Smart India Hackathon 2019 Problem Statements

# 4. Hardware - Miscellaneous

Organisation : AICTE

Title : Hardware - Miscellaneous

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 6. Hardware - Energy/ Renewable energy

Organisation : AICTE

Title : Hardware - Energy/ Renewable energy

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 8. Hardware - Smart Textiles

Organisation : AICTE

Title : Hardware - Smart Textiles

Category : Hardware

Technology : Smart Textiles

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 10. Hardware - Sustainable Environment

Organisation : AICTE

Title : Hardware - Sustainable Environment

Category : Hardware

Technology : Sustainable Environment

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 12. Hardware - Sports and Fitness

Organisation : AICTE

Title : Hardware - Sports and Fitness

Category : Hardware

Technology : Sports and Fitness

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 14. Hardware - Agriculture and Rural Development

Organisation : AICTE

Title : Hardware - Agriculture and Rural Development

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 16. Hardware - Security and Surveillance

Organisation : AICTE

Title : Hardware - Security and Surveillance

Category : Hardware

Technology : Security & Surveillance

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 17. Hardware - Robotics and Drones

Organisation : AICTE

Title : Hardware - Robotics and Drones

Category : Hardware

Technology : Robotics & Drones

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 19. Hardware - Smart Vehicles

Organisation : AICTE

Title : Hardware - Smart Vehicles

Category : Hardware

Technology : Smart Vehicles

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 21. Hardware - Smart Communication

Organisation : AICTE

Title : Hardware - Smart Communication

Category : Hardware

Technology : Smart Communication

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 24. Hardware - Smart Cities

Organisation : AICTE

Title : Hardware - Smart Cities

Category : Hardware

Technology : Smart Cities

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 26. Hardware - Healthcare & Biomedical Devices

Organisation : AICTE

Title : Hardware - Healthcare & Biomedical Devices

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Students Innovation is an open category in which teams can propose a digital or product development solution to address a real time issue faced by India under the mentioned technology bucket.  
  
  
  
Please note: The solution has to address an issue which according to you is of significance and can impact our country positively. Teams cannot use the existing problem statements available on the portal, under various technology buckets, to submit a solution. In case this is done, the solution/ team will be disqualified.  
Organization Type  
Created At  
29th November , 2018  
Updated At  
 29th November , 2018

# 36. Control of multiple drones with one control unit

Organisation : Axiscades

Title : Control of multiple drones with one control unit

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Objective – The basic objective of the challenge is to develop an algorithm to control 2 drones synchronously and move the pair from one point to another maintaining the attitude of each of the drones relative to one another  
  
  
  
Description   
  
The two drones have to start from a marked starting point, at a specific relative distance and attitude to each other. They have to execute a series of control commands, navigate a predefined path and then land at the end point, maintaining the same relative distance and attitude throughout the flight.   
  
The drones have to be able to estimate their location wrt each other and the world(transmitter) , compare the same and be able to determine their true position. Feedback from visual sensors or any other sensor available on a standard drone can be used.   
  
The entire operation needs to be performed in a fully autonomous fashion. The usage of way point markers or other markers to define location feedback is allowed for simplicity.  
Organization Type  
  
  
 Industry Personnel   
Created At  
27th November , 2018  
Updated At  
 27th November , 2018

# 40. OPTIMIZING WATER USAGE AND YIELD IMPROVEMENT

Organisation : Harman

Title : OPTIMIZING WATER USAGE AND YIELD IMPROVEMENT

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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;  
Organization Type  
  
  
 Industry Personnel   
Created At  
26th November , 2018  
Updated At  
 26th November , 2018

# 54. Transfer of data across two separate networks without violating cyber security

Organisation : BEML

Title : Transfer of data across two separate networks without violating cyber security

Category : Hardware

Technology : Software - Web App development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 An app to be developed to transfer data between two networks (Intranet & Internet) which are physically separated. Even though the concept secures maximum security for local network in terms of data security, there are instances where data to be transferred to and from in certain applications becomes impossible in separate networks.  
Organization Type  
  
  
 Central Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 55. Electric Drive System for Excavators for Inner City Applications

Organisation : BEML

Title : Electric Drive System for Excavators for Inner City Applications

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Electric Drive Systems are being adopted on Hydraulic Excavators which are typically powered by Diesel Engine and power is transmitted through hydraulics. This is specially relevant in view of zero tolerance for emissions while working in city limits. Electric Drive Excavator aims at eliminating the diesel engine and will be driven by electric motor. BEML make 7.5 tons class hydraulic excavator to be bench marked for proposing the electric drive concept. The excavator should be capable of working with or without a trailing power cable and should be capable of continuous operation for four hours without getting charged.  
Organization Type  
  
  
 Central Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 60. To have Self Charged Fans - Cost effective , Energy saving and very useful for end user // FAN

Organisation : Bajaj Electricals

Title : To have Self Charged Fans - Cost effective , Energy saving and very useful for end user // FAN

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 61. Multipan // NEKA

Organisation : Bajaj Electricals

Title : Multipan // NEKA

Category : Hardware

Technology : Food Technology

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 62. Water Efficient – Air Cooler

Organisation : Bajaj Electricals

Title : Water Efficient – Air Cooler

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 63. Mine Accident Rescue Operation

Organisation : Coal India Limited

Title : Mine Accident Rescue Operation

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=Y15LMmtu0UI

#### Problem Statement Details

Description  
 In case of mine accidents, safety and rescue operations involve moving large amounts of debris. Debris is a scattered remains of something destroyed in case of roof fall, gasses explosion etc.   
  
While in the process, it takes lots of time to locate the exact position of the victim trapped under debris. The delay in locating could prove to be fatal.   
  
If the victim’s position could be located using a combination of the chemical composition of air for the gases, the rescue operations could be concentrated there and the victim could be rescued efficiently and in less amount of time.  
  
A machine has to be developed to measure the air beneath the rubble and detect such chemicals which would mean there could be a victim down there.  
  
The sensors fitted into a prototype will help find a live person in case of roof fall, dump slide or similar situations.  
Organization Type  
  
  
 State Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 64. Fuel Tank Guard

Organisation : Coal India Limited

Title : Fuel Tank Guard

Category : Hardware

Technology : Security & Surveillance

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=i7EaIeXK9cw

#### Problem Statement Details

Description  
 Tank Guard should be a sophisticated sensor fitted externally in a discreet location on the outside portion of the fuel tank. If thieves attempt to remove the locked cap or in any way try to attack the tank, then the Tank Guard alarm will be activated and give an alarm.  
  
The Tank Guard should also send an immediate alert via text. A GSM unit works in conjunction with it to warn of immediate theft attempts.   
  
It should include Anti Siphon product, in conjunction with a Fuel Theft Alarm. The opportunist Fuel Thief will be thwarted by the anti-siphon at the filler neck and once the alarm sounds a public warning to clear off.  
Organization Type  
  
  
 State Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 65. IOT Device for Tracking CSR Assets

Organisation : Coal India Limited

Title : IOT Device for Tracking CSR Assets

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=BBD8Z94ATUg

#### Problem Statement Details

Description  
 Currently, there is no mechanism of tracking the assets created under (Corporate Social Responsibility) C.S.R. If a device with the below-mentioned capabilities is created, it would be easier to locate and track the progress of ongoing projects on a pan India basis.  
  
  
  
Software Features:  
  
Interface to view all the assets in the selected network  
  
Location of all the assets to be displayed on a map   
  
Data of all the assets to be served from an API at a centralized server  
  
The entire setup should be scalable   
  
  
  
Hardware Features:  
  
Programmable Device with GPS  
  
Ability to communicate with the Database servers with SMS messaging  
  
  
  
Outcome:   
  
Project monitoring can be done on a real-time basis and having a databank of all the assets created can help in the analysis  
Organization Type  
  
  
 State Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 66. Automatic alert to Safety Officers

Organisation : Coal India Limited

Title : Automatic alert to Safety Officers

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=GyGwxDTNbWY

#### Problem Statement Details

Description  
 An automatic alert to Safety Officers or Ambulances for accident victims in vehicles could be given by developing a software and a prototype hardware sensor.   
  
