solution Required: Need to determine the compatibility of a load plan with a vehicle in optimized manner so as to accommodate maximum tyres with vehicle constraints (Weight & Volume). Results can advice under or over Utilization of available space. Flexibility in planning to accommodate variation in vehicle dimensions / Chimney space etc. Accommodate various loading patterns – Horizontal / vertical / cross loading. Determine the optimal loading pattern with sequence.	Miscellaneous	Complex
197	Bridgestone	Tyre Pressure Monitoring	Software	Challenge to monitor the tyre inflation pressure. Large fleets having >100 vehicles extremely difficult to manage tyre maintenance/labor cost. Solution required:- Automotive sensors showing real time inflation pressure through digital platform.	Smart Communication	Simple
198	CDK Global (India)Pvt Ltd	Common Corporate Social Responsibility(CSR) Portal	Software	Currently most organisation have their own CSR activities and perform social events separately. Due to lack of resources and budgets, it limits their ability to perform these activities on larger scale or remote areas. Also other corporates may not be aware of such events, so that they can participate as well. So idea is to develop an organised Common CSR portal where different corporates or individuals can come together and collectively provide valuable service to society.	Software - Web App development	Simple

199	CDK Global (India)Pvt Ltd	Birth/Death Registration Integration With Services	Software	There are different services which are linked to Birth and Death of an individual. If these services are integrated together it will help individuals. Maternity Nursing home register's child birth to Municipal Office Then Parent / guardian can one time enter the name of their child and get a print of Birth Certificate after few days. No need to visit MO. In case of Death registration at MO then build a system which will notify all tear down services to update death status of the individual.	Software - Mobile App development	Simple
200	CDK Global (India)Pvt Ltd	Ambulance Services	Software	Ambulance services are important for Health & Medical facilities. Requirement is to build a mobile app similar to Ola / Uber cab services. But it will be for Ambulance services. This app will have Ambulance driver's register their availability and location. Both Executive at Emergency Helpline and User's on the other hand on App's Client interface will book an ambulance. This will promise a fast and reliable ambulance service in case of emergency.	Healthcare & Biomedical Devices	Complex
201	CDK Global (India)Pvt Ltd	India Vs Pollution	Software	Every day we come across several sources of pollution, polluting the very basics of our lives- Rivers, Land, Air and Noise. We know nothing about who/where to report it and how. We suggest an Innovative way to identify the sources of pollution in your area, get it prioritized through people votes, escalate it to the concerned authorities, keep a track of the progress and get notified of the actions taken. It will provide an End-2-End tool to battle pollution democratically partnering with Govt.	Sustainable Environment	Complex

202	CDK Global (India)Pvt Ltd	Hospital Finder	Software	During medical emergencies, common people always face problems in deciding which hospital they should visit for required treatment. The wander from one hospital to another in search of medical facility, medicines, blood supply, etc. Hospital Finder will solve this problem by allowing people to search for nearby hospitals on the basis of medical treatment, specialist doctors, medicine/blood availability, etc.	Software - Mobile App development	Complex
203	CISCO DevNet	Security camera powered with Machine Learning for people detection for queue Data Analytics	Software	Long lines at some specific time ticketing windows and services counter at Railway station, Bus stand, RTO office, Banks and other places could lead to bad services experiences. On many occasions lines are longer at specific time of day but empty/short at other times. It would be very user if real-time and historical queue length can be made available via website or mobile app to user and facility managers. This would in long-term help deliver better experience and smarter cities. Key technical challenge to solve this problem is to identify persons in specific area. Cisco Meraki camera with MV Sense utilizes a powerful onboard processor to analyze videos and using Machine Learning algorithms detects persons in specific area. Cisco Meraki IoT ready camera can be used as building block in your application. Link: http://cs.co/sih-2019-gov	Software - Web App development	Complex

| 204 | CISCO DevNet | Securing and increasing productivity of BYOD in classrooms at schools | Software | Many schools allows students to bring their own devices (computer, handhelds or smartphones) to school to help with their learning. Most of the time now teachers encourage students to access online content as content becoming richer with videos and interactivity. Lots of school might even conduct exams on these devices. Now this increases necessity for teachers to have better control on learning and they would like ability to control/filter website access of student during class as desired per the curriculum. What we want: A web portal each school can have to give ability to teachers to block/filter websites based on student's names and or classes. You should be able collect student device and username information via wireless access points and apply some kind of filtering using firewalls. Technology Bucket: (Software - Web Development, Networking, Security, Firewall, Next Gen Firewalls). Link: http://cs.co/sih-2019-gov | Security & Surveillance | Complex |

