

Udgam

HPCL Startup Initiative

STARTUP INSIGHTS

HPCL Startup India Scheme- Udgam




Dear Colleagues,

We feel delighted to connect to you through this edition of Startup Insights. We are back with another edition of Startup Insights to give updates on activities of some of the startups supported by HPCL.


ASN Fuels

Startup ASN Fuels is engaged in the field of Research & Development of 2G Ethanol Production Technology and is establishing a Pilot Plant at Tirupati.


The startup has recently developed and launched a case study on the HPCL Biofuels Limited's Ethanol manufacturing units at Sugauli and Lauriya, Bihar for a TEV, Techno Economic Viability of its fermentation Technology. Another case study and proposal has been launched by ASN Fuels titled the Revival of Andhra Pradesh Cooperative Sugar factories – proposing a Revival plan for their financial turnaround. The case study shows the challenges they are facing, major reasons for the financial downfall, Innovative methodology and technology adaptation for revival.



ETIKOPPAKA CO-OPERATIVE AGRICULTURAL AND INDUSTRIAL SOCIETY LIMITED - VISAKHAPATNAM



**ASN
FUELS
PVT
LTD**



**ETIKOPPAKA SUGAR PLANT REVIVAL
PLAN PROPOSAL:**

A CASE STUDY BY

ASN FUELS PRIVATE LIMITED
Bangalore

With

**ASN – LOOP REACTOR
FERMENTATION TECHNOLOGY**
For

**ETHANOL PRODUCTION FROM
MOLASSES/SUGAR SYRUP**

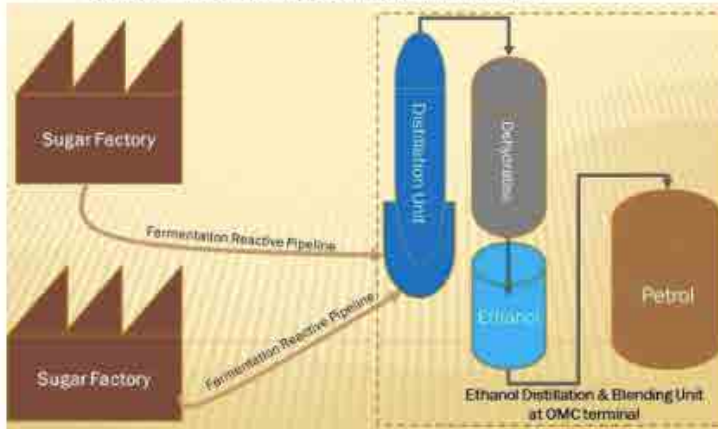
Case Study by ASN Fuels

Tirupati: New technology to end relentless search for ethanol



V Pradeep Kumar

Hans News Service | 16 Jun 2021 12:54 AM IST



HIGHLIGHTS

Indian start-up ASN Fuels Pvt Ltd and IIT Tirupati's joint research helps identify ways to bring down cost of production of ethanol

The conceptual picture of the 'Reactive Pipeline Technology' of ASN Fuels and IIT Tirupati

Tirupati: A Bengaluru-based start-up – ASN Fuels Pvt Ltd in collaboration with IIT-Tirupati has been working on trying new avenues to produce ethanol from agricultural waste called as lingo-cellulosic biomass.

It has been promoted by Hindustan Petroleum Corporation Limited (HPCL) towards fulfilling the mandate of the Government of India to all the oil manufacturing companies (OMCs) for 20 per cent ethanol blending in petrol by 2025.

MAKING INDIA FLEXI FUEL READY - ZOOMING PAST TO FUTURE

HPCL Funded Startup and IIT-T Jointly Invents an add-on "Tube Manifold Reactor" which can double India's Ethanol Production

Bagasse to Ethanol

Fast forward - This year Indian government advanced the mandate to all the Oil Manufacturing Companies (OMCs) for 20 % Ethanol blending in Petrol to 2025. This requires a whopping 6 Billion ltrs and more of ethanol which is almost double the 2020-21 ethanol production which is 3.08 Billion ltrs. More than 400 sugar factories across India crushed about 221 Billion MT of sugarcane to produce 2.55 Billion MT of sugar in 2020. After crushing sugarcane, 55.43 Billion MT of waste called "Bagasse" is left over. Presently, molasses which is a byproduct of sugar production process is the key source to manufacture Ethanol. Other Agricultural produce like broken grains, corn seeds etc are also raw material for 1st Gen Bioethanol. Now the pointer has moved to bagasse, corn cobs, rice husk which are Agri-Industry waste or technically

Hindustan Petroleum Corporation Limited, aiming to double our country's ethanol production, picked up this emerging startup R&D enterprise with equity investments to try new avenues to produce ethanol from Agri Industry waste. In the midst of pilot plant development at Tirupati, Scientists carried out in-depth research successfully producing ethanol from Bagasse which is a huge breakthrough for the ailing sugar factories.