The sensor device may be integrated or embedded to the vehicle's collision detection system (for example: like deployment of Airbag, collapsing the steering) so that when accident occurs, sensor and associate software will send a panic signal using the GPS technology to all the GPS enabled ambulances nearby with exact location of accident.   
  
The alert may also be sent to police control room.   
  
The combination of hardware and software may be suitable for deployment in all type of vehicles.   
  
This will help to provide immediate medical assistance to the victim and can save the life.   
  
A prototype hardware sensor may be developed which has to be embedded in the vehicle to sense accident / collision. A software may be developed to integrate with the vehicle's GPS software system, which will automatically have activated by sensing the collision and will send alert messages either to police control room or to all GPS enabled Ambulances nearby to attend the accident site with exact location of the accident. This will save valuable time to save the life of victim.  
Organization Type  
  
  
 State Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 67. Heavy Earth Moving Machinery Monitoring

Organisation : Coal India Limited

Title : Heavy Earth Moving Machinery Monitoring

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=-XMabuZlzs8

#### Problem Statement Details

Description  
 Different parameters of (Heavy Earth Moving Machinery) HEMM like engine oil pressure, water temperature, the air pressure in the brake, hydraulic oil pressure cannot be monitored very effectively due to many uncontrolled reasons.   
  
  
  
This results in the breakdown of engines and consequent losses.  
  
  
  
A prototype is to be developed where all these parameters mentioned above will be reflected in a digital display panel.  
  
In case of any divergence, an alarm is to be generated.   
  
  
  
This control panel may be connected to the vehicle through GPS or any other method and to be kept at control room.  
Organization Type  
  
  
 State Ministry   
Created At  
22nd November , 2018  
Updated At  
 22nd November , 2018

# 69. Smart Traffic Lights using CCTV

Organisation : GoldmanSachs

Title : Smart Traffic Lights using CCTV

Category : Hardware

Technology : Smart Communication

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Use CCTV cameras installed on junctions to figure out which side has maximum traffic and accordingly adjust duration of red/green light automatically.  
Organization Type  
  
  
 Industry Personnel   
Created At  
21st November , 2018  
Updated At  
 21st November , 2018

# 73. Hyperthermic Intraperitoneal Chemotherapy Machine

Organisation : Triple Plus Solution, Raipur

Title : Hyperthermic Intraperitoneal Chemotherapy Machine

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=l65xOD7nPbc

#### Problem Statement Details

Description  
 Intraperitoneal hyperthermic chemoperfusion (HIPEC or IPHC) is a type of hyperthermia therapy used in combination with surgery in the treatment of advanced abdominal cancers. In this procedure, warmed (controlled temperature) anti-cancer drugs are infused and circulated in the peritoneal cavity (abdomen) for a short period of time.   
  
Sometimes heart-lung machines are used in case this specialized device is unavailable. To make this therapy cost effective and safe, such a machine design is needed.  
Organization Type  
  
  
 Central Ministry   
Created At  
21st November , 2018  
Updated At  
 21st November , 2018

# 78. Hydrogen as fuel in Automobiles

Organisation : Consultant & Professor, DIT Universtiy, Dehradun

Title : Hydrogen as fuel in Automobiles

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 A fuel cell-powered vehicle with an engine powered by compressed hydrogen, is like any other electric vehicle but uses hydrogen instead of a large, heavy battery for energy. These innovative vehicles are considered much safer than regular gasoline-powered automobiles. Rather than noxious, poisonous exhaust, a fuel cell vehicle emits only water vapor  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 80. Automation and optimization of furnance parameters to reduce westage of raw materials

Organisation : Consultant & Professor, DIT Universtiy, Dehradun

Title : Automation and optimization of furnance parameters to reduce westage of raw materials

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 The Grid Automation System is a programmable intelligent electronic device (IED) with PMU capability designed to simplify substation automation while improving measurement visibility. Since full substation automation relies on substation integration, the terms are often used interchangeably. Power-system automation includes processes associated with generation and delivery of power. Monitoring and control of power delivery systems in the substation and on the pole reduce the occurrence of outages and shorten the duration of outages that do occur. The IEDs communications protocols, and communications methods, work together as a system to perform power-system automation. The term “power system” describes the collection of devices that make up the physical systems that generate, transmit, and distribute power  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 81. Automation

Organisation : Manohar glass works

Title : Automation

Category : Hardware

Technology : Smart Communication

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 •Several continuous furnaces need automation for improvement in overall efficiency, presently all furnace parameters are operated/controlled manually resulting in wastage of raw materials, energy and other resources. Upgrading to new technologies with auto controlled parameters help reduce overall losses and life of the furnace can also be improved.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 86. Sound Efficient Pulse Jet Technology Alternatives

Organisation : M/s.Vighnharta

Title : Sound Efficient Pulse Jet Technology Alternatives

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Currently the Pulse Jet based Technology makes a huge sound in thermal fogging machine, these are used to eradicate Mosquitoes by fogging chemicals. This sound is around 100 dB. Hence, they would like the Sound Engineering, Material Engineering & Mechanical Engineering Wings to work together with them to bring the sound level down to 60 to 65 dB.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 87. CNC Machine Noise Prediction and Reduction

Organisation : CITD, Hyderabad

Title : CNC Machine Noise Prediction and Reduction

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Description:When machining process is running on CNC Bed, the noise levels are high at some times. This might be due to unrelated cutting parameters on workpiece set by operators. A device/system to predict from decibel level noise &vibration of machine and mounting structure of machine.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 88. Component weight detection system for CNC machines

Organisation : CITD, Hyderabad

Title : Component weight detection system for CNC machines

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Description:The Working Component is needs to be loaded on CNC machine for machining operation. Sometimes Operator unable to identify the weight of component before loading on to CNC working Bed. If any additional setup for Device to predict weight of loading component on to the machine. This will avoid the unexpected damage to machine.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 89. Cost effective Predictive Maintenance System for CNC machines

Organisation : CITD, Hyderabad

Title : Cost effective Predictive Maintenance System for CNC machines

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Description:CNC machine contains many working parts. These parts regularly need to observe functional working requirement. In order to reduce the breakdown time of machine and annual maintenance cost the machine, a system/Device need to design& fabricate for monitoring such issues.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 90. Simulation based building/structure strength testing

Organisation : MSME-TC, Okhla, New Delhi

Title : Simulation based building/structure strength testing

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 As per prevailing pattern, we are testing the strength of the building/structure by core cutting methods in our laboratories only. If this can be upgraded to non-destructive method like X-Ray/use of sensors etc., then it may save time cost and it can be done at the sites too rather than building the material to laboratory.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 91. Alarm and interlocking system for level indication for inert gas and nitrogen cylinders.

Organisation : Omech India Pvt. Ltd., Aurangabad

Title : Alarm and interlocking system for level indication for inert gas and nitrogen cylinders.

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 In existing setup there is no provision of level indication for inert gas and nitrogen cylinders  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 93. Cost Effective Fume and Dust Cleansing System

Organisation : Sadanand umberwadekar

Title : Cost Effective Fume and Dust Cleansing System

Category : Hardware

Technology : Waste Management

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Methods should be developed so that the fumes released from chimneys get diluted before release in open air, making it less harmful and having a lower environmental impact. In addition, viable technology be developed to extract the carbon from fumes which could be used up in alternative ways. Also, the dust pollution caused during the manufacturing process needs to be tackled using novel ideas and technological innovation.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 94. Fat preservation of Spices by Cryogenic grinding

Organisation : Kisaan Industries, Haldwani

Title : Fat preservation of Spices by Cryogenic grinding

Category : Hardware

Technology : Food Technology

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 The fat content of spices poses problems of temperature rise and sieve clogging during grinding. Due to this temperature rise, spices lose a significant fraction of their volatile oil or flavouring components. Therefore, a cryogenic grinding system was designed and developed to cool the spices before feeding to the grinder and maintain the cryogenic temperature in the grinding zone  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 95. Identification and control of heavy metals in the sea food material using an IoT solution

Organisation : Sea Food Export Promotion Council

Title : Identification and control of heavy metals in the sea food material using an IoT solution

Category : Hardware

Technology : Food Technology

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 High level Heavy metal (Pb , Hg, Cd) contamination is being noted in sea food material which is an important detrimental factor for export. A technology is to be identified to process the sea food that will reduce the high level Heavy Metal contamination.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 101. Design of tools and exhaust system to assist workers in stone industries

Organisation : President Laghu Udyog Bharati, Pindwada (Sirohi)

Title : Design of tools and exhaust system to assist workers in stone industries

Category : Hardware

Technology : Waste Management

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 During cutting and carving of marble/articles in stone industries dust pollution is very high. We wish to develop special tooling’s, exhaust systems etc so that the level of the dust in the working area may be reduced and health issues of the workers are addressed to  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 102. Development of LED light fixtures for hot and dusty climate

Organisation : Annant Enersol Pvt. Ltd.