205	CISCO DevNet	Digital public announcement and chat bot systems.	Software	At many public places like Railway station, Bus stand, government offices, banks etc when people walk-in they looks for basic information. Enquiry window becomes bottleneck and leads to bad user experience. We want to create a tool that can be used to manage public announcements in a physical space. - Auto detect people when user walks into physical space using WiFi connection. - Prompt user to join support messaging room for that physical location. - Develop chat bot that can answer frequently asked question for location. - Allow facility administrator to broadcast messaged to all people currently present in physical space. - Allow user to have video call with some remote support staff. Link: http://cs.co/sih-2019-gov	Smart Communication	Complex
206	Cognizant	Live School for World class free education	Software	Connect volunteer teachers (educated housewives, retired persons or similar profile) and students anywhere in the world through an online and live portal. This will be 24/7 open school where any student can join the classes on any subject at anytime from anywhere. There are many orphanages where kids are not getting education and old age homes where educated citizens are willing to share the knowledge but have no way to share. This application will provide a platform for many such use cases.	Agriculture and Rural Development	Complex

207	Cognizant	Solid Waste/ Waste management cost	Software	Prevention is better than cure." Hence reducing waste is the best approach of waste management. Build a digital platform to aggregate secondary resources (used clothes, e-wastes, remaining food etc.) at house-hold level and to facilitate distribution to needy (slum people, beggars etc.) and specific industry. Apart from letting people to keep environment clean, this can be used to educate people about better waste management ; by providing information and insights on waste management	Waste Management	Simple
208	Cognizant	Avoid Cash Crop Loss	Software	The idea is to help cash crop farmers select the right time to harvest their produce to avoid crop loss due to various diseases and lack of rain. Tamilnadu as a state will stand to gain enormously by using such ML aided applications in advising the farmers on a variety of such issues. The problem statement differs from one state to another and the coverage is also quite wide. Picking one crop for a select set of area and a select set of farmers with selected diseases or crop damage issue could	Agriculture and Rural Development	Complicated
209	Cognizant	Self Learning BOT	Software	A BOT with self-learning capability with modern natural language processing or deep learning and transliteration cognitive capabilities. The BOTS should scores answer relevancy over time intelligently and can answer tech or non-tech people differently based on their technical ability	Robotics & Drones	Complex

210	Cognizant	Ocean Cleaning	Hardware	Ocean is an integral part of us. How can we keep our beaches and ocean clean? How can we effectively handle the waste management at large scale, especially at the ocean level - which is harming aquatic animals. Ask is a hardware solution that would help in pick up the collected waste transport back to the land for recycling and responsible processing. Also the machine should be equipped with reflector to make them show up on radar, thus mitigate the possibility of collision.	Waste Management	Complicated
211	Cognizant	Longevity	Software	Quality of life is on a steady decline with the onset of white collar jobs. The spending power has gone up but at the cost of time for themselves and family. For the first time in the history of India, people are deficient in vitamin D which is freely available leading to many health risks and diseases. This nutrient deficiency not only leads to poor health but also hinders restorative sleep leading to mental illness as well. A mechanism to encourage people to be active, track users' physical activity and habits tracking and have information handy with real time updates, and being healthy as a community would be a great aspiration.	Healthcare & Biomedical Devices	Complicated
212	Cognizant	Waste Management	Software	Households generate degradable (food) and non-degradable (plastics, glass etc.) at a massive scale on a daily basis. Degradable waste can be readily made into compost with simple tools while non-degradable waste could be collected and deposited at the regional centers who recycle the material. An on-demand service would be helpful for the public to manage their plastic waste conveniently. This reduces landfills to major extent.	Waste Management	Simple

