CILT NEWS

e-Newsletter

The Chartered Institute of Logistics and Transport-India

Intelligent IoT system for transmission and bottleneck control

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53	CJ Darcl Logistics Limited, Gurgaon
54	Procam Logistics Private Limited, New Delhi
55	Liladhar Pasoo Forwarders Private Limited, Mumbai
56	Kutch Railway Company Limited, New Delhi
57	GATX India Private Limited, Gurgaon
58	National Capital Region Transport Corporation, New Delhi

Activity *Jan - Feb 2023*

CILT India Professional Training On Terminal Management 2.0

The three months (weekly) online Professional Certificate Programme in Terminal Management 2.0 was Inaugurated by Shri Suresh Prabhu, Founding Chancellor of Rishihood University, Guest Professor-London School of Economics, Former Union Minister with 10 Portfolios, 6 Times Member of Parliament (4 times Lok Sabha and 2 Times Rajya Sabha) on 21st January 2023

The Inaugural session was attended by

- Shri Sandeep Mehta CMILT, President Adani Ports & Sez Ltd.
- Shri N. Sivasailam, IAS, (Rtd.), and National Chairman of CILT India
- Mr. Finbarr Cleary, International Vice President- International Business Forum (IBF)
- Ms. Reshma Yousuf CMILT, DGSA, CEO-CLLB, Malaysia
- Shri Sanjiv Garg, IRTS (Rtd.), and Secretary General of CILT India, and Managing Director, Pipavav Railway Corporation Limited, Former Additional Member, Railway Board
- Shri Vinod Athana IRTS (Rtd.) CMILT, Vice Chairman of CILT India, Former Managing Director, CRWC Ltd.
- Dr. Veni Mathur CMILT, Vice Chairperson, CILT India,

46 participants from well known organizations from India like

- Adani Logistics Ltd.
- Gateway Rail Freight Ltd.
- SAM surveyors and Adjusters
- PWC India
- MSMV Marketing
- School of Planning and Architecture
- Bennett University

CILT- India Signed an MOU with Seekify Technologies Private Limited (Seekho) on 25th January 2023.

Manager & Ms. Sakshi Soni- Partnership & Marketing lead

The MoU was signed by Mr Arihant Jain – Cofounder, of Seekho and Shri Sanjiv Garg IRTS CMILT, Secretary General of CILT-India & Dr. Veni Mathur Vice Chairperson CILT - India

In the presence of

Mr. Yashovardhan Bhagat-Head of Growth, Mr. Ajayendra Reddy- Head of Content, Mr. Sanish Mathews-Content

Road Show

27th February 2023

Drivers' Health and Safety Awareness Programme at CONCOR ICD Khodiyar A Collaborative efforts by CONCOR, TCI Express, ACBA and CILT-India, on 27 February 2023.

Road Show : **Drivers' Health** & **Safety Awareness Programme** at CONCOR ICD Khodiyar

A Collaborative efforts by CONCOR, TCI Express, ACBA and CILT-India.

With the collaborative efforts of Container Corporation of India Ltd (CONCOR), Transport Corporation of India (TCI), Ahmedabad Customs Brokers' Association (ACBA) and Chartered Institute of Logistics and Transport (CILT), an event on Road Safety, Drivers' Health, Road etiquettes, drivers' welfare, Swatch Bharat (Clean India) for the Drivers visiting CONCOR ICD Khodiyar was conducted on 27th February 2023.

This was an excellent eye-opening programme for the Truck, Trailer and other handling equipment Drivers by TCI Safe Safar. TCI, a logistics company aims through its 'TCI Safe Safar' programme, creating awareness about health & safety amongst millions. The Programme's main attraction was a specially fabricated eco-friendly truck to engage with its key audience i.e. the truck drivers and members of the transport community. The programme comprised of various skits "Nukkad Natak" about avoiding alcohol during driving, avoiding single use plastic, Avoiding Mobile phones during driving, Road safety, Road etiquette, etc. In addition, all present Drivers, workers and invitees from ACBA, TCI, CONCOR and CILT Members have taken pledge on Health & Safety while driving.