Burning midnight oil – Researchers at ASN Innovation Center, Tirupati

Angel's workshop – Most of the sugar factories in India operate for 6-7 months in a year, since sugarcane is seasonal.



While the rest of the year the huge capital intensive ethanol manufacturing units lay idle. Mr. D M Giri, Chairman – ASN Fuels says "why not put these

"The agility of TMR Technology to fit in to these sugar factories enables them to deliver more than 6 billion ltrs of ethanol required for 20% ethanol blending targets well within 2025, no doubt..."

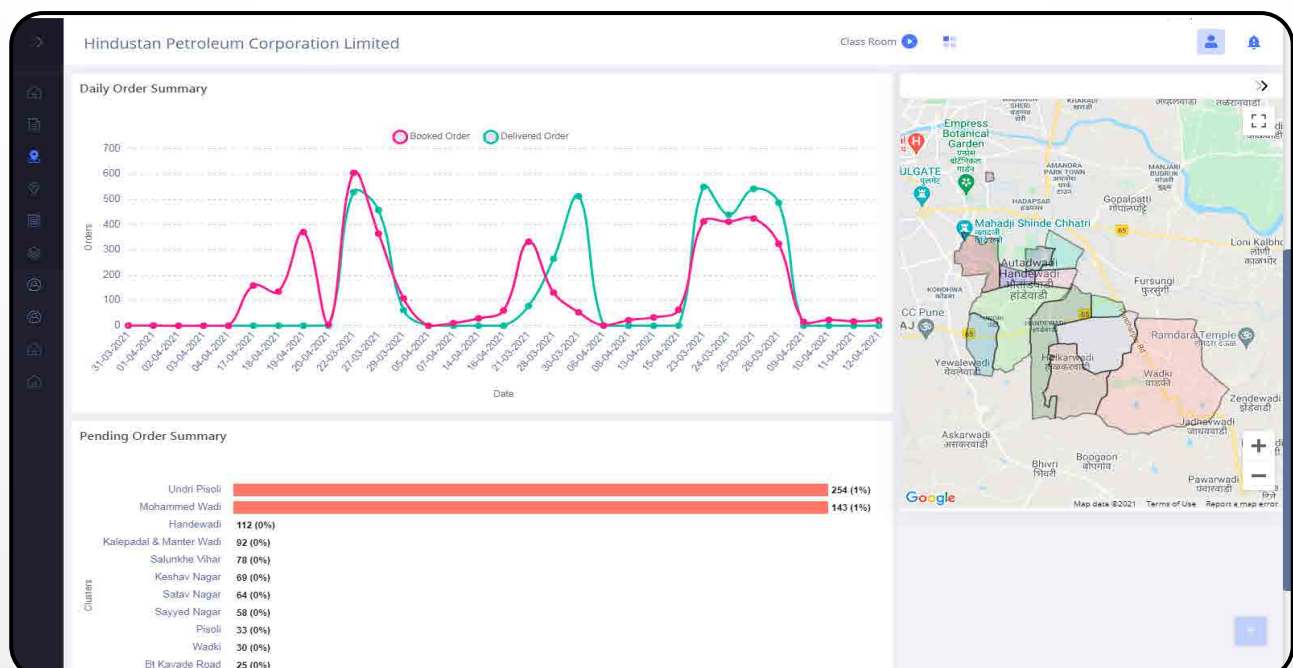
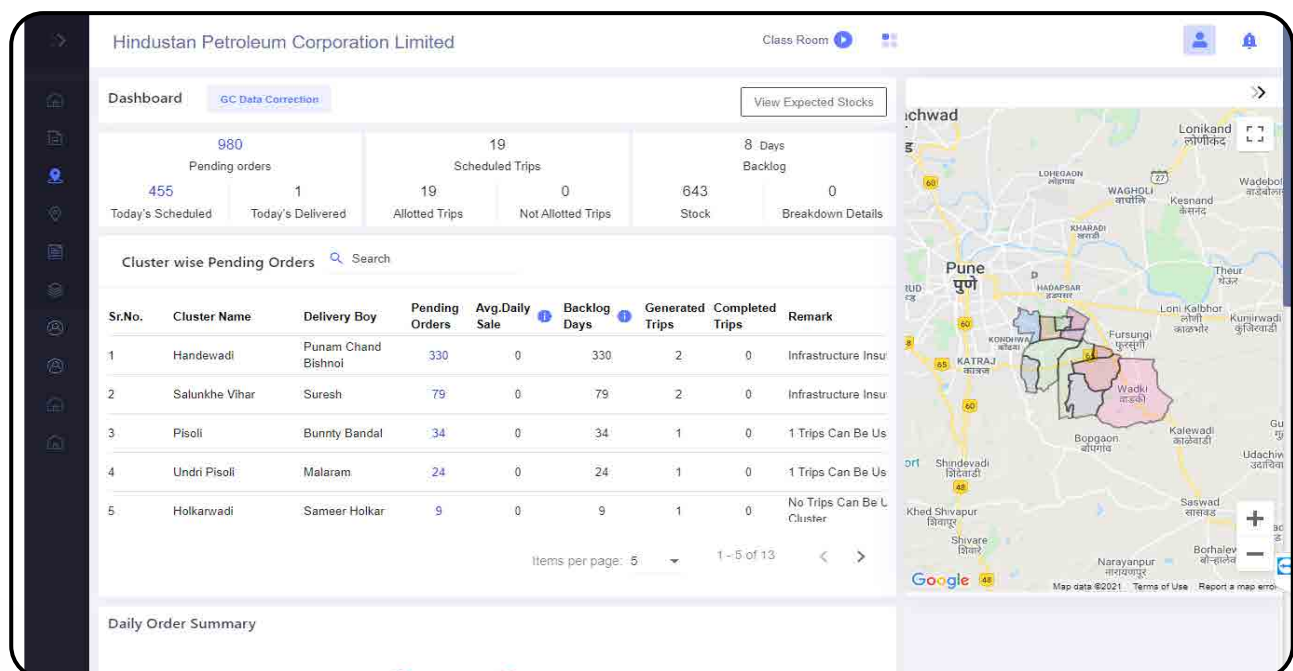
Smart engineering – Researchers have designed TMR technology to add-on to the sugar factory – ethanol manufacturing units easily and can be integrated within 7 - 8 months time. Setting up new ethanol units usually requires 1.5 - 2 years owing to environmental compliances and huge capital investments. Overall CAPEX on setting up an add-on TMR unit in the sugar factories is directly reduced by 40% as against setting up new ethanol units. CGM - Business Development at HPCL Mr. Kushal Banerjee says "there is an emerging market for ethanol blended petrol with the new compatible vehicles getting released shortly". Bagasse, a precious hydrocarbon source can be utilized to produce much needed