213	Dalmia Cement	Voice/Textual BOT mobile app	Software	Develop a generic BOT mobile App (Android and ios) that can be used for voice/textual chat interactions with various stake holders in a structured and/or unstructured manner. E.g. structured – what is my order status? – BOT would respond with the current order status by fetching the same from back end Database. E.g Unstructured – status - BOT would respond with order status, delivery status, payment status, etc. from back end Database. Architecture should be open enough to be used with multiple	Software - Mobile App development	Complicated
214	deAsra	Gaming built around business simulation	Software	A gaming application required which will create a simulated business environment. This will be played along with other contestants. Some real life scenarios, decision making, impact of the decisions is imbedded into the application. Also, responses of various other contestants to similar situations can be shown as a learning. This can also gauge their appetite for risk and expansion.	Software - Mobile App development	Complex
215	deAsra	An Online video directory for entrepreneurs	Software	A business directory in the form of short videos tagged with the name of the entrepreneur, his business, his USP should be available for people to watch and derive inputs from / or connect. An application to enable people to apply for uploading videos created by them should be available. This application should check first level eligibility for uploading and also have a search and index mechanism, so people can search videos based on the sectors of their interest.	Software - Mobile App development	Complicated

216	deAsra	Online interactive entrepreneur clubs	Software	there are a number of entrepreneur clubs operating in different parts of the city/state. They are in the form of a gathering of people where people connect and network for their own business interests. An application is required through which an online forum is created for these entrepreneurs. This application should enable an entrepreneur to register himself giving details like – Who I am, what do I do, and, What I can give/supply. This application should further match entrepreneurs depending on their interests and "asks" and "haves" automatically. This data will generate fruitful connections for both.	Software - Mobile App development	Complicated
217	DELL EMC	Ultra-Low power Nano implantable devices for early cardiac arrest detection	Hardware	In general, usage of technology has tremendously increased in preventive healthcare. There is sufficient scope to develop devices and algorithms to detect symptoms between systole and diastole to conclude possible cardiac arrest. To provide the solution, student teams need to design and develop implantable device and concretely identify blood symptoms along with ECG data. The device should be capable to send real-time data and the receiver shall have the algorithms to interpret the data and suggest appropriate actions. There are 3 challenges: 1.Device has to be implantable into human body. 2. The device has to be real-time in nature with an ultra low power nano design to be available economically. 3.The algorithm has to be a trainable model to suit different types of symptoms.	Healthcare & Biomedical Devices	Simple

| 218 | DELL EMC | Predictive analysis on Medicines & Doctors availability in Government hospitals | Software | Development of a Healthcare Information system to provide predictive analysis on Medicines availability in Government hospitals & Predictive analysis on increasing the efficiency of the hospital by managing availability of doctors and specialists. Description: Government hospitals provides medicines for the treatment to the patients based on the diagnosis. During the peak time of a disease, some medicines are not available in the hospital. Based on patients historical and current data, system can generate a report on what all medicines should be available in the hospital and in what quantity at particular time and location of the hospital. Doctors and specialists availability needs to be managed as per the inflow of patients. Many times patients do not find the required doctor during the peak of a disease or shortage of doctors in a hospital. Based on patient inflow for a particular ailment or disease, historical data and current data, system could generate the requirement of number of doctors required in a hospital on daily basis and also during a peak of a disease. Many times, doctors are not available when patients needs them more, e.g. on weekends, holidays, evenings etc. • Target customer – Indian Government healthcare department • Use Analytics to bring in efficiency in Operational functioning • Specific use cases under purview of this program: – | Healthcare & Biomedical Devices | Simple |