The event was graced by Mr. Minaz Nizami, Dy. Commissioner of Customs, Mrs. Vimal Shah Patel, Dy. Commissioner of Customs, Mr. Vishal Patil, Chief Manager, CONCOR ICD Khodiyar, Dr. Darshan Mashroo, Hon. Secretary, ACBA, CILT Members Vaibhav Shah, Rachna Gangawar, Chetan Malkan, Ajay Nair, Mr. Pradeep Sharma, Asst. Vice President, TCI, Mr. Anand Pandey, Terminal Manager, and Sunil Kumar, AM/C&O, ICD Khodiyar and senior trade members and press media.

About 1,55,000 lives are lost and 4,03,000 are injured on Indian roads in 2022, due to road accidents and numbers are almost similar every year. That's the price India pays every year.

Safety is the utmost priority of every organisation and such event will strengthen the safety mission across the country. The message through such awareness programme will leave deep impact on the driver fraternity and will definitely help them improve their driving etiquettes.

The programme aims to
- Encourage people to follow health & safety norms
- Create and enhance a safe working environment for everyone
- Make India's roads safer, every single kilometer at a time

The programme was concluded with distribution of Safety Jackets, Medical and Hygiene kits to the Truck and other handling equipment Drivers and light refreshment by ACBA.

The programme was enjoyed by the Drivers / workers present at the event and well praised by the Customs senior officers, CONCOR officers, Members from ACBA and CILT members who graced the event and encouraged the trucking community.

Meeting of **CILT International** *&* **CILT India**

Mark Armitage, Secretary General of CILT International, met the office bearers of CILT India in CILT headquarter office in Delhi. On 13 March, 2023

- Secretary CILT Int'l was apprised about the current status of CILT India even after the Territorial Status was "restored" nearly two years ago.
- A detailed presentation on our business plan and main activities was presented to the visiting Secretary General who was also provided with a copy of the PPT.

CILT-India organized a **Women's Day Celebration & Welcoming Mr. Mark Armitage,** Secretary General, CILT International in India At India International Centre Annexe, New Delhi on 13 March 2023

To promote the status of Women in Logistics, CILT-India & Wilat (Women in Logistics and Transport) Jointly "Celebrate the Women's Day" and welcome Mr. Mark Armitage, Secretary General of CILT International

Introduction & Presentation of CILT-India by Shri Sanjiv Garg, Secretary General CILT-India

Shri Sanjiv Garg, IRTS Rtd CMILT, Secretary General of CILT-India, welcome the participants and speakers. He detailed the activities, achievements and business plan of CILT-India though his presentation.

Presentation on 'Logistics Scenario in India'
by Shri Sachin Bhanushali, Former CEO of GRFL

Speech by Shri N.Sivasailam IAS Rtd, FCILT,
National Chairman of CILT-India

Felicitalion, Mr. Mark Armitage, on the Occasion
of his Visit to India

Felicitalion, Mr. Sachin Bhanushali, IRTS, CMILT
for his Contribution to Logistics

*Felicitation of some prominent **WILAT Members** for their outstanding **Achievements** in **Logistics***

Jaya Verma Sinha IRTS CMILT, for her Contribution to Logistics & Wilat

Monica Agnihotri, IRTS, CMILT, for her Contribution to Logistics & Wilat

Dr. Rachna Gangwar, CMILT, for her Contribution to Logistics

Ms. Anamika Sinha, CMILT, for her Contribution to Logistics

The program was attended by more than 55 participants

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ALSO A LICENSED CONTAINER TRAIN OPERATOR

Is hybrid work model here to stay

We would discuss about long term strategy of hybrid work model in the international logistics sector which will emphasize on the actual challenges of the trade and harp on the possible methods which can deal with such matters.

In the international logistics business, which is majorly routed by sea, the work model is people-centric where physical presence is a must to make things happen. We shall try to explain the process of how a container gets exported from India through the below points:

- Empty container is transported by trailer from the shipping lines' yard to the exporters' factory
- Once the container arrives at the factory/warehouse, cargo needs to be stuffed
- The stuffed container is hauled to the destined port
- Once the container reaches port, various other activities (statutory and terminal specific) are required to be complied with where physical presence of personnel for every assignment is mandatory to confirm smooth passage of the consignment and ensure no loss of duty to the Government exchequer
- The international transportation of consignments are effected through different type of vessels which can only function with the optimum crew as specified. Rationing of crew here is not permitted as per maritime laws

The activities are no different in case of import of consignment, where only the paperwork changes but the activities remain people oriented. Today with the advent of paper-less Customs procedures, the clearance of consignments from Customs can be completed on-line which is a welcome procedure for the trade at large. However, this business being categorized as an "Essential Service", the possibilities of continuance of hybrid work model may not suit the trade and organizations. The corporate departments which act as the engine room, like HRA, Customer Support, Finance, Procurement, etc. may however continue to opt for the hybrid model which will benefit the organizations financially by reducing the variable establishment costs.