Title : Development of LED light fixtures for hot and dusty climate

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Energy efficient LED light are commonly and widely used in most of the industries where climate is hot, humid and dusty, this make the life of LED very short. If specially designed fixtures to protect the LEDs are developed the life of LEDs can be increased.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 104. Development of cost effective freeze and drying technology for vegetables/leaves.

Organisation : M/s Shubham Goldiee Masale Pvt. Ltd., Kanpur

Title : Development of cost effective freeze and drying technology for vegetables/leaves.

Category : Hardware

Technology : Food Technology

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 India ranks 2nd in world in the vegetable production. Green vegetable/leaves are mostly seasonal; they are not available throughout the year. Dehydration is one of the preservation methods to preserve these seasonal varieties because 80% of green vegetable/leaves are not consumed and are thrown in the form of garbage. In India sun drying, solar drying, electric/oil fired dryer are commonly used to dry these products. In these methods sensory quality of the product is reduced. The taste and flavour of product varies a lot from natural product. Now a day freeze drying technology is available in the country which is beyond the limit of MSMEs because of its higher cost. Efforts may be made to develop low cost technology ensuring natural taste and affordable for MSMEs.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 105. Hardware solution to solve the problem of voltage unbalance, surge problems, power factor distortion etc.

Organisation : M/s Kashyap Brothers, Kanpu

Title : Hardware solution to solve the problem of voltage unbalance, surge problems, power factor distortion etc.

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Butt welding and spot welding machines are used to joint two pieces of metal together such as pipe, flanges, framework in factories. Normally such machines use single Ø or two Ø AC input. Usage of single Ø or two Ø in the machine result in voltage unbalance, surge problems, power factor distortion etc. There is requirement of the technology to avoid phase unbalance arising out of usage of these machine in shop floor...Availability of such technology can be helpful to maintain the phase distortion/unbalance in the supply network easing the DISCOM to maintain uninterrupted power supply and loss of revenue. The technology will also reduce the energy charges to MSMEs.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 106. Robotic assistance for workers to paint the ceilings

Organisation : Triple Plus Solution, Raipur

Title : Robotic assistance for workers to paint the ceilings

Category : Hardware

Technology : Robotics & Drones

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 The most difficult place to plaster paints are the ceilings, as the work there is against gravity. Worker finds it tedious to work because of the height. Workers need quick mobility with height and reach to the ceiling. So, metal extension legs are suggested which the labourers can wear and reach the ceiling along with the required movement and mobility around the room area. These are to be made of metal for durability and rough use at the same time being affordable for mass construction projects.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 107. Classification of quality of milk based on viscocity, color and density

Organisation : Sarda Dairy & Food Products Ltd.

Title : Classification of quality of milk based on viscocity, color and density

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 In most cooperative dairies the collection is done at various collection points. With the recognition of A1/A2 quality milk the separation of the milk at source becomes important else there is a mix-up of the milk at the source itself. Technology is required to separate the milk at the source itself based on the quality. A quick inexpensive equipment is needed to find out the milk quality and segregate it accordingly.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 108. Innovative solution for Fish Feeding System

Organisation : Usha Fisheries, Bemetara

Title : Innovative solution for Fish Feeding System

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Fish in the hatcheries are sold by weight. For making the fish gain weight the fish need to swim(exercise) especially when the feed (expensive item in fisheries) is provided which is thrown at specific place in the pond randomly. The problem is how to distribute the fish feed around the pond and develop such device that feed should be evenly distributed in pond which will enable the fish to swim across the pond to gain maximum weight.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 110. Road traffic management system for hilly terrains areas

Organisation : Himalyan Chamber of Commerce

Title : Road traffic management system for hilly terrains areas

Category : Hardware

Technology : Smart Communication

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 In the hilly terrains trees falling is natural phenomenon, also river/canals overflowing in season always disturb the free movement of traffic. These incidents block the roads for several hours. Authorities are always informed much later and precious hours are spent on the roads by public. To avoid this an IOT enabled system which give the real time information to concerned authority and the blockage can be cleared at the earliest or detour/diversion of traffic can be done at the minimum time without creating the traffic jams in the above cases.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 111. Low cost smart dust bins for Office

Organisation : Himalyan Chamber of Commerce

Title : Low cost smart dust bins for Office

Category : Hardware

Technology : Waste Management

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Under the Swatch Bharath mission we should have all the government offices fitted with these low cost (less than Rs 2000) smart bins which should have anti-theft mechanism and should inform the labour with SMS when the bin is full.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 112. Development of Drone for fixing High Tension wire in hilly terrain/rivers

Organisation : Himalyan Chamber of Commerce

Title : Development of Drone for fixing High Tension wire in hilly terrain/rivers

Category : Hardware

Technology : Robotics & Drones

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 It is always a challenging job for electrician to fix the high-tension wires in the hill area, if Drone can be used from one poll to another poll for handling the wires it will reduce the human labour and increase the efficiency. The same can be used to for river crossing high tension wires/lines.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 113. Automated Foreign Particle Identification in the Liquid Drugs (Pharma Application)

Organisation : Himalyan Chamber of Commerce

Title : Automated Foreign Particle Identification in the Liquid Drugs (Pharma Application)

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 As per the standards it is mandatory to check all the liquid drugs (Pharma Industry) through visual inspection for any other/foreign particle in the drug bottle, if this can be implemented through sensors observing the foreign particle in the conveyer belt and remove that bottle from shipment which will increase the quality/efficiency and reduce the manual labour.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 114. Truck Weighing based on the suspension of the vehicle

Organisation : Himalyan Chamber of Commerce

Title : Truck Weighing based on the suspension of the vehicle

Category : Hardware

Technology : Smart Vehicles

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 It is always found that trucks must go to the nearest weighing centre/yard to measure the weight of the truck on the load. If this system is inbuilt in the truck and displayed on the dashboard, how much load the truck carrying, which will reduce the weighing centres on the highway. The system should measure based on the displacement of the suspension in standstill and calculate the load on the vehicle by deducting the original vehicle weight.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 117. Solution to Overcome difficulties in polishing of stainless steel utensils

Organisation : Kumbakonam Stainless steel utensils and Equipments Manufacturers Association

Title : Solution to Overcome difficulties in polishing of stainless steel utensils

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 The stainless-steel utensils manufacture reported that they must do the polishing operation inside the utensils manually with some chemicals which is harmful to human and time-consuming process. If a suitable machine / mechanism is introduced for this process, they may save considerable man hours which leads to more productivity also the operation will not cause any health hazardous  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 118. development of Low cost testing of Edible oils

Organisation : Shree Sita Refiners Pvt. Ltd., Durg

Title : development of Low cost testing of Edible oils

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 In Chhattisgarh state there are enterprises engaged in production of edible oils. To meet the quality and composition standards, oil & food industries use certain oil parameters to maintain the quality. Several factors affect the edible oil quality such as seasonal conditions, ripening stage, harvesting and carriage systems, method and duration of storage, processing technology and it is determined by different analytical methods to assess the stability of oil and to avoid possible adulterations. Such testing facilities for edible oils may be made locally, so that SMEs can benefit.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 119. Robotic assistance to cut the stones of given accurate dimensions