| 219 | Dr Reddy's Labs | Leveraging data to solve for Non-communicable Disease diagnosis and healthcare delivery | Software | Background: Non-communicable disease continues to be an important public health problem in India, being responsible for a major proportion of mortality and morbidity. Demographic changes, changes in the lifestyle along with increased rates of urbanization are the major reasons responsible for the tilt towards the non-communicable diseases. In India, there is no regular system for collecting data on non-communicable diseases (NCDs) which can be said to be of adequate coverage or quality. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3481705/ While disease burden surveys from the likes of ICMR (Indian Council for Medical Research) do provide directional insights, bottom-up data is certainly more effective in making focused interventions. For instance, focused on cardio-vascular and diabetes, identification of prevalence and micro-segments of population at risk is critical to deliver care as these require specialist interventions, not easily available in the rural markets. These conditions also require the patients to be on long term care in terms of continuous parameter evaluation and management of the vital parameters. Better understanding of prevalence through early diagnosis and focused geographical/demographical views help deploy the sparse resources effectively – both by the public and | Healthcare & Biomedical Devices | Complex |

220	Dr Reddy's Labs	Leveraging Digital Solutions to solve for 10X growth in prescriptions	Software	Background: Indian market for pharmaceuticals is predominantly branded generics. Doctors write the brand name of the drug rather than the active ingredient name. (Eg. NISE instead of Nimesulide, or Crocin instead of Paracetamol). Apart from OTC (Over the Counter Drugs) a health care practitioner (Doctor) can only prescribe a medicine. Hence the end consumer is not the decision maker. To increase revenue all the pharmaceutical companies strive to get mind share of the doctor so that for a particular drug their brand is at the top of the evoked set. It is against the law to provide any direct inducement to the doctor to prescribe a certain brand. Hence, pharmaceutical companies send Medical Representatives (MR) to the doctor frequently to ensure the doctor is reminded of the brand / Brand Recall. Medical representatives also provide information to the doctors on new product launch, new packaging or other information about the brand. They also inform the doctor about the brand availability at the local pharmacy stores. There are multiple theories on why a doctor prescribes a certain brand. One theory is that doctor prescribes a brand because they trust the quality. Another theory is that they have a certain evoked set of brands and divides the prescriptions arbitrarily based on the brand that comes to their mind. Another theory is	Healthcare & Biomedical Devices	Complex
221	Dr Reddy's Labs	Analyse organisational productivity & efficiency based on analysis of Outlook email & calendar data?	Software	Every employee uses these tools for communication, and in most organisations, decisions, workflows etc take place on Outlook. Can a tool be used to analyse data on email / meeting flows to determine how work and decisions are flowing etc. (for e.g. https://www.quantumblack.com/)	Software - Web App development	Complicated
222	Dr Reddy's Labs	Intelligent natural language search for all our R&D data	Software	We place all our R&D reports, findings etc in the form of ppt slides in a shared folder. Is there a way to automatically build knowledge from these and to help us with insights for any given search term?	Software - Web App development	Complicated

223	Emcure Pharmaceutical Ltd	Expedite first-in-human clinical trials	Software	We need to design innovative ways, wherein, the first-in-human (FIH) trials can be expedited. So instead of having multiple phases of clinical trials, there is just one continuous expansion cohort trial. This shouldn't compromise on the quality of the drug and should include all safety measures to protect patients enrolled in the expansion cohort studies. This process should reduce the development cost and time spent waiting in-between the start and end phases of trials.	Life Sciences	Simple
224	Emcure Pharmaceutical Ltd	Tracking spurious drugs & ensuring brand safety	Software	The proliferation of counterfeit drugs is a serious concern for all pharmaceutical companies. We need to implement ways to integrate track and trace solutions in production and supply chain. We should be able to identify such spurious drugs which are deliberately or fraudulently mislabeled with respect to identity/source.	Life Sciences	Simple
225	Emcure Pharmaceutical Ltd	Predictive analysis of pharmaceutical equipment	Software	In manufacturing, it is important to have predictive maintenance of equipment with sensors, tracking operating conditions & performance of machines, factory tooling, predicting breakdowns & malfunctions, taking/recommending preventive actions. Tracking parts inventories and other front-end inputs and monitoring product-quality. The failure/errors in the equipment used in the pharmaceutical industries,may impact the overall quality of the drug.	Healthcare & Biomedical Devices	Simple