To sum up, we need to categorize industries and keep the options open to align the hybrid work model as per suitability. We need to ascertain, if a business is identified by the Government as an "Essential Service", the essentiality of providing expected service can only be justified by physical presence and may not suit the online mode.

Design an Intelligent IoT system for terrain road haulages to optimize load with transmission and bottleneck control

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Abstract – **The movement of goods and services by road is the only mode of transport in high altitude terrain regions. Most of the large scale transportation is done by trucks and any kind of breakdown, accidents, over loading, reckless driving and not giving way for uphill vehicles results in traffic bottleneck and fatal aftermath. During monsoons the transportation is either halted or more challenging amidst rain, fog, landslides and deteriorated roads. The objective is to design an AI integrated IoT cloud mobile platform to ensure a safe and controlled driving environment.**

Keywords – **IoT - Internet of Things, AI – Artificial Intelligence, HGV - Heavy Goods Vehicle, GPS - Global Positioning System,**

INTRODUCTION

Road traffic accidents are responsible for 1.2 million deaths worldwide each year and will become the 3rd largest contributor to the global burden of diseases after ischemic heart diseases and depression. [1] Ghat roads are access routes into the mountains with number of hairpin bends, which is very risky as compare to normal routes. So chances of accidents in ghat section is more because of narrow road width, sharp bends, improper camber and valley side. While driving on roads at Ghats section many drivers faces accidents which result them into serious injuries or even death. The main reason behind this accidents is curves and bends of road while turning in Ghats. It becomes difficult to see vehicle coming from other lane at turning. If two vehicles comes face to face while turning it creates a chance of accidents and it becomes difficult to handle. [2] Road users see it as a major cause of concern as it affects their travel plans. However, time restriction on lorry movement failed to yield any results as overloaded vehicles continue to develop snag while negotiating the hair bends resulting in traffic congestion.

The issue could be solved only if restriction was imposed on height and weight for loaded lorries. [3] Recently, there have been a significant number of vehicles illegally overloaded and the damage vehicles cause on the road is in direct proportion to the axle weight by 4th power. The overloaded transportation would greatly increase the cost for the pavement maintenance and repair, shorten the service life of pavement, even affect the traffic safety and capability. So it is imperative to build a weigh station to solve these problems. Traditionally the weights of

vehicles were measured and collected by placing it on the scale while the vehicle is at rest.

Fig.1.1 Lorry breakdown at hairpin bend on Dhimbam Ghat

[4] Driver Alert System is basically designed to avoid road accidents in hilly areas by alerting the drivers of opposite ends against arrival of each other. After alert signal like light glows driver will slow down its speed thus avoiding quashing with each other. Programmable logic controllers are utilized and programmed to get the desired output via sensors. [5] The implementation of IoT is continuously increasing in the automotive sector. By 2023, automakers will sell more than $73 million connected vehicles across the global customer base. It is expected that by the end of 2025, all the newly manufactured cars will be connected with the IoT. The current state and future predictions about IoT in the automobile industry clearly show the adoption of IoT is rising rapidly in fact, it is increasing exponentially. IoT can facilitate secure and seamless communication between multiple vehicles by developing a common Vehicle to Vehicle network. This can especially be beneficial in the prevention of road accidents by allowing the vehicles to share their real-time data about speed, location, and route with other cars.