Organisation : Kalp Stone, Mahasamund

Title : Robotic assistance to cut the stones of given accurate dimensions

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 In Mahasamund district of Chhattisgarh state there are approximately 200 enterprises (Micro & Small) engaged in stone cutting and polishing which are all facing similar problems in cutting of stone of accurate dimension (Length, Breadth & Thickness). In absence of low cost cutting machine they are unable to compete with tiles and marble industries. Low cost device to solve their problem can make them efficient by improving quality and output.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 120. Development of Solar energy powered service delivery vehicle

Organisation : ADIRE-Smart Village, Jahangirabad, Cuttack

Title : Development of Solar energy powered service delivery vehicle

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Service delivery vehicle are in great demand now a day. These vehicles use high amount of fossil fuel. So, there is a need to replace this conventional source of energy to solar power which can be manufactured and used by MSMEs. Solar electric service delivery vehicle with wireless charging is also another approach which can help MSMEs  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 122. Detection of Defects in Leather

Organisation : MSME-DI, CHENNAI

Title : Detection of Defects in Leather

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Leathers are traded / sold out based on their cutting value. Cutting value of the leather is affected due to the defects in the skin/hide. Presently, most of the MSMEs detect the fault/defects by visual inspection. There is a possibility for error. So, a new technology may be developed to identify the defects in leather. Then the defect detection technology can be linked / merged with leather – CAD/CAM design software, so whenever the pattern cutting happens, the software itself automatically detect the defects and align the pattern accordingly  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 126. Preventing letting out Polluted Water into Canals and Rivers

Organisation : MSME-DI, CHENNAI

Title : Preventing letting out Polluted Water into Canals and Rivers

Category : Hardware

Technology : Clean Water

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Several Effluent Treatment Plants (ETPs) have been set up in industrial clusters with a huge amount of government subsidy. Despite this, huge quantities of polluted water/acids are being discharged into rivers, canals, etc. A monitoring mechanism for the water used in industries for processing must be developed. Water audit of the water input/output from each industry which is using water for processing is to be developed. Mode of disposal / recycling of the sediments from ETPs are also to be monitored.  
Organization Type  
  
  
 Central Ministry   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 127. Repeated failure of main Engine Control systems Cards due to short circuit or less insulation values

Organisation : Garden Reach Shipbuilders

Title : Repeated failure of main Engine Control systems Cards due to short circuit or less insulation values

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 During construction phase of ships or ship in service there are repeated failures of Main Engine Control system cards due to Short circuit or low insulations values results into malfunction of the control system. Main engine system need to be shut down for repairing or replacing for cards which takes time and cost. Scope: There is an integrated system required with such mechanism which can monitor insulation of main propulsion control system on a real time basis to help the crew for taking necessary steps for avoiding major hazards.  
Organization Type  
  
  
 Industry Personnel   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 128. Insulation issue in Auxiliary and Deck machinery motors in naval ships

Organisation : Garden Reach Shipbuilders

Title : Insulation issue in Auxiliary and Deck machinery motors in naval ships

Category : Hardware

Technology : Students Innovation

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Insulation resistance is one of the critical readings of marine electrical equipment systems and serves as the best guide to indicate the health of the electrical machinery. As the name suggests, the insulation resistance is the ability of the insulation material to resist the current flow. With time, the insulation begins to age, and it causes deterioration in the performance of the insulation. Harsh operating environments where the electrical insulation is exposed to extreme operating temperatures, moisture, and chemical contamination, as experienced on a ship, will accelerate the deterioration process. It's extremely critical to always know the electrical condition(IR) of the insulation in ship's electrical equipment at all times to avoid any accident such as electrical shock, fire, short circuit etc. Scope: New design of motor shell body and rubber gasket of motor Junction Box required to maintain IP protection of motor for long duration.  
Organization Type  
  
  
 Industry Personnel   
Created At  
20th November , 2018  
Updated At  
 20th November , 2018

# 135. Create a Visually programmable PLC controller using Bluetooth Automation I/O Profile

Organisation : Plezmo

Title : Create a Visually programmable PLC controller using Bluetooth Automation I/O Profile

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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 logic across all PLC controllers over bluetooth by reading and writing corresponding Bluetooth low energy characteristics as specified by Automation I/O profile.  
Organization Type  
  
  
 State Ministry   
Created At  
19th November , 2018  
Updated At  
 19th November , 2018

# 138. Non-Invasive, 24-h Digital Blood Glucose Monitoring Device

Organisation : Marico

Title : Non-Invasive, 24-h Digital Blood Glucose Monitoring Device

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
17th November , 2018  
Updated At  
 17th November , 2018

# 139. Body Odor Detection attachment for Smartphone

Organisation : Marico

Title : Body Odor Detection attachment for Smartphone

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
17th November , 2018  
Updated At  
 17th November , 2018

# 140. Ultra-Portable Cosmetic Heating Solution

Organisation : Marico

Title : Ultra-Portable Cosmetic Heating Solution

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
17th November , 2018  
Updated At  
 17th November , 2018

# 141. Coconut crop Harvest mechanization for reducing Harvest cost

Organisation : Marico

Title : Coconut crop Harvest mechanization for reducing Harvest cost

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
17th November , 2018  
Updated At  
 17th November , 2018

# 142. Coconut to Copra Instant Yield Estimation

Organisation : Marico

Title : Coconut to Copra Instant Yield Estimation

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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 estimate the yield of the coconut at point of purchase.  
Organization Type  
  
  
 Industry Personnel   
Created At  
17th November , 2018  
Updated At  
 17th November , 2018

# 148. Simplification of garment scanning

Organisation : Shantha - Sanofi

Title : Simplification of garment scanning

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=fxoZ6f9th6o&featur

#### Problem Statement Details

Description  
 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?  
Organization Type  
  
  
 Industry Personnel   
Created At  
16th November , 2018  
Updated At  
 16th November , 2018

# 150. Economical and reusable Thermal Management of components in electrical transport systems.

Organisation : KPIT

Title : Economical and reusable Thermal Management of components in electrical transport systems.

Category : Hardware

Technology : Smart Vehicles

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 There is heat generation from components and subsystems like motor, energy storage other power electronics subsystems. We need to maintain the temperatures of subsystems in optimum range by rejecting heat to environment. We are looking for smart solutions where we can effectively control the temperature of components in optimum range with reuse of the rejected heat.  
Organization Type  
  
  
 Industry Personnel   
Created At  
16th November , 2018  
Updated At  
 16th November , 2018

# 152. Low cost payment terminal

Organisation : Kotak Mahindra Bank

Title : Low cost payment terminal

Category : Hardware

Technology : Finance

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Low cost payment terminal which can be used to accept ALL modes of digital payments (QR, Card, Contactless, Aadhaar) including transit payments for smart cities-India has higher penetration of phones then cards and any merchant payment solution should leverage this trend. Hence to drive Digital Transactions there is need for a payment acceptance platform that is Mobile Centric, Omnipresent, Cost Light, Secure, Network Resillient/Agnostic, Provides Instant Payments and can be Adopted at Scale by both Consumer and Merchants.   
  
Current POS terminal penetration is restricted to smaller base and there are inherent limitations which discourage mass adoption in Indian context. POS machines are becoming more advanced with Value Added Services but still the payment process has remained same and doesnt appeal to all segment of merchants especially ones which are cost sensitive and ones outside Tier-1 centers.  
  
India needs a solution that is not only cost effective but at par with convenience of Cash.  
  
It should support multiple scenarios seamlessly such as Ecommerce, Collection for small shops and high frequence-low ticket use cases such as transits.   
  