| 226 | Ericsson | Geographical profiling of routes based on security and surveillance | Software | Security has become an essential aspect of everyday life in India. One of the ways in which we can provide security is by enabling people with vital information on the security aspects for the route they would take during a travel from one place to another. This creates vigilance in traveller and precautionary measures could be taken to prevent any mishap. In this problem, we are envisioning an application that will suspect any possible security lapse in a location enroute to a destination. A user would use a map which will display all possible areas of red-alert for security from the source to destination. Given a route map (like google maps) , the security based profiling of various geographical routes traversed could be highlighted as red/yellow/green indicating high, medium and low risks zones. One would be vigilant while travelling through the high risk zones in the map. The profiling could be done based on history of crimes in the area, presence of people, security guards , presence of surveillance cameras, number of vehicles in the area at the given time. Machine learning could be used to learn the features that contribute to the security of a location. Input: Input would be a data set containing records of crimes in an area along with statistics like number of surveillance cameras, current traffic conditions etc. | Security & Surveillance | Simple |

| 227 | Ericsson | reducing carbon foot-print by optimizing IoT device usage | Software | In today's world, the usage of IOT devices in day to day life has increased exponentially. Even though the carbon footprint by a single IOT device is negligible, in a public system where there are millions of sensors/radio devices deployed, this creates a considerable carbon footprint in the neighborhood. With huge amount of sensors installed and sending traffic every millisecond, it becomes important to create a smart and dynamic system that will reduce the amount of carbon footprint by utilizing the characteristics of the devices. To optimize the carbon footprint of the IOT devices, we need to come up with an innovative solution to dynamically power on and off the devices without compromising on their functionality. For example, let us assume there exists a system to determine the pollution of a city and thousands of sensors are attached to it. We need to find a method to identify the devices to be turned on or off, reducing the cumulative carbon footprint of the devices fulfilling the functionality i.e. Measurement of pollution level in all locations at a given time. Input: a data set containing latitude-longitude at which sensors are deployed, sensor proximity, carbon-footprint, network topology and other required information Output: a system to determine when and which sensors to be powered on/off | Smart Communication | Complicated |

| 228 | Ericsson | Operational maintenance of critical vehicles using AR/VR | Software | One of the important aspects of day –to-day life is transportation and there is a huge surge in the number of accidents every year due to improper maintenance or negligence of the vehicle conditions. Human errors during inspections is another major concern. Hence to improve the quality of testing of vehicles , we need to come up with a solution that could detect anomalies in vehicles due to operational negligence.Operational maintenance today are being done based on visual human inspections and manual devices which are prone to errors. We require an Augmented Reality(AR) based application that could improve the quality of testing in vehicles thereby not overlooking the minor displacements. With the usage of AR applications, one should be able to identify and recognize any damage to physical parts of a vehicle which would enable a personnel to perform operational maintenance. Image recognition could be used to distinguish between damaged parts with respect the initial state. Input: Input would be a data set containing labelled images of damaged parts in vehicle and new vehicles of the similar make. Output: AR to identify the defective vehicle parts given an image of a vehicle. | Smart Vehicles | Complex |
| 229 | Everest Industries Ltd | Optimum Inventory Control of Machine Spares and Co | Software | Everest Industries Limited, has 12 manufacturing line. For Plant and Machinery, company maintains Spare Parts and consumables at each plant location. To have an Optimum Inventory (Just in Time) of spares and consumables based on consumption rate/pattern and lead time. | Software - Web App development | Complicated |