The sensors embedded in the vehicles can generate real-time alerts and send notifications to the driver or the manager of the vehicle in case of an emergency. These real-time alerts help them take timely actions to prevent any mishappening, thereby making real- time monitoring one of the most important features of automotive IoT. The trucks are now tooled up with smart

features like weight estimation, real-time position tracking, and many others. IoT is benefitting the fleet industry tremendously with capabilities like real-time location monitoring, route management, fuel & mileage monitoring, and condition monitoring. The sensors embedded in the fleet collect, analyze, and visualize data on the central dashboards from where the fleet operators can get real-time information for effective decision-making. [6] Road transport is one of the sectors where AI has most successfully been applied, opening up entirely new levels of cooperation between various road users. Worldwide, automotive manufacturers, technology firms and research groups are exploring AI technologies to develop automated vehicles for use in commercial as well as personal transportation. Such vehicles are based on a variety of sensors (such as GPS, cameras, radar), in combination with actuators (devices which transform an input signal into motion), control units and software. Some of these technologies only take over certain driving functions (like parking), others are intended to completely replace the human driver. AI technologies that take over certain driving functions are already widely available on the European Union market, while fully automated vehicles are being tested (including to deliver parcels) in a limited number of driving situations and areas.
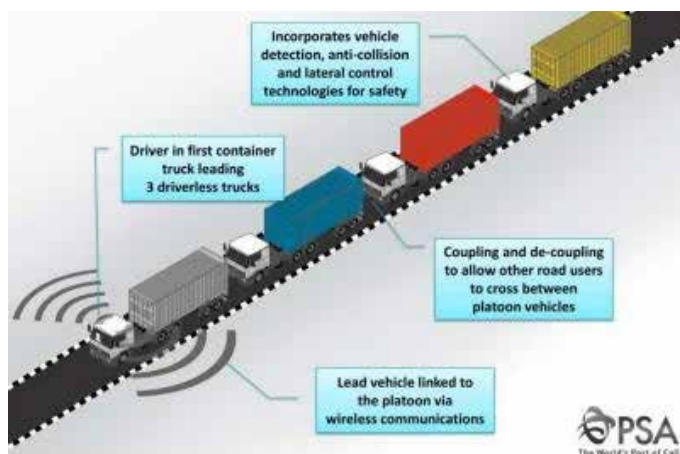

Fig.1.2 Illustration of truck platooning

AI also makes truck platooning possible – the coupling of several HGV within minimal distance of each other, allowing them to automatically and simultaneously accelerate or brake. While the lead HGV is driven by a human driver, drivers in those following may only be present in case complex traffic situations (such as roundabouts) or unexpected incidents arise, rather than actively driving. In the future, it is expected that the responsibilities of the drivers of following HGVs will reduce progressively, until ultimately they are no longer necessary. Although HGV manufacturers are already testing truck platooning in several European Union countries, further tests are still needed on multi-brand truck platooning in more complex traffic situations, to verify safety requirements are met. [7] Driver app companies, such as 99 and Samsara, have developed a facial recognition tool that has its purpose to increase even more the safety of the driving experience. The 99 system, developed by engineers and programmers in three

countries – Brazil, USA and China – automatically identifies the face of all drivers before they even connect to the app.

Furthermore, the technology will be applied periodically in every driver registered in the app, including those who already passed by an identity check. 99 performs the procedure through a partnership with the Department of Motor Vehicles of each region they are performing, where the collected image in the facial reader is automatically validated with the saved photo in the data bank. Many facial recognition programs also perform along with AI, and can identify the driver use patterns and request additional checking, if necessary. The company informs that random verifications will also be performed. Besides bringing more safety for not just the driver but also all other people on the road, applying one more confirmation step also has the goal to protect the driver's identity.

The safety of everyone on the road is the main priority. Facial recognition now joins to several tools of protection of the users, such as dash cameras and vehicle emergency buttons. Periodically, the app asks the drivers to do a facial recognition, anytime of the day. The drivers should put their faces in the circle and wait a few seconds while the verification is performed. In case it is approved, the driver can normally drive. If not, they will be able to request a review from the app. Inside the vehicle, with the aid of a camera and biometric sensors, artificial intelligence monitors the driver behavior and modify the configuration of the cabin, such as heat, light and media. AI recognition systems can go as far as detecting if the driver is bored and play their podcast or favorite song automatically.

And if the driver is starting to fall asleep while driving, AI will decrease the vehicle temperature to make sure someone is aware. So, with time, the technology will be able to learn personal preferences of the user and request personalized responses when necessary. It's a big leap in technology for the trucking industry, and one that must be fully studied and then slowly adopted so that all drivers have a full understanding of the impacts of AI. [8] IoT and fleet management systems company Samsara launched new artificial intelligence (AI) features for its cameras to help fleets monitor for distracted driving and tailgating. The features use video recognition tech to keep an eye on drivers and the road, automatically alerting the fleet manager if problems arise. Samsara's approach in this case uses a facial recognition system with a camera facing the driver. That can detect things like nodding off or looking down away from the road, perhaps at a smartphone.