Focusing on Retail Merchants in Smart Cities, which still see a bulk of cash payments, there is a need for a low cost & multi-functional acceptance device that can support all existing Digital Payment Modes like Cards/UPI/BharatQR/Aadhaar Pay/IPG at fraction of current cost. There should be an ecosystem of players to drive the adoption at scale and to Tier-3+ centers.  
Organization Type  
  
  
 State Ministry   
Created At  
16th November , 2018  
Updated At  
 16th November , 2018

# 154. Low cost residential flow meter

Organisation : HCL TECHNOLOGIES LIMITED

Title : Low cost residential flow meter

Category : Hardware

Technology : Clean Water

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=i\_bjs3-fvpQ

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 State Ministry   
Created At  
15th November , 2018  
Updated At  
 15th November , 2018

# 159. The Right Dose for the patient

Organisation : GE Healthcare

Title : The Right Dose for the patient

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=sw8MK0lSnaE

#### Problem Statement Details

Description  
 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 such a system are patient comfort, cleanability, lower cost and reliability and MRI system compatibility.  
Organization Type  
  
  
 Industry Personnel   
Created At  
15th November , 2018  
Updated At  
 15th November , 2018

# 160. Continuous Non-Invasive Blood Pressure (NIBP) Meas

Organisation : GE Healthcare

Title : Continuous Non-Invasive Blood Pressure (NIBP) Meas

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=AH5Xmf58xMk

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
15th November , 2018  
Updated At  
 15th November , 2018

# 163. Gas Dehydration for Pipeline Transportation

Organisation : Gail (India) Ltd

Title : Gas Dehydration for Pipeline Transportation

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=bbMG-8VolWs

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
15th November , 2018  
Updated At  
 15th November , 2018

# 166. Robust/Affordable fetal heart monitoring

Organisation : GE Healthcare

Title : Robust/Affordable fetal heart monitoring

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=GYHGxVsFUds

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
13th November , 2018  
Updated At  
 13th November , 2018

# 168. Ultra-Low power Nano implantable devices for early cardiac arrest detection

Organisation : DELL EMC

Title : Ultra-Low power Nano implantable devices for early cardiac arrest detection

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=9emAmwJ3vFw&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
12th November , 2018  
Updated At  
 12th November , 2018

# 173. Measuring quantity of cement and clinker

Organisation : Shree Cement Ltd

Title : Measuring quantity of cement and clinker

Category : Hardware

Technology : Robotics & Drones

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 The existing method of measuring quantity thru flow meter provides accuracy of (+ & -) 5% to 10% in both clinker and cement, which is a big loss. Need some better system for this.  
Organization Type  
  
  
 State Ministry   
Created At  
12th November , 2018  
Updated At  
 12th November , 2018

# 174. Counting of cement bags in loaded truck

Organisation : Shree Cement Ltd

Title : Counting of cement bags in loaded truck

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 How counting of cement bags can be done in a loaded cement truck. Before loading the bags it is manually counted and loaded however a system based recheck needs to be done to verify.  
Organization Type  
  
  
 State Ministry   
Created At  
12th November , 2018  
Updated At  
 12th November , 2018

# 175. Method of separating waste from limestone

Organisation : Shree Cement Ltd

Title : Method of separating waste from limestone

Category : Hardware

Technology : Waste Management

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 The limestone deposit is semi metamorphosed which has undergone 4 fold deformation. Pegmatic and amphibolic intrusions of irregular trend are mixed in such a manner that the segregation is very difficult. If we are able to find a proper sorting/ separation method, it will help in mineral conservation  
Organization Type  
  
  
 State Ministry   
Created At  
12th November , 2018  
Updated At  
 12th November , 2018

# 185. High end Access Control Systems

Organisation : Aurobindo Pharma

Title : High end Access Control Systems

Category : Hardware

Technology : Security & Surveillance

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 189. Effluent Analysis for Anti-Biotic Presence

Organisation : Aurobindo Pharma

Title : Effluent Analysis for Anti-Biotic Presence

Category : Hardware

Technology : Life Sciences

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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 .  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 191. Generation of water from thin air

Organisation : KPIT

Title : Generation of water from thin air

Category : Hardware

Technology : Clean Water

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Availability of clean and pure drinking water is a challenge faced by majority of rural as well as urban areas in India. There has been a lot of work done on developing technologies for extracting moisture out of air to make it available in the form of pure water. But a cost effective solution is what a country like India needs where the cost of generation of water is less than Re. 1 per litre of water.  
Organization Type  
  
  
 State Ministry   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 192. Use of plastic to construct roads

Organisation : KPIT

Title : Use of plastic to construct roads

Category : Hardware

Technology : Waste Management

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Plastic waste is one of the top most menace the world is facing today. Blanket ban on use of plastic too is quite difficult to implement considering the current life style of mankind. One of the novel ways of disposing plastic waste could be to use it constructively for other tasks and one of the novel use of plastic waste could be to use it to construct good quality roads. Demonstrate a technology, process for using plastic waste effectively to build roads.  
Organization Type  
  
  
 State Ministry   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 195. Electronic Payment of User Fees at the Toll Plazas

Organisation : Min. of Road Transport

Title : Electronic Payment of User Fees at the Toll Plazas

Category : Hardware

Technology : Software - Mobile App development

Complexity : Simple

Youtube link :

#### Problem Statement Details

Description  
 Toll collection at Highways poses a series of issues to commuters in terms of ease of payment as well as time taken to cross the Toll Plaza.  
  
An application supported with on Board Units may be developed which can collect Toll through mobile wallet / other payment gateway by identifying the user in real time and allow smooth and quick transit through the Toll Plaza.  
Organization Type  
  
  
 Central Ministry   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 197. Automatic Pothole detection while driving

Organisation : KPIT

Title : Automatic Pothole detection while driving

Category : Hardware

Technology : Smart Vehicles

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Every year we lose more than 1 lakh lives on Indian roads due to accidents and the proportion of these accidents due to pot holes on the road is quite significant. If these pot holes can be detected in real time while driving, it will benefit two wheeler riders by avoiding it especially when the pot holes are covered by water during monsoon.  
Organization Type  
  
  
 State Ministry   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 198. Cattle feed manufacturing from local agriculture produce

Organisation : ANIK

Title : Cattle feed manufacturing from local agriculture produce

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Cattle feed is highly required to farmers. But the price of the feed is not affordable, comfortable or reasonable. If the farmers get feed producing machine at village level with comfortable cost, it will useful to farmers and dairy industry. Feed producing machine mixes, grinds and churns different kinds of grains, food waste, husk, leaves etc to make feed for cattle. The feed can be in powder form or bricks. We are hoping to have a small feed producing machine for use between small groups of rural farmers and empower them to improve their economic situation.  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 199. Ghee making machine

Organisation : ANIK

Title : Ghee making machine

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 10 - 15 kg ghee making machine for women in rural areas. It is usually seen that ghee making machines are of larger quantities and rural women do not have the capability to buy large machines. So we would like to empower them by giving access to small machines to   
  
churn ghee and support the economic conditions of their families.  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 200. Drought situations in rain shadow regions of Maharashtra

Organisation : ANIK

Title : Drought situations in rain shadow regions of Maharashtra

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 In Marathwada the drought is the main issue. Mainly due to the very less rain fall, drought condition continues year by year.  
  
  
  
Due to drought, community is facing drinking water problem. No sufficient water for cattle and shortage of cattle fodder.  
  