230	Everest Industries Ltd	Automatic Production Planning & Scheduling of Size	Software	In order to manufacture products (size wise, quantity and expected delivery date) as required by the market, company require Makesheet (Production Plan) to Schedule and manufacture the products. Company is looking for solution based on market requirement – size-wise product, quantities and expected date of delivery and also the Sheet Machine conditions required to manufacture different size products.	Software - Web App development	Complicated
231	Everest Industries Ltd	E-recording of off-cut plates from nesting softwar	Software	During manufacturing of built-up I sections, plate nesting software OmniCAD or 2D – Plus is used to nest the virgin raw material plates. After nesting for a particular project, unutilized balance non-standard shape of plate needs to be stored electronically in CAD form to get utilized in future project. Tool is required to store the shapes and archive it during new nesting planning.	Miscellaneous	Complicated
232	Everest Industries Ltd	Daily update on construction site progress	Software	Steel building construction planning and actual on site progress against planning needs to get monitored and analysed on daily basis to identify the risks. Tool is required to update the status of the activities against the planned one on daily basis for effective monitoring of each project.	Software - Mobile App development	Complicated
233	Everest Industries Ltd	Daily update on construction quality assurance at site	Software	Each steel building construction activity would need critical quality assurance requirement and work needs to be delivered within specified erection tolerances. Tool is required to update the status of the identified critical activity against its actual on site inspection report for each project on real time basis.	Software - Mobile App development	Complicated

234	ezDI	Inconsistency Detection in Medical Annotation	Software	Text in clinical documents is annotated to tag the words or phrases as problems, diagnoses, procedures, drugs etc and identify the relationship between them. Semantically similar words can be annotated differently by different annotators due to ambiguity in understanding the guidelines, incomplete experience or human errors. Identifying inconsistencies can help in improving the data quality You need to develop a tool to display these similar entities which have different patterns of annotations.	Healthcare & Biomedical Devices	Complicated
235	ezDI	Patient Case Similarity	Software	The objective of patient case similarity is to identify similar patients based on their medical reports. Identification of similar patient cases be useful for improving patient outcome, for treatment or drug recommendation to a new patient, prediction of clinical outcome, clinical decision support, research on those cases. Task: Applying machine learning algorithms to find similar patient cases from given dataset. You can refer youtube link and documentations attached to it for more details.	Healthcare & Biomedical Devices	Complex

| 236 | FIS SOLUTIONS(INDIA) | Ima Market | Software | Mobilize Indian IT skill force to create/improve National Importance Systems And application. Create a platform where IT skill force can contribute algorithms (codes/programs/modules ,etc.) Story: Ima Market in Manipur is 500 yrs. old and is the only Asian market run by Women. These women are the only bread earner for the whole family. It's is a prosperous market, And too reflect the prosperity of the Nation. However, when earth quake strikes these market was in ruins for months. The Imas (Mothers),not able to sell, their family suffers. Their anger grew towards system and government. Proposal: Renovating/Reconstructing/FIXING the damaged market will take time. It depends on lots of factor. Why not Develop/Deploy a ECommerce platform overnight? Use existing India Ground Forces like post office for delivery. This would have been a HUGE relief. Ima market's story is only ONE in Many. Indian has huge IT skill force. They want to contribute. Many doesn't have spare money BUT have knowledge And skills. They just don't know how to and They don't have platform (Ecosystem). Believing is Indian IT forces, we proposes to create TWO platforms, for which we need intelligent minds to create an algorithm. 1st platform: An open Web portal, where all open National Importance Systems And application gets listed. Against each projects there be two types of contributors 1) Financial 2) | Software - Web App development | Complex |

237	FIS SOLUTIONS(INDIA)	An income tax fraud detection idea using AI & ML	Software	There is a grocery shop owner in Aundh Pune (decent area to live) who is filing an average income tax of 10k every year. This corresponds to a profitable income of 3L per annum. Considering a good profit margin of 20%, his total sale should be around 15L per financial year. Through our product that uses AI and ML, this will verify this data, by backtracking many related transactions. 1. As per the address and aadhar information, he has two kids studying in school having average yearly expenses of 1.5L each(totals to 3L). 2. Property tax to the Govt reveals, he is living in an area that costs around 40K (taxes and maintenance). 3. Owns a car – 60k annual maintenance. 4. Pays 2L salary to his shop employees. 5. Minimum living cost is 4L for a family of four. 6. Average customers per shop in the area is 5K, per person average grocery expenditure is 2k(monthly). This does not include online shopping. 7. Pan information indicates 1L jewelry shopping this financial year. 8. Online shopping delivered at his address - 50K. As per this data, his total income should be around 50L whereas he has declared only 3L(a vast difference!!). The calculations indicate he is actually hiding his total income, and stealing taxes. With an efficient system in place, these thefts can be identified, and	Finance	Complex
238	FIS SOLUTIONS(INDIA)	Land Real estate Registration	Software	Land/Real estate registration is corruption prone process which leads to lot of Benami transactions. Government tries it's best to eradicate the malpractices, but it doesn't yield fruitful result. One way to solve this problem is to use blockchain technology in order to capture all the Benami transactions related to Land/Real estate deals.	Software - Web App development	Complex