Then fold in a forward-facing camera view as well that can recognize other vehicles, road signs and so on. [9] In its most basic form, facial recognition uses cameras to identify a person via their facial features, placement of the eyes, nose, mouth and possibly any other distinguishing features like the hairline. Camera systems that recognize specific objects were only found in manufacturing up until a few years ago, that was due to the fact they required so much power to feed the hungry processors that churned the data which figured out what each

picture was. With the advent of smaller, highly optimized computing chips, image and facial recognition can now be built into pretty much anything. There are numerous systems on the market, either using two dimensional or three dimensional camera setup. Most of the two dimensional units use two cameras mounted in the dash to give a stereoscopic view of the world in front of them.

Fig 1.3 Facial detection zones

The three dimensional systems can utilize a single camera. There are also newer, more modern systems that rely on infrared camera which can see better in low light and night scenarios. The cameras capture the scene in the form of images multiple times a second, these are fed to a microprocessor that makes sense of the image by picking apart various data points. If the drivers head has started to tilt, their eye line isn't straight ahead, maybe their blink rate has increased, or the redness in their eyes is becoming more intense. They can also track body and head position within the car and even how many occupants are in the vehicle. From here the system will decide if any intervention is needed, this could be in the form of an audible warning or a light, a vibration of the seat or steering wheel and possibly even a slight take-over of the vehicle controls – slowing the car down or moving lane to a lower speed. Looking after a fleet of drivers can be hard work, you need to know where your drivers are at all times, how long they've been driving and if they're safe out on the roads.

This is where facial recognition steps in, not only can you monitor where a driver is looking but you can also keep an eye on their emotions, from surprise, to fear and even anger. This can be used to determine how a particular driver is feeling, are they happy in their work, and are they comfortable. Maybe they're easily frustrated and need to calm down when out on the road, or are they spending too much time distracted making phone calls.

Deeply embedding what a facial recognition system sees with other vehicle safety systems could lead to even greater crash prevention measures. If you're eyes leave the straight ahead position for more than a few seconds the car could automatically start braking, priming the brake cylinder and tightening the seatbelts in case of an accident. If these systems become prominent, the guardian angel effect of having current systems like active city braking and pre-collision detection would increase exponentially. [10] Moqups makes it easy for remote teams to create quick wireframes and collaborate online in real time. With our easy-to-use wireframe tool, your team can design user interfaces for webpages and mobile apps. Simplify your design process and move seamlessly from low-fidelity to high-fidelity. Designers and non-designers alike can drag and drop pre-made UI elements for fast, convenient wire framing. Work out ideas, solve problems, and come to a quick consensus. Connect to Jira, Confluence, Slack, Trello, Dropbox and Google Drive to create a fully- integrated workflow. Your team can share, communicate, and coordinate – at every level – with our collaborative wire framing tool. [11]

Fig 1.4 Facial Recognition – signs of fatigue

PROBLEM DESCRIPTION

The passengers and vehicles travelling on Ghat section experience traffic bottleneck and life threatening accidents due to technical and mechanical snag developed by heavy goods vehicles. The evident cause to this snag is low vehicle maintenance, poor driving etiquettes, environmental factors, not adhering to traffic and motor vehicle rules. The existing system lacks an official cloud application integrated with live sensors for an automated approval process. Thus enabling only sturdy trucks with disciplined drivers to ply through the Ghat section.

PROPOSED ARCHITECTURE

Fig 3.1 Architectural Design

An attempt has been taken to propose a mobile application based registration, approval and monitoring system for heavy goods vehicles plying through the Ghat sections. The mobile application is connected through cloud with the live sensors installed in the truck. The mobile application features sensor calibration only for authorized personnel to maintain data accuracy. Approval decisions, alert and control mechanisms will be performed by AI. This application will guide and monitor the truck driver from registration, loading, trip start, unloading and trip end thereby avoiding traffic congestions and accident control.