Drought is affecting total agriculture sector because water scarcity is the big issue. Can the students develop technology to help generate and manage water? We may also explore possibilities of generating water from thin air.  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 201. Pipeline Pilferage Prevention & Detection system

Organisation : Oil India Ltd

Title : Pipeline Pilferage Prevention & Detection system

Category : Hardware

Technology : Security & Surveillance

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=2YyCqmHKVcY&featur

#### Problem Statement Details

Description  
 Design of Pipeline Pilferage Prevention & Detection System: The Pilferage activity involve illegal tapping into oil pipelines and withdraw(steal) of valuable product, being transported in the Pipeline. So far, no methodology for detecting exact location of pilferage/ leakage in the pipeline is available. So design of such System is required which can prevent and detect Pilferage in oil pipelines.  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 202. Aid-kit for persons with smell sense disability

Organisation : Dept of Atomic Energy

Title : Aid-kit for persons with smell sense disability

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 In certain situations like leakage of dangerous gases, fire or smoke outbreak, smell-sense (olfaction) disability can be life threatening. It would be desirable to develop a handy apparatus which can generate alarm or indication for the presence of dangerous chemicals, gas leakage, smoke etc. Use of remote sensors and Artificial Intelligence (AI) in biomedical devices with neuron study & simulations can be employed to achieve the target.  
Organization Type  
  
  
 Central Ministry   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 203. Mechanism for Crude Oil Wax Handling in Pig Barrel

Organisation : Oil India Ltd

Title : Mechanism for Crude Oil Wax Handling in Pig Barrel

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=LoJpR7YB36o&featur

#### Problem Statement Details

Description  
 In Oil India Limited Pipeline due to waxy nature of Assam crude oil, pigging operation is carried out in fortnightly to remove the deposited wax from pipeline. In waxy crude oil pipeline, solid wax is accumulated in between pig and pig receiving barrel door creating problem for removal of pig from barrel .It is proposed here to develop a cost benefit and time saving mechanism either chemical, mechanical or combination of both for easy removal pig from barrel by dissolving the wax in the barrel  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 207. Sludge developed inside Crude Oil Transport Pipe

Organisation : Oil India Ltd

Title : Sludge developed inside Crude Oil Transport Pipe

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=3mzlI-BSvD0&featur

#### Problem Statement Details

Description  
 Oil India Ltd. is Running a sub-surface (Part 16-inch & part 14-inch) Crude Oil Transportation pipeline from Upper Assam Duliajan to Barauni to transport crude from Upper Assam belt. The Crude oil being waxy in nature, heavier hydrocarbons gets deposited inside the pipe as soon as the temperature comes below the wax appearance temperature. To clean the deposits, regularly Pigging is carried out in all the sectors. The solution is required for Profile and Trend of Wax/Sludge deposition.  
Organization Type  
  
  
 State Ministry   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 208. Minimizing reject during water purification

Organisation : Thermax

Title : Minimizing reject during water purification

Category : Hardware

Technology : Clean Water

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=gqxhnVbD-8E

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 209. Develop Innovative methods for treating Sewage

Organisation : Thermax

Title : Develop Innovative methods for treating Sewage

Category : Hardware

Technology : Waste Management

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=qQ9p-R7MLt0

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 210. Energy Storage Solutions using earth abundant materials

Organisation : Thermax

Title : Energy Storage Solutions using earth abundant materials

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=YSfaHHkAnl8

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
6th November , 2018  
Updated At  
 6th November , 2018

# 226. Intelligent trip management for Electric Vehicles

Organisation : Tata Motors

Title : Intelligent trip management for Electric Vehicles

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=kwNJhKhFxmo

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
4th November , 2018  
Updated At  
 4th November , 2018

# 228. Vehicle Consumables Prognostics

Organisation : Tata Motors

Title : Vehicle Consumables Prognostics

Category : Hardware

Technology : Smart Vehicles

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=cUUOan\_wHVY

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
4th November , 2018  
Updated At  
 4th November , 2018

# 229. An Open sourced Motor Controller for Hybrid Veh.

Organisation : Tata Motors

Title : An Open sourced Motor Controller for Hybrid Veh.

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=fy36dSYG0PU

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
4th November , 2018  
Updated At  
 4th November , 2018

# 235. Smart Demand Predictors

Organisation : Hindustan Unilever Ltd

Title : Smart Demand Predictors

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=Sj8AFU3Wx9g

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
4th November , 2018  
Updated At  
 4th November , 2018

# 240. Snap Design were it can with stand 100N pull force

Organisation : Cyient

Title : Snap Design were it can with stand 100N pull force

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Design a Plastic enclosure for Electronics circuit board for communication devices. This Product will assemble in the sheet metal frame cut outs. The requirement defined not use screw in the metal frame. The Sheet metal cut-out have 1mm to 10mm thickness (different Frames but same product to be used) and remove the product from the cut-out required 100N pull force. Challenge –Snap Design (plastic) were can with stand the 100N pull force  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 241. Motor Vehicle Emission Reduction

Organisation : Cyient

Title : Motor Vehicle Emission Reduction

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 It is a known fact that the traditional, internal combustion engine based vehicles generates lots of emissions which are bad for health and environment. To overcome this, there is a lots of development already happening in the electric vehicle and hybrid vehicle technologies. It will be good if we can develop a system which will filter pollutant gases from the vehicle emission. This system also can be retrofitted into existing vehicles so that they are less polluting.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 242. Existing pumps in the farms to run by solar power

Organisation : Cyient

Title : Existing pumps in the farms to run by solar power

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Existing pumps in the farm lands are not able to deliver at full potential because of the discontinuity of the electric power supply, presently available solar water pumps usually runs with DC and are different from the common sub-mercible pumps. The proposal is to make solar drive that can run existing sub mercible pumps with solar energy without the use of batteries  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 243. Household waste Incinerator

Organisation : Cyient

Title : Household waste Incinerator

Category : Hardware

Technology : Waste Management

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Incinerator is a device that burns the waste without the use of oxygen and without giving out fumes. The proposal is to make a small house hold waste incinirator that can run on a smallest possible solar panels.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 244. Real Time Crop Health Monitoring

Organisation : Cyient

Title : Real Time Crop Health Monitoring

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Crop health monitoring is an area which requires lot of attention as a wrong action taken would lead to crop failure. Farmers face issues in determining the optimum amount of water required for a crop, tracking crop development on a real time basis and detecting crop health issues.  
  
The challenge is to design a smart application to provide insights on crop development, identify areas of crop stress, and provide alerts on water usage and irrigation requirements to maximize the crop yield.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 245. WheelChair cum Stretcher

Organisation : Cyient

Title : WheelChair cum Stretcher

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 In hospitals patients need to be shifted from wheelchair to stretcher, stretcher to beds, bed to wheelchair, or vice versa; which creates unsafe conditions for patients. Also transferring the patients from wheelchair to stretcher, stretcher to beds, bed to wheelchair is always an issue for the attendant or nurse.   
  
There is a need for a wheelchair cum stretcher to facilitate the disabled patient’s mobility and to provide novel medical equipment for use in the Indian hospitals.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 246. Inductor in Integrated Circuits

Organisation : Cyient

Title : Inductor in Integrated Circuits

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Integrated circuits have been designed for a long time now, and have aided the developement of hardware in a big way. Most of the analog and digital circuts are possible to be implemented in ICs, but inductor is still not possible to be put in ICs.   
  
There is a need to miniaturize inductors and design them into ICs (integrated Curcuits) to allow for low real estate requirement on pcbs and also reduce losses, and also help in EMI / EMC testing.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 247. Intravenous Infusion Monitoring

Organisation : Cyient

Title : Intravenous Infusion Monitoring

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 Integrated solution with deployment of suitable sensor, tuning the firmware and developing app to monitor and control the infusion flow.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 251. robotic instrument to gauage tube thickness

Organisation : Adani Group

Title : robotic instrument to gauage tube thickness

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 3) 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 258. Ocean Cleaning

Organisation : Cognizant

Title : Ocean Cleaning

Category : Hardware

Technology : Waste Management

Complexity : Complicated

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
2nd November , 2018  
Updated At  
 2nd November , 2018

# 267. Building Inspection & Monitoring

Organisation : Infosys

Title : Building Inspection & Monitoring

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 A lot of high rise and older building will be in dilapidated conditions or would develop cracks or leakage over a period of time. Design and develop a drone based video surveillance solution that could be used to inspect the high rise buildings or buildings in hazardous conditions. Once the video feed is captured, analyze the video feed to identify the state of the building focusing on finding cracks, water leaks, structural damages etc.  
Organization Type  
  
  
 Industry Personnel   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 272. 7. 7. TeleScreening 60 mts HealthCheck @ Work P

Organisation : Apollo Hospitals

Title : 7. 7. TeleScreening 60 mts HealthCheck @ Work P

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 Design, develop and produce 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 273. 6. Single strip estimation of multiple parameter

Organisation : Apollo Hospitals

Title : 6. Single strip estimation of multiple parameter

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=oEjUS\_xEa\_w&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 275. 4. Automated intelligent humanoid robot in ICU