Aadyam Infotech Private Limited

Aadyam Infotech Pvt. Ltd. (AIPL) has developed a unique, first of its kind in industry, application called Smart Delivery System (SDS) for LPG distribution. The application was developed to improve the delivery performance of the HPCL LPG distributors and reduce the delivery backlogs.

The startup covered 26 distributors across India in the pilot phase.

Currently, the application is available on the production server of HPCL. After successful completion of pilot, HPCL team has engaged AIPL to conduct onboarding training program for more than 150 distributors identified by HPCL.



Innoctive Technologies – CargoFL

This startup is working in the area of providing a wide range of Logistics and Supply Chain related solutions to customers. The product suite includes logistics, HR, fuel management services and solutions etc.

CargoFL was part of Innovation Showcase by Agnii, a Govt of India initiative that promotes entrepreneurship and startups in India. Startup pitched to Meity (Ministry of Electronics & Telecommunications) startup hub as a supply chain technology helping streamline the oxygen real time demand and supply forecasting across multiple stakeholders.

CargoFL APEX app was recognized at a national level via the Agnii, Invest India program for its valuable contribution towards the Covid 19 technology solution.

HPCL and CargoFL are providing bouquet of Digital services as part of the comprehensive solution to the customers under its loyalty program.

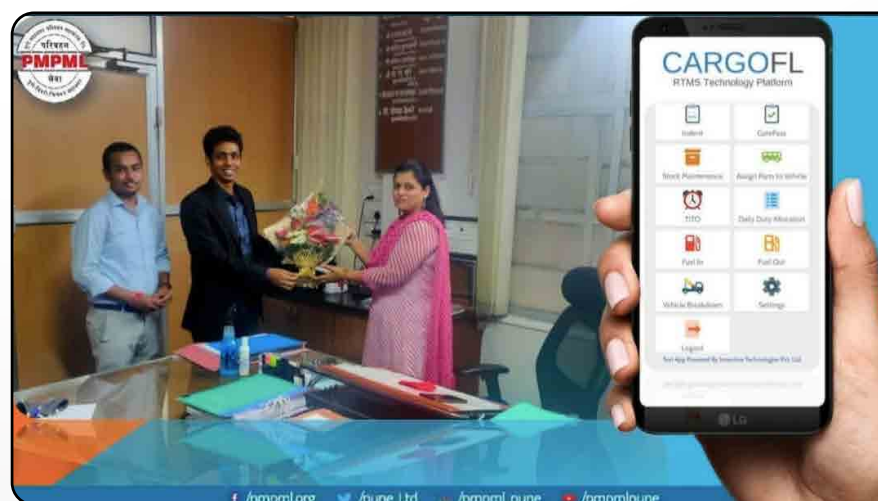
With HPCL RTMS (Road Transport Management System) project for PMPML, startup has launched the following new modules in March 2021:

- HRMS – Human Resource Management System
- Payroll – Payroll Management System
- Inventory Management System

On success of launch, startup was felicitated by PMPML management



CargoFL recognized by Agnii



Mr. Deepesh, founder of Innoctive (CargoFL) being felicitated by PMPML

Simulanis

Simulanis in collaboration with Directorate of Fire and Emergency Services (DFES), Goa launched two Mobile Simulation Applications viz. 'Disaster Management' and 'Fire Safety Simulator' to enhance the quality of training among citizens. This was launched on the occasion of DFES's 37th Annual Raising Day (Family Day) with immense media coverage.

The startup received wide coverage on their product "Fire Safety Simulator" in the Fire and Safety, February 2021 edition. It is one of the leading monthly magazines on Fire, safety and security and covers exclusive information on various fire, safety & security technologies.



Fire Safety Training in Virtual Reality: Cost-Effective, Eco-friendly and Immersive Learning Solution



Eco-friendly training technique Fire Safety VR Simulator conceptualised

Director of Fire and Emergency Services says initiative will enhance the quality of training among citizens

Team Herald

PANJIM: The Directorate of Fire and Emergency Services, in a fresh technological initiative, has conceptualised a Fire Safety Virtual Reality (VR) Simulator -- an environmental friendly technique for training.

Director Ashok Menon said the initiative will enhance the quality of training among various groups of citizens.

"The department has been very keen on utilising the technological advances in the field of Information Technology for optimising our services. As a part of it we have conceptualised a Fire Safety Virtual Reality Simulator as an environmental

friendly simulator for training. It will be used as a tool for bettering the quality of training. The VR will ensure interest, participation and engagement among students and citizens," Menon said during the Raising Day function held in the capital city, on Thursday.

The Directorate of Fire and Emergency Services also visualised another mobile simulation app covering disaster preparedness scenarios like flood and earthquake as well as impart general fire safety tips.

"The app will truly bring education to life in a fun, hands on and technologically advanced learning environment," the Director said.

The training modules consist of various virtual fire safety scenarios such as, safety while cooking, fire safety for children, evacuation – rules of conduct when you hear a fire alarm and how to operate different types of First Aid Portable Fire Extinguisher, etc.

The event, which had Speaker of Goa Legislative Assembly Rajesh Patnekar as its chief guest, is also celebrated as the Family Day.

To ensure interest, participation and engagement within students and the rural community, the Fire Safety VR Simula-

tor will be deployed with the training state-of-the-art fire and safety education van, which has been operating successfully across panchayats and residential areas to educate the public on disaster preparedness and basic fire safety.

The training modules consist of various virtual fire safety scenarios such as, safety while cooking, fire safety for children, evacuation – rules of conduct when you hear a fire alarm and how to operate different types of First Aid Portable Fire Extinguisher, etc.