Prerequisite for the proposed architecture:
• User has registered and active in the new mobile application
• Installation and functioning of sensors in trucks
• Live sensors connected to mobile application and cloud database
• Mobile front camera mounted on truck dashboard and facing the driver
• Mobile connected to the vehicle ignition and drive train system

Mobile Application onboarding flow:
The mobile application prototype and user navigations are represented as a mobile application wireframes in Fig 3.2.
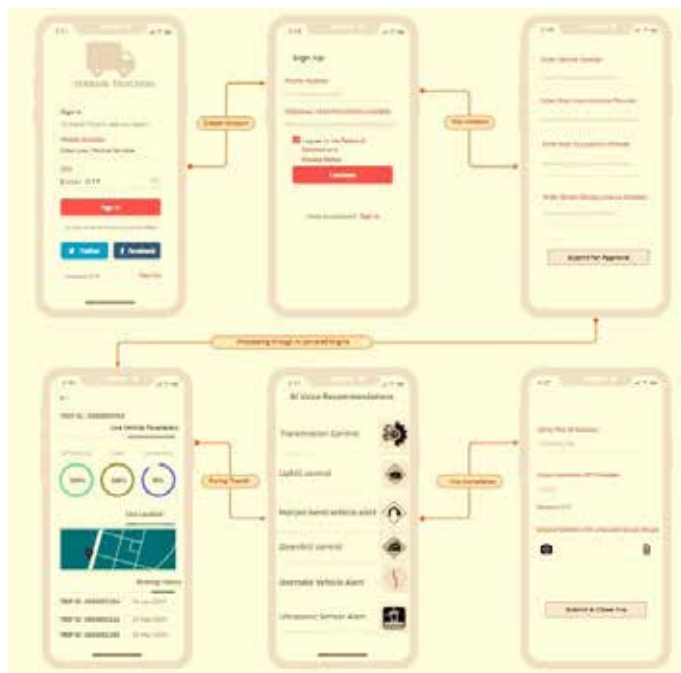

Fig 3.2 Mobile Application Wireframes

The proposed mobile application onboarding steps integrating sensors, cloud database and AI are presented below,

• **User Registration**

The driver / agent needs to register through the new mobile application with their mobile number and personal identification number.

• **Trip Registration**

The vehicle registration number, driver details, ship from, ship to location and driving licence number are keyed in for the trip registration.

• **Heavy Goods Vehicle Approval**

The vehicle history details like year of manufacture, fitness, insurance, permit, turning radius, driver experience and accident history will be fetched and compared with the itinerary details like bends, narrow bridges and sharp turns. The vehicle and driver details are verified and digitally approved with the government records to avoid vehicle audit in the check post and toll plazas.

• **Load Approval**

The load approval will be provided only for a certain tonnage considering the maximum threshold limit of the vehicle and the terrain government norms. The load sensors provide a live update from the time of loading the vehicle, thus reducing the travel time to weigh bridges and reducing illegal loading of goods beyond the threshold limit.

• **Database Update**

The vehicle and load details will be validated and verified using the AI powered cloud platform. On successful verification, the vehicle details will be captured in cloud database. Variations of any kind can be live tracked by the customer, government officials and truck owners.

• **Acoustic Alert system**

The trucks enabled with acoustic sensors send a specific frequency that differs during uphill and downhill which can be received by other vehicles. This signal triggers an alert to other vehicles internally via sound alert tone to stop during hairpin bends and pass.

• Drive Train Control system

The drive train control sensor automatically locks the higher gear in trucks when travelling downhill and releases when the trucks reaches the linear surface and also based on GPS location.