Organisation : Apollo Hospitals

Title : 4. Automated intelligent humanoid robot in ICU

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=oQZVf\_WlDy4&featur

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 278. 2. Handholding Robots for deployment in Apollo Hos

Organisation : Apollo Hospitals

Title : 2. Handholding Robots for deployment in Apollo Hos

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=UMIQxgd9IOs&featur

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 282. Smart recording of Hand Washing by Hospital staff

Organisation : Apollo Hospitals

Title : Smart recording of Hand Washing by Hospital staff

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=egIy1JxvJj8&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 283. Smart monitoring and operating the power system

Organisation : Ministry of Power

Title : Smart monitoring and operating the power system

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 a. Time delay in sending and receiving the signal to the local panels  
  
b. Overload situation due to less storage capacity in the control panel room  
  
c. Big percentage of faults occur in I/O module  
  
d. Problems occurring due to electromagnetic interference (EMI) &Radio frequency interference (RFI).  
Organization Type  
  
  
 Central Ministry   
Created At  
1st November , 2018  
Updated At  
 1st November , 2018

# 293. Plug b/w petroleum products to avoid intermixing

Organisation : Indian Oil

Title : Plug b/w petroleum products to avoid intermixing

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 294. Utilisation of CO2 emitted from MEG plant

Organisation : Indian Oil

Title : Utilisation of CO2 emitted from MEG plant

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 295. Low-cost, high-accuracy lubricant testing kit

Organisation : Indian Oil

Title : Low-cost, high-accuracy lubricant testing kit

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 296. Smart eco-friendly garbage management

Organisation : VMware Software India Pvt

Title : Smart eco-friendly garbage management

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 297. Low-cost production of Hydrogen

Organisation : Indian Oil

Title : Low-cost production of Hydrogen

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 298. Innovative re-refining of used lubricating oils

Organisation : Indian Oil

Title : Innovative re-refining of used lubricating oils

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 300. Low-cost vapour recovery system at fuel stations

Organisation : Indian Oil

Title : Low-cost vapour recovery system at fuel stations

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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,  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 306. High-thermal efficiency gas burner

Organisation : Indian Oil

Title : High-thermal efficiency gas burner

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 307. Design of proto-type Hydrogen storage tank

Organisation : Indian Oil

Title : Design of proto-type Hydrogen storage tank

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 308. Lignin valorisation- Conversion to fuels,chemicals

Organisation : Indian Oil

Title : Lignin valorisation- Conversion to fuels,chemicals

Category : Hardware

Technology : Energy / Renewable Energy

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Central Ministry   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 312. Stop Noise pollution from honking

Organisation : Maruti Suzuki India Ltd.

Title : Stop Noise pollution from honking

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 '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..  
Organization Type  
  
  
 Industry Personnel   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 313. Live AQI (Air quality Index) Map like Google traffice map for the use of various stakeholders (Car Drivers,OEMs, individuals etc.)

Organisation : Maruti Suzuki India Ltd.

Title : Live AQI (Air quality Index) Map like Google traffice map for the use of various stakeholders (Car Drivers,OEMs, individuals etc.)

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 '- 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 316. Finished Goods DISPATCH BAY Mnagement Automation

Organisation : NALCO

Title : Finished Goods DISPATCH BAY Mnagement Automation

Category : Hardware

Technology : Smart Communication

Complexity : Complex

Youtube link :

#### Problem Statement Details

Description  
 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 material identified by picker on to the truck.  
  
  
  
F. The Loading Slip (LS) is completed recording specific FG UIDs and the truck moves towards the weighbridge for final weighment and then proceeds to the DISPATCH section for billing.   
  
   
  
Problem-  
  
Placement of FG in the specified ZONE in DSA while receiving from PB is very difficult …..  
  
During shifting of FGs from PB to DSA, the physical storage Location is not digitally linked on Database to the UID of FG causing problem locating in a later time while tracing for loading on to a truck.  
  
  
  
Locating the FG in DSA leading to higher TURN AROUND time …..  
  
At times due to some local problem of space, non-adherence to set procedure, unloading from a Consigner Truck, rearrangement of FGs within DSA, etc. the FG gets mis-located within the DSA and are difficult to locate, reach, pick and load the FG in a timely and efficient manner while loading the consigner truck.  
  
  
  
Manual LS preparation and multiple point of data entry ……  
  
The Loading Slip (LS) details are recorded on a paper and sent to Invoicing team for processing.  
  
  
  
Defining a proper zone and storage of FG for ease of accessibility …..  
  
  
  
Improvements Desired-  
  
To devise a procedure that is automated, smart and intelligent to bring in Quicker turn-around time of Truck Loading  
  
  
  
a. Assistance to the process of Shifting FGs to DSA from PB  
  
b. Tag the FG with GRID Identity to facilitate the Dispatch Process  
  
c. Suggest Fork Lift Operator the next FG to pick  
  
d. Option with Fork Lift Operator to look out for an alternate FG  
  
e. Provide/Display a FG map overlaying the GRID of DSA  
Organization Type  
  
  
 Industry Personnel   
Created At  
30th October , 2018  
Updated At  
 30th October , 2018

# 319. MarkingByDrone

Organisation : Vanderlande

Title : MarkingByDrone

Category : Hardware

Technology : Robotics & Drones

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=2KpVX\_JVdxs&featur

#### Problem Statement Details

Description  
 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)  
Organization Type  
  
  
 Industry Personnel   
Created At  
29th October , 2018  
Updated At  
 29th October , 2018

# 321. Telepicking Interface with item picking Robotics

Organisation : Vanderlande

Title : Telepicking Interface with item picking Robotics

Category : Hardware

Technology : Robotics & Drones

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=NeYjq5gYTNA

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
29th October , 2018  
Updated At  
 29th October , 2018

# 336. Reducing Cotton Picking Cost of Indian Farmer

Organisation : MAHYCO

Title : Reducing Cotton Picking Cost of Indian Farmer

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=XMSnaJiZ8nI&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 State Ministry   
Created At  
26th October , 2018  
Updated At  
 26th October , 2018

# 338. Parallel BMS

Organisation : Hero Electric Vehicles

Title : Parallel BMS

Category : Hardware

Technology : Smart Vehicles

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=P4dR5SXemxY&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
25th October , 2018  
Updated At  
 25th October , 2018

# 343. Aquatic drone for water quality measurement

Organisation : Min. of Water Resources

Title : Aquatic drone for water quality measurement

Category : Hardware

Technology : Robotics & Drones

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=6\_DMs\_0rQE4&featur

#### Problem Statement Details

Description  
 How to measure, map & monitor the water quality of Ganga River, its tributaries & drains along X section through sensor deployed on aquatic Drone. Develop a aquatic drone   
  
• Handled/ controlled by mobile app   
  
• Data fetch on geo web portal like Bhuvan Ganga Geoportal   
  
• Live streaming of water quality monitoring  
Organization Type  
  
  
 Central Ministry   
Created At  
24th October , 2018  
Updated At  
 24th October , 2018

# 348. Pedestrian Safety Device in automobiles

Organisation : Mahindra&Mahindra(FarmEQ)

Title : Pedestrian Safety Device in automobiles

Category : Hardware

Technology : Smart Vehicles

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=\_UOHwpQwMQE

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
24th October , 2018  
Updated At  
 24th October , 2018

# 350. Developing Low Noise High Speed Ring Loading Sys

Organisation : SKF India Ltd.