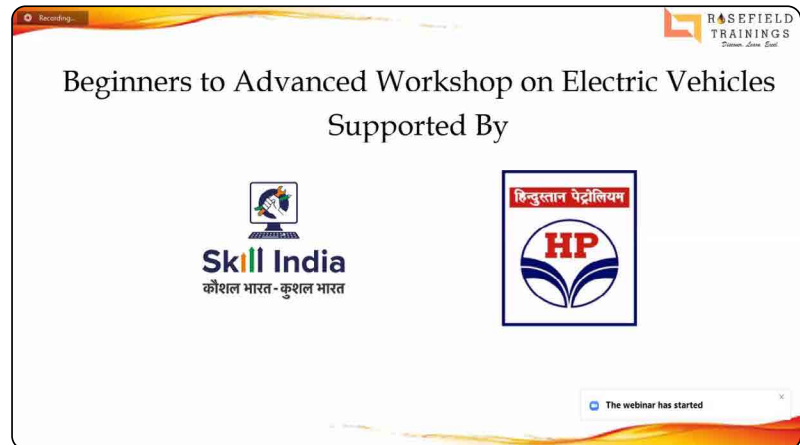
"Fire Extinguisher application along with HTC Vive's VR headset, allows trainees to grasp and learn how to use a fire extin-

guisher through the PASS techniques. With this method, trainees can get hands-on approach experience by being in a realistic fire like situation, and learn how to: pull the safety pin on the extinguisher, aiming the nozzle at the base, squeezing the lever slowly to release the extinguishing media and sweeping it on the base of the fire to extinguish it," information shared by the department states, adding, "Trainees are presented with real-world emergency situations. Interactive systems provide an immersive learning experience featuring opportunities for critical thinking, physical activity, hazard recognition and safe practice."

Rosefield Energy Tech Private Limited

The startup, working in the field of energy services and solutions, recognized a knowledge gap between what industry wants and what is available at present in the Energy sector. The gap is even wider when it comes to Electric Vehicles (EV), sub-sector of Energy. The startup is doing its part in bridging the knowledge gap in EV and Energy at large, by conducting knowledge events.

Rosefield Trainings had conducted two weeks training workshop on Electric Vehicles, from 29th June to 9th July 2021, which got tremendous response from both working professionals and students. The learning program covered all aspects of EV, right from EV Market, EV Hardware (driveline, battery, motors, controllers) and Software (Battery Management Systems), Chargers and even approval/certification process.



2 Week Agenda

01 Market of Electric Vehicles

- Opening and Start with the video for origin of EV
- Global Market – What is the market globally, who are the players? How the market is growing? Which are the key countries / brands, Global EV penetration rate
- Indian Market – What is the market in India? Key players in the market, How Market is growing, EV penetration rates, Market Size for India
- Why India wants EV? Pollution trends and issues, Spends on Crude imports
- Indian Government policy for motivating EV in India

02 Types of Electric Vehicles

- Pure Electric – Explanation and basics
- Hybrid vehicles – Explanation and Basics
- PHEV Vehicles – Explanation and Basics
- Multiple vehicles like Electric scooters / Buses / Trucks

03 Key components of Electric vehicles

- Motor – Function of Motor in EV, Types of motors, Usage of different motors in EV, Typical sizing criteria of motors, Motor selection criteria in different Electric vehicles, Typical torque speed characteristics, Motor Efficiency
- Motor Controller – Function of Motor controller, Role of motor controller in EV

04 Battery

- Types of batteries
- Different battery chemistries
- Battery selection criteria for each vehicle based on discharge requirements
- Different types of cells and cell construction
- Key components of Battery cells – Cathode, Anode, Separator, Electrolyte, past trends and future of anode and cathode materials
- Battery packs for Electric vehicles – Different components, Welding techniques, Welding material, Battery cooling system, different types of cooling methods, Battery enclosure material

Workshop on Electric Vehicles | Rosefield Energy Tech Pvt Ltd | www.rosefieldb2b.com

Rosefield's Training Workshop

Regards,

Rajnish Mehta

ED – Corporate Strategy & Planning and Business Development

#StartupCache



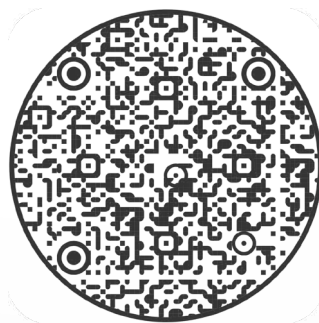
Valuation of a startup for early stage investment – 5 minutes read

<https://seedcamp.com/resources/how-does-an-early-stage-investor-value-a-startup/>



How venture capitalists make decisions – 10 minutes read

<https://hbr.org/2021/03/how-venture-capitalists-make-decisions>



Funding vulnerable innovations – Ted Ed video – 5 minutes

https://www.ted.com/talks/ted_ed_why_good_ideas_get_trapped_in_the_valley_of_death_and_how_to_rescue_them



Survival Tips for New Entrepreneurs – Ted Talk – 14 minutes

https://www.ted.com/talks/keshav_chintamani_survival_tips_for_new_startup_entrepreneurs