• **Face Detection system**

To curb others from driving the truck, the image of the driver captured in cloud, will be monitored through the face detection software randomly during the trip and any variations, fatigue, undesirable emotions will bring the vehicle to a halt position and trigger an alert to the truck owner.
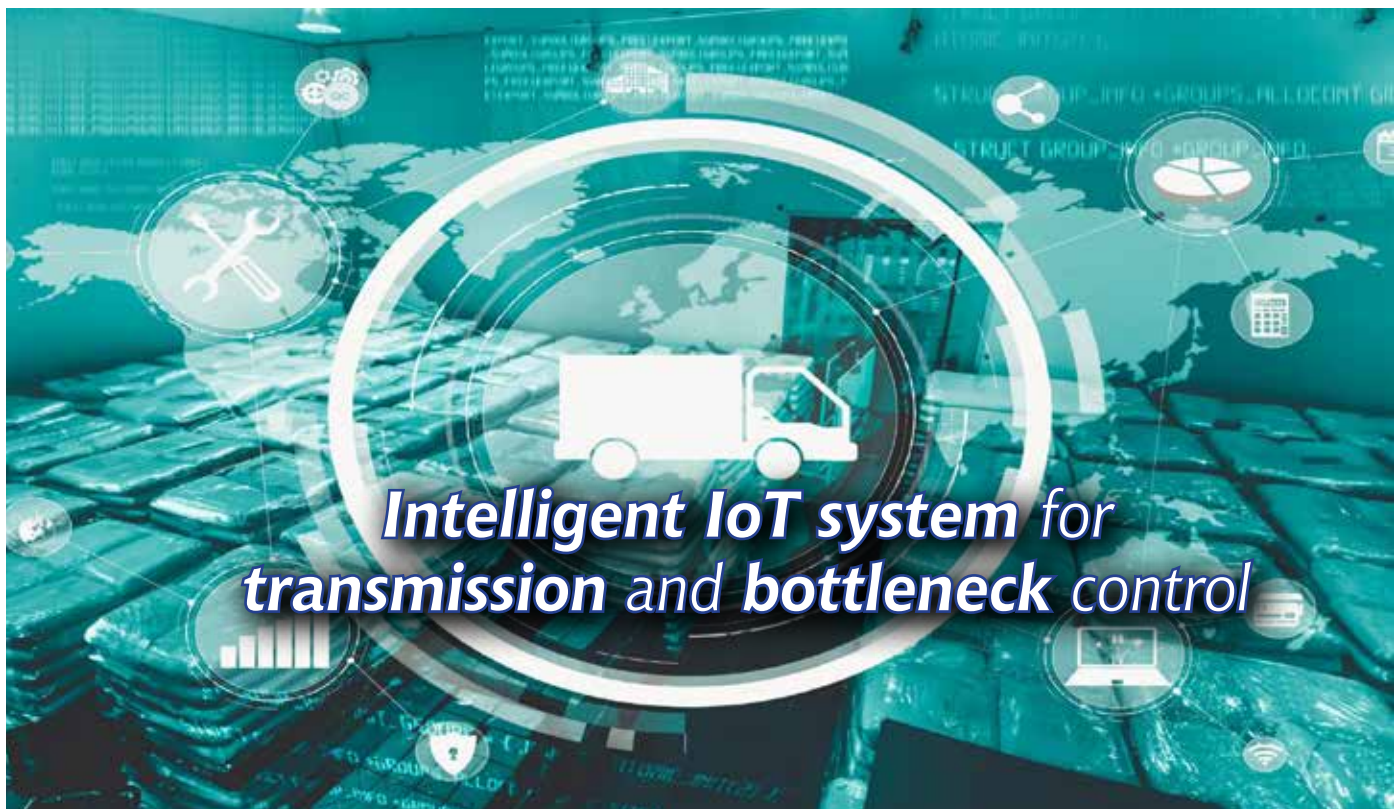
• **Unload Approval**

The goods post reaching the customer premises is unloaded. One time password will be triggered to the customer and the same needs to be entered in the proposed driver's mobile application followed by uploading of a combined picture of unloaded goods, truck and the driver from the customer location. This improves the customer satisfaction and driver reliability. The trip will be updated as complete in the database, post unload approval.

CONCLUSION

This paper proposes an architecture design to build an AI and IoT integrated mobile application enabling a better user experience platform for the transportation line of business. Proposed solution will address the pitfall in the existing process like starting a trip without prior approval and vehicle fitness, restrict helpers and cleaners drive the truck leading to accidents and traffic bottlenecks. The truck and driver history is stored in a centralized cloud database making it easy during inter and intra state vehicle transport audits. This system also provides vehicle based ultrasonic automated alert technique and virtual monitoring that will serve as a guardian angel to save millions by ensuring a safe, controlled and disciplined driving.

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Intelligent IoT system for **transmission** and **bottleneck** control

Govt aims *to bring down* logistics cost *to* **9%** *by* **2024**

The country's logistics costs, which at present is 16% of India's GDP, will reduce to 9% by the end of 2024 aided by India's growing infrastructure, Road Transport and Highways Minister Nitin Gadkari said.