Title : Developing Low Noise High Speed Ring Loading Sys

Category : Hardware

Technology : Miscellaneous

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=\_nQRVjWqoPk

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 State Ministry   
Created At  
23rd October , 2018  
Updated At  
 23rd October , 2018

# 352. DECOCTION VENDING MACHINE

Organisation : Ministry of AYUSH

Title : DECOCTION VENDING MACHINE

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=fgeZxj7J0Qk&featur

#### Problem Statement Details

Description  
 At present due to busy lifestyle preparation of decoction as per the Ayurvedic method became difficult. BUT Decoction is the most considerable and extensively used dosage form in Ayurveda CLASSICAL WAY OF DECOCTION PREPARATION - In Ayurveda for decoction preparation the plant material be boiled with water in a specific proportion until the original volume is reduced to desired quantity. Solution - vending machines such as tea/coffee vending machine for vending Decoction  
Organization Type  
  
  
 Central Ministry   
Created At  
23rd October , 2018  
Updated At  
 23rd October , 2018

# 355. Audio guide for patient regarding doctor prescript

Organisation : Ministry of AYUSH

Title : Audio guide for patient regarding doctor prescript

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=iRYTT8SBppU&featur

#### Problem Statement Details

Description  
 Routinely patients are advised orally health cares like diet, lifestyle and medication dosage and frequency in the patient doctor visit, which is often very difficult for a patient to remember after he goes home.   
  
Doctor’s advice (Audio) to be converted to QR Code and QR code to be pasted on the patients prescription.  
  
A patient can scan the QR code and listen the health care advised by the doctor through mobile app  
Organization Type  
  
  
 Central Ministry   
Created At  
23rd October , 2018  
Updated At  
 23rd October , 2018

# 356. Non-invasive method of blood glucose monitoring

Organisation : Ministry of AYUSH

Title : Non-invasive method of blood glucose monitoring

Category : Hardware

Technology : Healthcare & Biomedical Devices

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=yXBtnWfjTkU&featur

#### Problem Statement Details

Description  
 Requirement - A NON-INVASIVE DEVICE  
  
FOR MORE FREQUENT AND TIGHTER CONTROL   
  
Solution - Development of non-invasive smart equipment for monitoring blood glucose levels  
Organization Type  
  
  
 Central Ministry   
Created At  
23rd October , 2018  
Updated At  
 23rd October , 2018

# 365. Drone based medical facility

Organisation : MindTree

Title : Drone based medical facility

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=9K0FX2tDfv4&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 367. Intelligent Food packaging

Organisation : ITC Limited

Title : Intelligent Food packaging

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=hbFlYb2crso

#### Problem Statement Details

Description  
 TITLE: Intelligent Food Packaging: 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 freeze–thawed only up to 2 cycles. In addition, the product will be spoiled if there is a slow re-freezing time which steeply increases the bacterial count in the prawns. Therefore, it is important demonstrate the temperature fluctuations and actual state of the monitored packed frozen meat to the consumer illustrating the product quality and safety.  
  
  
  
  
  
3. PROBLEM STATEMENT: To build a low-cost Time Temperature visual biosensors which will change it basic characteristics, such as color, and ensure ongoing communication with shoppers. This should result in maximizing freshness, minimize waste, and augment the brand value of frozen shrimp products.   
  
  
  
4. PROJECT DELIVERABLES  
  
  
  
(a) To develop a time series data logger which will be both visual and machine readable. It should be user friendly, can be calibrated to suit products with varying shelf-life, and compatible with existing other machine-logging technologies  
  
  
  
(b) Desired protypes (For Testing): The built prototype should be accurate, precise, and reproducible in temperature monitoring, especially with increasing temperature from – 18 deg. C., to ambient condition. Changes in characteristics, such as color (or) chemical properties, should be faster with increasing temperature and preferably capture the entire shelf-life. Integration of technology using existing raw materials. process, and products, such as paper and films, and printing will be added advantage  
  
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Organization Type  
  
  
 Industry Personnel   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 372. RADAR on Roads

Organisation : MindTree

Title : RADAR on Roads

Category : Hardware

Technology : Security & Surveillance

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=WkKWqGakEx8

#### Problem Statement Details

Description  
 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?  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 373. Mask Free Air

Organisation : MindTree

Title : Mask Free Air

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=NkQsBIQCzDY

#### Problem Statement Details

Description  
 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?  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 380. Development of 30 Kg Payload capacity multicopter

Organisation : Bharat Forge Ltd.

Title : Development of 30 Kg Payload capacity multicopter

Category : Hardware

Technology : Robotics & Drones

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=aS1u4bHdZAg&pbjrel

#### Problem Statement Details

Description  
 This project is for Design and Development of Multicopter for additional Payload Capacity of 30 kg. This copter must have endurance of minimum 45 minutes and should fly at 800 - 1000 meters above take off ground. decision regarding number of arms for the copter and material selection is can be taken by students.  
Organization Type  
  
  
 Industry Personnel   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 381. Efficient and Robust Float Design

Organisation : Forbes Marshall Pvt. Ltd

Title : Efficient and Robust Float Design

Category : Hardware

Technology : Miscellaneous

Complexity : Simple

Youtube link :   
https://www.youtube.com/watch?v=KMHtWLayJjI

#### Problem Statement Details

Description  
 Problem Statement – Design a Float that is very light in weight, for working condition of Pressure 20Bar & Temperature 220°C. The Float should be able to withstand 100 cycles of external high pressure pulse of 100Bar. Additional details – In many process plants steam is used as a source of energy. Efficient distribution of steam is critical for maintaining process parameters and ensuring that energy wastage is minimal. An important equipment, part of the distribution network, is the steam trap. A Steam trap is an automatic drain valve which distinguishes between steam and condensate. A well-functioning steam trap will hold back steam in the distribution line while discharging condensate under varying pressures or loads. When the steam trap fails, it can lead to water logging (condensate) in distribution pipes, thus reducing the efficiency of steam energy, disturb process parameters, or even lead to wastage of steam through discharge in open atmosphere. Steam traps are mechanical equipment which employs different principles such as buoyancy, pressure, temperature etc. for their operation.  
  
A ball float type trap is based on the buoyancy principle where rise in condensate level lifts the ball float, opening the orifice and allowing the condensate to be flushed out of steam carrying pipes. In certain processes, typically on -off heating processes, opening of the valve causes sudden discharge of condensate at very high velocity to the trap. The high velocity water discharge impinges on the float causing it to implode. The ON-OFF cycles expose float to thermal cycle. An efficient and robust design of float is desired to overcome this problem.  
  
Currently, Float of 32 gms ( ±4gms), Diameter 57mm , working Pressure 20Bar and Temperature 220°C is used in typical Float Traps. (A video of one kind of steam trap operation is shared)  
Organization Type  
  
  
 State Ministry   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 382. Steam Trap Health Monitoring

Organisation : Forbes Marshall Pvt. Ltd

Title : Steam Trap Health Monitoring

Category : Hardware

Technology : Miscellaneous

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=KMHtWLayJjI

#### Problem Statement Details

Description  
 To develop a steam trap failure detection system which can detect steam trap failures remotely, accurately and in real-time. The solution should be non-intrusive and should make use of wireless mode of communication. (A video of one kind of steam trap operation is shared)  
Organization Type  
  
  
 State Ministry   
Created At  
22nd October , 2018  
Updated At  
 22nd October , 2018

# 397. A seed sowing machine for Zero-Till farming

Organisation : Saguna Rural Foundation

Title : A seed sowing machine for Zero-Till farming

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complex

Youtube link :   
https://www.youtube.com/watch?v=o7TUzoTFuQA&featur

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
19th October , 2018  
Updated At  
 19th October , 2018

# 399. Low cost on the go soil sensing and mapping attached to implements

Organisation : Mahindra&Mahindra(FarmEq)

Title : Low cost on the go soil sensing and mapping attached to implements

Category : Hardware

Technology : Smart Communication

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=lJ5xdAV-NKk

#### Problem Statement Details

Description  
 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.  
Organization Type  
  
  
 Industry Personnel   
Created At  
19th October , 2018  
Updated At  
 19th October , 2018

# 400. Low cost & smart cooling system for tractor cabin

Organisation : Mahindra&Mahindra(FarmEq)

Title : Low cost & smart cooling system for tractor cabin

Category : Hardware

Technology : Agriculture and Rural Development

Complexity : Complicated

Youtube link :   
https://www.youtube.com/watch?v=8kazDWnvBkI

#### Problem Statement Details

Description  
 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  
Organization Type  
  
  
 Industry Personnel   
Created At  
19th October , 2018  
Updated At  
 19th October , 2018