239	FIS SOLUTIONS(INDIA)	eFramer	Software	Indian farmers face lot of problems when it comes to buying seeds & fertilizers from authorized channels at the right price. Same applies to selling the farm produce at the right price so that farming becomes profitable occupation. Need of an hour is to build a e-portal for farmers where-in they can buy seeds & fertilizers at the optimal price. This portal should also allow consumers to bid/ask for the farm produce thus eradicating middle man and benefiting both farmers and consumers.	Agriculture and Rural Development	Simple
240	FIS SOLUTIONS(INDIA)	Chatbot for eGoverance	Software	Mega bot (chatbot) which provides information related to all government sponsored loans/insurance schemes at single place. This interactive chatbot should be able to pull information from various sources like nabard, rbi, etc and should be able to assist the users with the relevant information.	Software - Web App development	Complex
241	FIS SOLUTIONS(INDIA)	iVault	Software	Registration information of property / vehicle is very crucial to identify current and previous ownership. In absence for secure way to validate chain of ownership, same property / vehicle can be fraudulently sold to multiple person. Similarly, we always want to keep records of financial transaction, communication in a way which cannot be manipulated and can be referenced in future. Hence there is need for system which allow creation of data which cannot be manipulated but can be extended	Finance	Complex

242	Future Generali	Using AR / VR Technology to sell Life Insurance	Software	Augmented Reality (AR) and Virtual Reality (VR) offer an innovative way of interpreting the world around us by propelling innovation and driving better customer engagement. How can we make use of this technology to attract and engage couples coming to Future Retail stores and build context for them to buy life / health insurance in stores. The solution should enable the company to showcase value to its customers in a new way by making use of the immersive experience that VR offers, and help the customer to make the right choice	Software - Web App development	Complex
243	Future Generali	Enhancing customer outreach by using social media / P2P network	Software	Social media has now become a crucial part of digital communication strategies. It is now an effective tool to not only increase brand engagement and win new customers but also to enhance our customer outreach by allowing us to tap the social media networks to establish relationships and increase the span of our communication. We need a solution through which we can leverage public databases and social channels or create peer to peer network to reach out to non-contactable customers whose policies are due for renewal or bonus or maturities are lying unclaimed with us.	Software - Web App development	Complex

244	Future Generali	Leveraging technology to Improve customer experience	Software	Insurance is about building trust relationships with customers and the demand for more transparency is now more than ever. A lot of studies have shown that customers care a lot about transparency in their dealings with the industry –clear language, knowing what value they will receive and an open and transparent relationship however, the issue is that they seldom read their policy documents carefully and as a result are not completely aware of what the relationship entails. Can we build a solution to leverage technology (video, voice, QR) to inform them of most important features in a more accessible manner ?	Software - Web App development	Complex
245	Future Generali	Building a platform to connect with potential agents and facilitates application process and hiring	Software	The current rate of Insurance penetration in India is 3.49% of GDP which is still quite low as compared to some of our peers. Such a low penetration, couple with the fact that a large part of India is unemployed or semi-employed gives us a large untapped market available to the industry. The challenge is to get the right talent to utilize this opportunity. Can we create a platform to educate masses about benefits of becoming and agent and provide platform to discover, engage and apply?	Software - Web App development	Complex