Addressing, Assocham's annual general meeting, 2023, Gadkari assured that country's high logistics cost will be brought down to 9% by 2024 end bringing it at par or better than the developed economies of the world. "We are working keeping this target in mind," the minister said.

Logistics cost is around 12% in major European countries and the United States while it is around 8% in China. Lower logistics cost helps optimise cost across the supply chain and makes Indian products competitive in global markets.

Gadkari said that if the logistics cost were to reduce by 7% from 16% to 9%, the country's will rise by one and a half time. "To save money is to earn money," the minister told industry participants at the event.

"To accomplish this (reduction in logistics cost), the government is focusing on improving both roadways and railways. We are building green highways and industrial corridor with focus on reducing the distance between major cities and hubs," he further added.

Talking about some of the key national highway projects Gadkari said, "After completion of the Delhi-Mumbai expressway, people can travel between Delhi and Mumbai in just 12 hours; Nagpur Mumbai in 5 hours and Nagpur Pune in 6 hours. This will help reduce the logistics cost. We are building tunnels in Jammu and Kashmir and Ladakh and these are going to reduce the distance drastically. For example from Manali to Rohtang pass it us to take a travel time of 3 ½ hours and now with Atal Tunnel, one can cross the tunnel in just 45 minutes and reach in 8 minutes after coming out of the tunnel."

Discussing about saving fuel cost by focusing on alternative fuel Gadkari said, "Our focus should be on converting waste to wealth. For example, Delhi has three mountains of solid waste. Within next two years this waste will be used in road construction, flattening the waste fields. Delhi NCR also suffers from the problem of rice straw (parli) burning causing high level of pollution. We are focussing on developing outer-outer ring road which passes over 13 railways lines. Roadmap has been prepared to shift wholesale markets and warehouses to designated zones around this zone. This will decongest Delhi-commercial vehicles will bypass entry into Delhi, reducing pollution problem."

Giving more insights, he said, "Central Road Research Institute in collaboration with Central Road Research Institute has

developed technology to convert rice straw (parli) into bitumen which will be used for road projects. This will not only help in reducing pollution but also save on the import cost of bitumen. With the help of technology rice straw (parli) is also being converted in bio ethanol and considered as alternative fuel. Our focus has also shifted towards hydrogen as alternative fuel. There are three types of hydrogen namely brown hydrogen from petroleum, black hydrogen from coal and green hydrogen from water. Indian Chemical Research Institute is already engaged in developing technology to build up biomass, which biotechnologically will yield methane and consequent green hydrogen without using power for electrolyzing water."

"The aim is to reduce the cost of hydrogen as fuel to $1 which in turn will run a vehicle up 450 Kilometres. Green hydrogen is a futuristic fuel and help run transportation and various other industries without power. It can be used in aviation and railways. The problem of power plants producing fly ash solved. Fly ash now being utilized in road construction as mix

with bitumen and cement. I personally feel that our priority should be ethics, economy, ecology and environment. So, our focus should be from waste to wealth," he said.

Acknowledging ASSOCHAM's contribution to nation's growth, the minister said "I would like to thank ASSOCHAM for helping us save 5 thousand crores in the Zoji-La Tunnel project, the project cost of which was estimated at 12 thousand crores. This has been made possible with the contribution ASSOCHAM in a very conducive environment and is a saving for the nation."

Earlier, Sumant Sinha President ASSOCHAM, while delivering the welcome address said, "Policy interventions on green hydrogen can catapult India into a major green economy. It can create value changes that can help us leapfrog to a clean-energy future. "Empowering India's youth in Amrit Kaal will take us on the way to becoming a developed nation in the next 25 years and ASSOCHAM's vision of Bharat@100 will play an important role, he said.

The Chartered Institute of Logistics and Transport

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The Chartered Institute of Logistics and Transport India is part of the leading, global professional body for those engaged in supply chain, logistics and transport – covering all sectors of the industry, namely air, land and sea, for both passenger and freight transportation.

Our primary objectives are to support our members in continuous professional development to future-proof their careers, as well as to work in close collaboration with the public and private sectors, Government agencies and the academia to develop opportunities and synergy for industry transformation and growth, underpinned by strategic thrusts in digitalisation and sustainability.

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